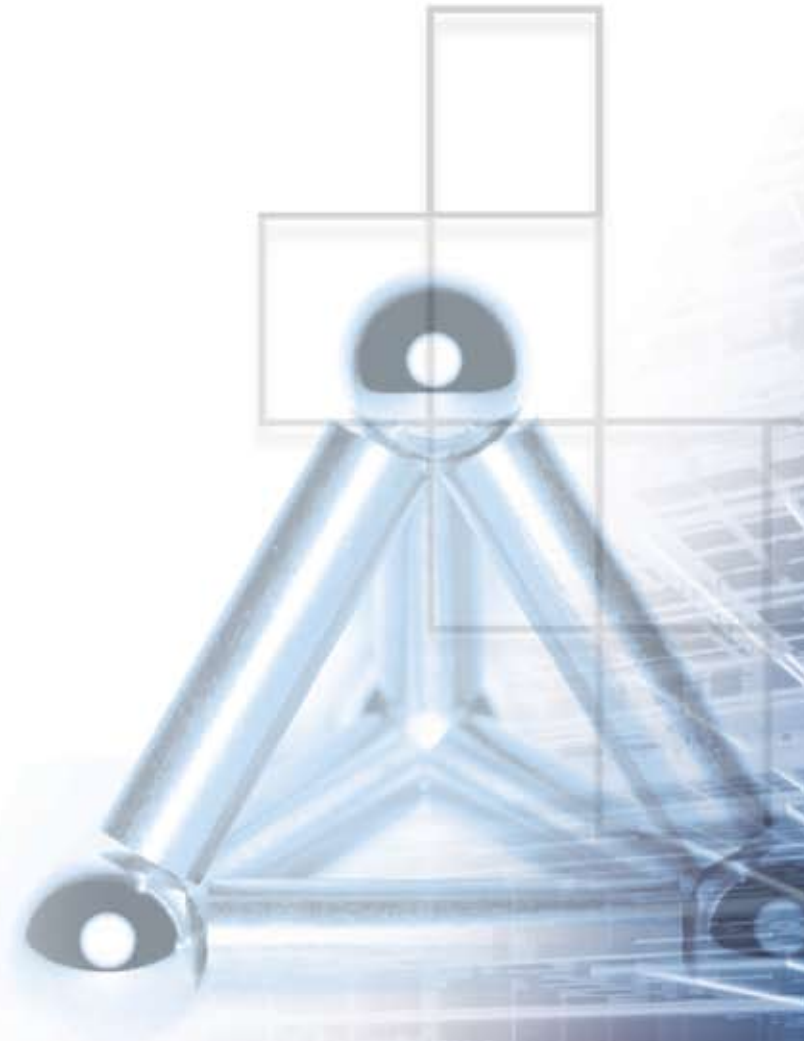


**Materials Science
& Technology
2008 Conference
& Exhibition**

MS&T'08[®]

October 5-9, 2008

David L. Lawrence Convention Center
Pittsburgh, Pennsylvania



*The leading forum addressing structure,
properties, processing and performance
across the materials community*

08
ACerS
The American
Ceramic Society

08
AIST
Association
for Iron & Steel
Technology

08
ASM
ASM
International

08
TMS
The Minerals,
Metals & Materials
Society

Featuring:

ACerS 110th Annual Meeting

AIST Steel Properties & Applications Conference

ASM 95th Annual Meeting

TMS Fall Meeting



**High Performance
Mission Critical**

Titanium

ATI Aerospace offers a wide variety of mission critical metals to the world's aerostructure and jet engine producers:

Titanium-Base Alloys	Exotic Alloys
Specialty Steels	Superalloys
Nickel-Base Alloys	Tungsten Alloys

A leading global supplier to the aerospace industry for the past 50 years, ATI Aerospace offers customers more alloys, a broader range of products, extraordinary technical support, and manufacturing capabilities unsurpassed by any other mill products supplier in the world. For the next 50 years, ATI is investing more capital in strategically located facilities to extend leadership in the manufacture of technically demanding products for the aerospace industry.



 **ATI Aerospace**
www.AlleghenyTechnologies.com

**ATI Allegheny Ludlum • ATI Allvac
ATI Engineered Products
ATI Rome Metals • ATI Wah Chang**



Dear Friends:

Welcome to the Materials Science & Technology 2008 Conference and Exhibition, this fall's premier event for the materials community. Building on our past success, the four organizing societies have provided MS&T'08 with 60 symposia organized into the following eight themes:

- Electronic and Magnetic Materials
- Environmental and Energy Issues
- Fundamentals and Characterization
- Iron and Steel
- Materials and Systems
- Nanotechnology
- Processing and Product Manufacturing
- Special Topics

These symposia will provide stimulating programming for materials professionals of all disciplines. Attendees can choose their own conference, be it concentrated in a specific subject of particular interest or diversified for a broader view of activities in many fields. Only at MS&T are such experiences available in a single event. Please take advantage of these opportunities as they best suit your needs.

MS&T'08 represents an outstanding opportunity for materials science and engineering students. The very active Material Advantage student program hosts many student sessions and activities at MS&T. Students can participate in various contests to demonstrate their capabilities, attend technical sessions to learn more about the diverse materials specialties, and network with professionals and other students from around the world.

MS&T'08 also includes a comprehensive exhibition. More than 130 companies are present, marketing products and services of interest to attendees. I encourage you to visit the exhibit hall to learn what is new with the various analytical equipment suppliers, technical service providers, publishers, and sponsor companies.

On behalf of the sponsor societies, I offer our thanks for your participation at MS&T'08. The organizers, contributing authors, exhibitors, and conference attendees have come together to surely make this vibrant event a rewarding experience for all.

Sincerely,

Matthew J. Merwin
Chair, MS&T'08 Program Coordinating Committee

Committee Members:
Thomas Lienert, Los Alamos National Laboratory
Brian Nelson, Dofasco Inc.
Dwight Viehland, Virginia Tech University
Richard Wright, Idaho National Laboratory

Table of Contents	Opening Features.....	4	Special Events.....	16
	City Map/Shuttle.....	5	Student Activities.....	17
	Convention Center Floor Plans.....	6	Upcoming Conferences.....	19
	Conference Perks/Policies.....	8	About the Organizers.....	20
	Calendar of Events.....	10	Technical Program.....	21
	Lectures.....	15	Exhibition.....	Turn over this program



Keynote Address

Monday, 8:30 to 9:30 a.m., David L. Lawrence Convention Center, Spirit of Pittsburgh Ballrooms B & C

“The Role of Science and Engineering in U.S. Competitiveness”

Cherry A. Murray, Ph.D.

Principal Associate Director for Science and Technology



Lawrence Livermore National Laboratory and Team Member of the National Academies
“Rising Above the Gathering Storm” panel

About the Address

Against a background of increasing globalization, a blue ribbon panel was charged with recommending actions policy makers should take to enhance the science and technology enterprise so the United States could compete, prosper and be secure in the global community of the 21st century. The result of that work is the highly acclaimed report “Rising Above the Gathering Storm.” In this keynote address, Dr. Murray, a member of the panel, will discuss the significant findings as well as the response to them that is shaping tomorrow’s science, engineering and technology policy.

Poster Session and Welcome Reception

Sunday, 6 to 8 p.m., David L. Lawrence Convention Center, Spirit of Pittsburgh Ballroom Foyer

Don’t miss this all-conference poster session and welcome reception. View the technical posters, meet the authors and discuss their research!

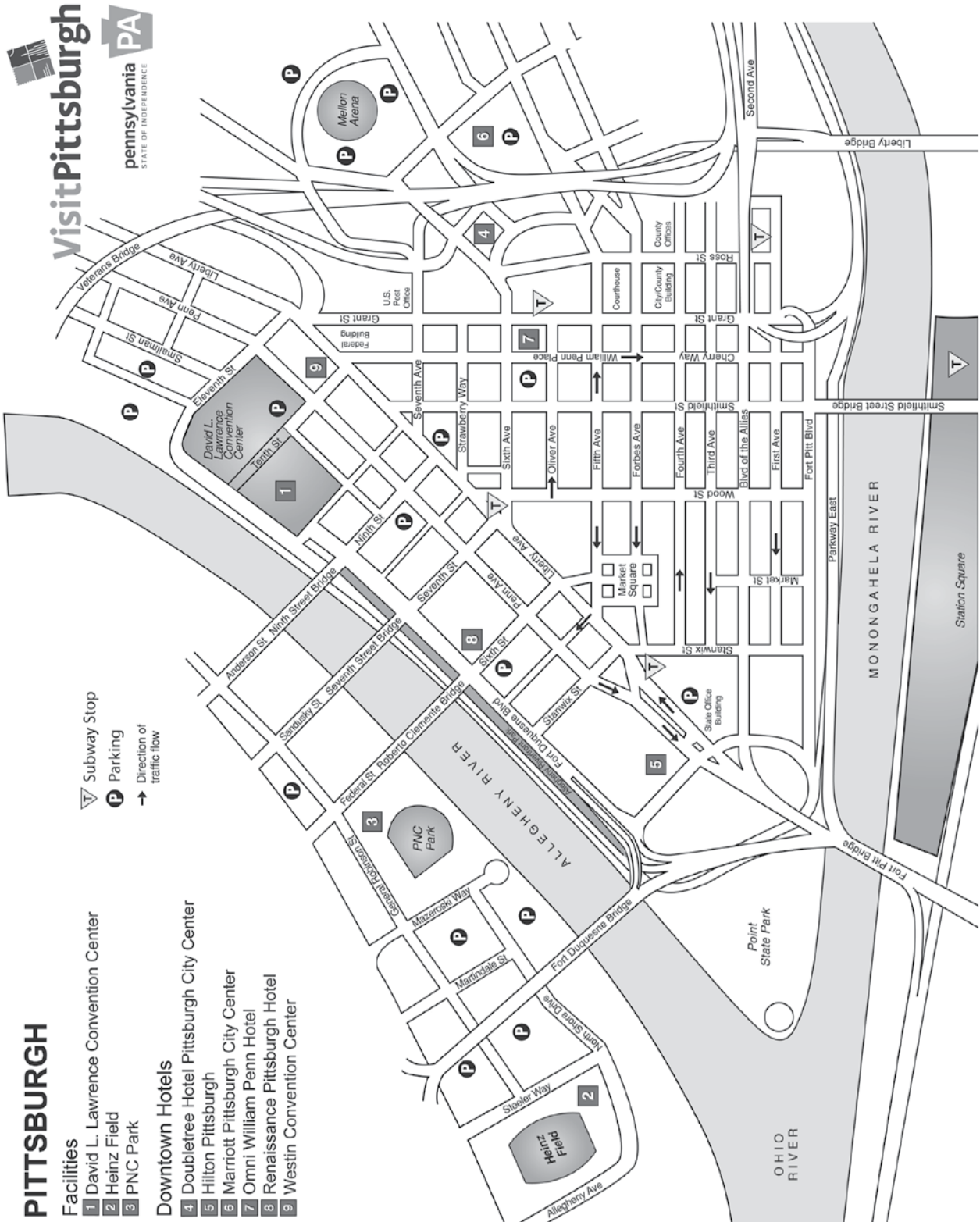




Shuttle Service (from convention center to hotels)

MS&T will provide complimentary shuttle service through Lenzner Coach Lines between the David L. Lawrence Convention Center and the Hilton Pittsburgh, Marriott Pittsburgh City Center, Renaissance Pittsburgh Hotel and the Doubletree Hotel Pittsburgh City Center. The Westin Convention Center and the Omni William Penn hotels are within a short walking distance from the convention center.

Hours: Sunday, 2 to 8:30 p.m. Tuesday, 7 a.m. to 7 p.m. Thursday, 7 a.m. to 5:30 p.m.
 Monday, 7 a.m. to 6:30 p.m. Wednesday, 7 a.m. to 6:30 p.m.



PITTSBURGH

Facilities

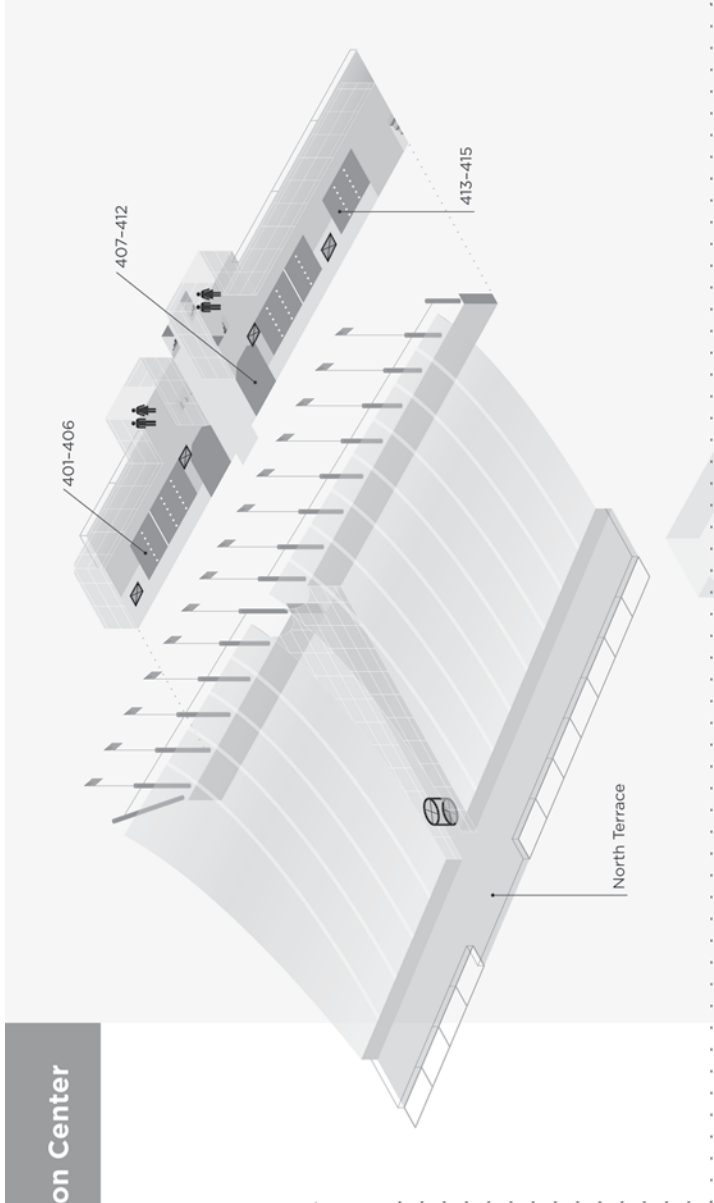
- 1 David L. Lawrence Convention Center
- 2 Heinz Field
- 3 PNC Park

Downtown Hotels

- 4 Doubletree Hotel Pittsburgh City Center
- 5 Hilton Pittsburgh
- 6 Marriott Pittsburgh City Center
- 7 Omni William Penn Hotel
- 8 Renaissance Pittsburgh Hotel
- 9 Westin Convention Center

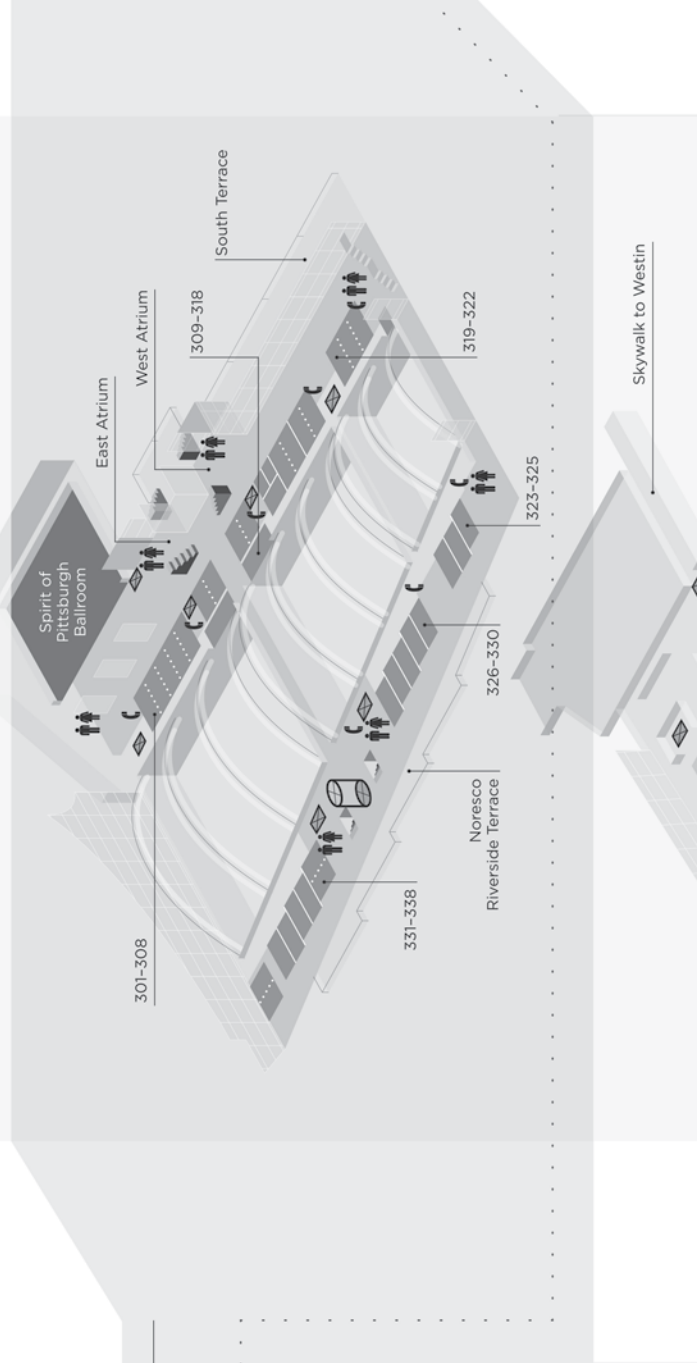


David L. Lawrence Convention Center



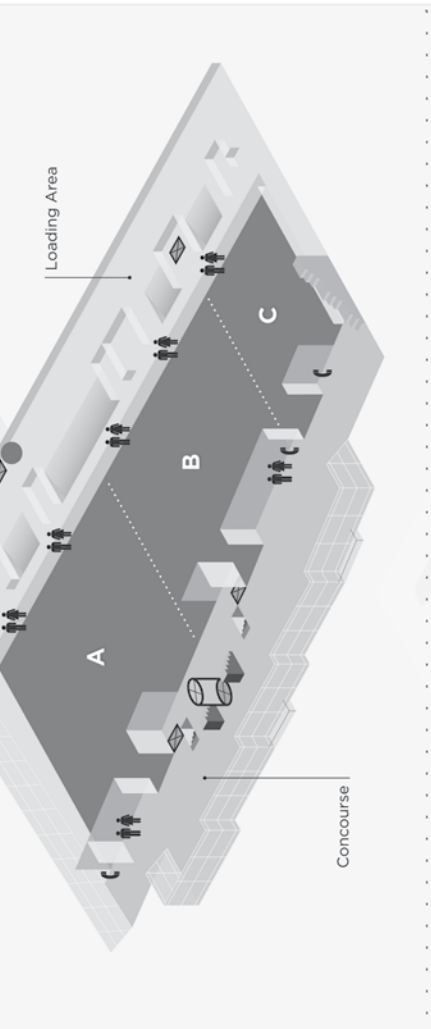
Floor 4

Meeting Rooms
401-415
North Terrace



Floor 3

Meeting Rooms
301-338
Spirit of Pittsburgh
Ballroom presented
by Dollar Bank
South Terrace and
Noresco Riverside
Terrace
East and West Atriums

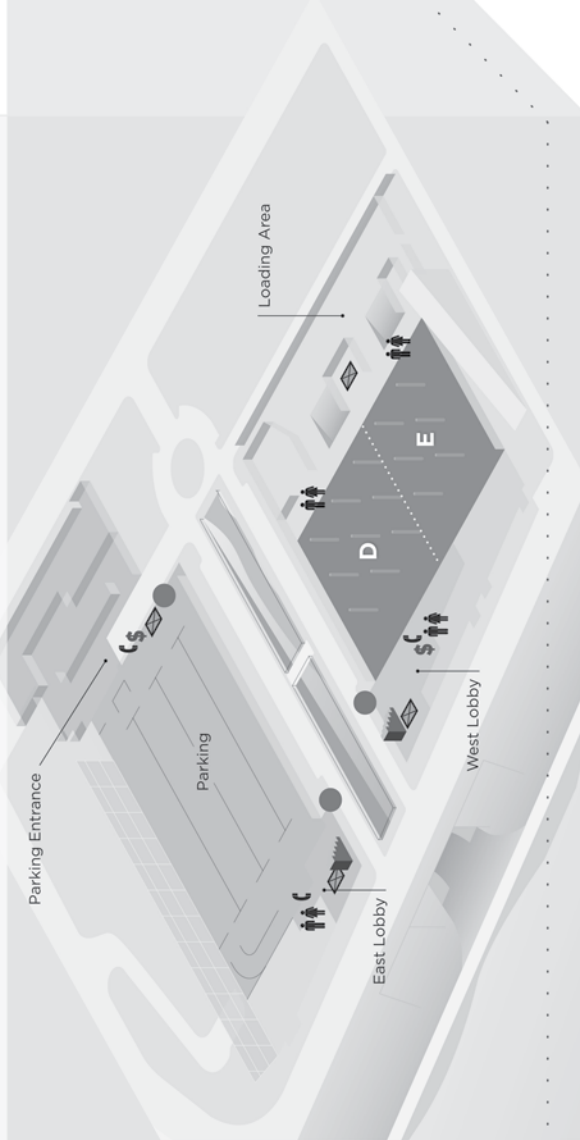


Floor 2

Halls A, B, C

Concourse

Loading Area



Floor 1

Halls D, E

East and West Lobbies

Parking Garage

Loading Area

- Entrances
- Escalator
- ◇ Elevator
- Restroom
- Telephone
- ATM



Take advantage of everything your MS&T registration includes:

- Poster Session and Welcome Reception (Sunday)
- MS&T Technical Sessions (Monday-Thursday)
- MS&T Proceedings CD-ROM
- MS&T Exhibition (Tuesday-Wednesday)
- Industry Track 2008 (in exhibit hall)
- Happy Hour Reception (Tuesday, in exhibit hall)
- Exhibition Contests and Activities
- Complimentary Memberships in ACerS, AIST, ASM, TMS (for nonmembers only)

Refreshment Breaks

Refreshments are available on the third floor of the David L. Lawrence Convention Center during the morning and afternoon technical session breaks throughout the week.

On Wednesday afternoon, a special break is planned from 3 to 3:40 p.m. in the exhibit hall!

Proceedings – free CD-ROM for conference registrants

A CD-ROM containing papers presented at MS&T'08 is provided to attendees who pay the full conference or participant registration rate. It contains the full text, in PDF format, of all papers from the conference submitted for publication. The CD-ROM is searchable and can also be browsed by symposium. Students who present papers also receive the complimentary CD-ROM. The CD-ROM may also be purchased at the MS&T registration desk for \$195 for attendees and \$75 for students.

Employment Center – where employers and job seekers network!

Employers: Post job openings, collect resumes, schedule and conduct on-site interviews.

Job Seekers: Drop off your resume, review job postings and have the chance for on-site interviews.

Location: David L. Lawrence Convention Center, Room 320

Hours: Sunday, 3 to 5 p.m. (job description and resume drop-off only)
Monday, 10 a.m. to 5 p.m.
Tuesday, 2 to 5 p.m.
Wednesday, 10 a.m. to 5 p.m.

Society Member Lounges – not just for members!

Visit ACerS, AIST, ASM, and TMS member lounges in the David L. Lawrence Convention Center, Hall A Concourse, to:

- Meet members and society staff
- Learn about complimentary membership available to you as an MS&T attendee
- Find books and other technical resources
- Access free wireless!

Message Board

For your convenience, a message board is located near the registration area in the David L. Lawrence Convention Center, Hall A Concourse, to post messages for participants and attendees.



Policies

Badges

Badges must be worn to gain entry into all MS&T technical programming and events. There is a \$5 processing fee for reprinting a badge.

Americans With Disabilities

In accordance with the Americans with Disabilities Act (ADA) of 1990, ACerS, AIST, ASM, TMS, the David L. Lawrence Convention Center, and conference hotels are striving to accommodate all guests with special needs. If you require access to modified housing, transportation or other assistance, please inform someone at the hotel desk and/or the conference registration desk.

Audio and Video Recording of Technical Paper Presentations/Sessions

ACerS, AIST, ASM, and TMS reserve the right to any audio and video reproduction of presentations at every technical session. Recording of sessions (audio, video, still photography, etc.) intended for personal use, distribution, publication or copyright without the express written consent of ACerS, AIST, ASM, TMS and the individual authors is strictly prohibited.

Cellular Phone Usage

In consideration of attendees and presenters, MS&T management kindly requests your cooperation in minimizing disturbances which may occur during technical sessions due to cell phone use. Please place cellular phones or other electronic devices in "silent mode" while you are in meeting rooms.

Please note:

Alumni Receptions

The following universities are holding alumni receptions at MS&T:

- Alfred University
- Colorado School of Mines
- Michigan Tech University
- Penn State
- Purdue University
- University of Illinois
- University of Missouri-Rolla

For times and locations, see the calendar of events on the following pages.

Authors' Coffee for Speakers, Session Chairs and Organizers

Authors' Coffee is held at 7 a.m. in the David L. Lawrence Convention Center, Spirit of Pittsburgh Ballrooms B and C, Monday through Thursday. These briefings allow speakers, session chairs and organizers the opportunity to meet, review and finalize conference details. Attendance at Authors' Coffee on the day of your session is extremely important to ensure the smooth operation of the presentations.

Coat and Luggage Check

A coat and luggage check service is available on Wednesday and Thursday in the David L. Lawrence Convention Center, Level 2 Foyer. The cost of the service is \$2 per item.



(subject to change; accurate as of 9/8)

Legend: CC = David L Lawrence Convention Center / HP = Hilton Pittsburgh / MC = Marriott City Center / WC = Westin Convention Center

SUNDAY

Conference Activities

	Time	Location
MS&T Press Office	8 a.m. to 5 p.m.	CC-Room 332
Registration	2 to 6 p.m.	CC-Hall A Concourse
Society Member Lounges	2 to 6 p.m.	CC-Hall A Concourse
ACerS Ceramographic Display	6 to 8 p.m.	CC-Level 3, Between Rooms 307 & 310
Welcome Reception and Poster Session	6 to 8 p.m.	CC-Spirit of Pittsburgh Ballroom Foyer

Lectures/Workshop

TMS-ACerS Materials for Nuclear Power Workshop	12:30 to 4:30 p.m.	CC-Room 321
ACerS Frontiers of Science & Society—Rustum Roy Lecture	5 to 6 p.m.	CC-Rooms 304 & 305

Material Advantage Student Functions

Student Orientation	noon to 12:15 p.m.	WC-Allegheny Ballroom III
Graduate School Information	12:15 to 1:15 p.m.	WC-Allegheny Ballroom III
Faculty Advisor Workshop	1 to 3 p.m.	WC-Fayette
Speaking Contest: Semi-Final Round	1 to 3 p.m.	WC-Cambria East/West & Somerset East/West
The Art of Networking	1:15 to 2 p.m.	WC-Allegheny Ballroom III
Resume Building and Career Tips Session	2 to 3 p.m.	WC-Allegheny Ballroom III
Career Forum	3 to 4 p.m.	WC-Allegheny Ballroom III
Speaking Contest: Final Round	4 to 5 p.m.	WC-Cambria East/West
Mock Interviews	5 to 7 p.m.	WC-Butler East/West, Westmoreland East/Central & Fayette
Undergraduate Student Poster Contest	6 to 8 p.m.	CC-Level 3, Riverside Foyer
Student Networking Mixer	8 to 10:30 p.m.	WC-Allegheny Ballrooms I & II

Social Functions

ASM Board of Trustees Lunch	noon to 1 p.m.	HP-Sterling I
ACerS Section Q Pub	8 to 10 p.m.	WC-Washington Room

Committee Meetings

TMS Professional Registration Leadership Committee	7 to 9:30 a.m.	MC-Salon 6
ASM Committee Council Office	7:30 a.m. to 5:30 p.m.	HP-Brigade
ACerS Keramos Student Meeting	8 to 9 a.m.	WC-Westmoreland East/Central
ACerS Meetings Committee	8 to 10 a.m.	WC-Crawford West
ASM Annual Meeting and Awards Dinner Rehearsal	8 to 11:30 a.m.	HP-Ballroom II
ACerS Keramos Convocation	9 a.m. to noon	WC-Westmoreland East/Central
Alpha Sigma Mu Board of Trustees	9 a.m. to noon	HP-Board Room
ASM Events Committee	9 a.m. to 1:30 p.m.	HP-Chartiers
ASM Chapter Council	10 to 11 a.m.	HP-Board Room
Joint ASM Federal Affairs Com. and TMS Public & Governmental Affairs Com.	10 to 11:30 a.m.	CC-Room 415
ACerS Volunteer Leaders Training	10 a.m. to noon	WC-Butler East/West
Action in Education Committee	10 a.m. to 1 p.m.	HP-Smithfield
ASM Membership Committee	11 a.m. to noon	HP-LeBateau
TMS Board of Directors	noon to 5 p.m.	MC-Marquis A
ACerS Publications Committee	12:30 to 2:30 p.m.	WC-Armstrong
TMS Accreditation Committee	12:30 to 2:30 p.m.	MC-City Center A
ACerS Electronics Division Programming & Executive Com.	1 to 3:30 p.m.	WC-Westmoreland East
ASM Board of Trustees Meeting	1 to 5:45 p.m.	HP-Sterling II & III
ACerS GOMD Executive & Programming Committee	2 to 4 p.m.	WC-Crawford West
ASM Handbook Committee	2 to 6 p.m.	HP-Traders
ACerS Basic Science Division Executive & Steering Com.	2:30 to 4:30 p.m.	WC-Crawford East
ACerS Ceramic Educational Council Business Meeting	3 to 4 p.m.	WC-Cambria East/West
ACerS Engineering Ceramics Division Executive Com.	3 to 4:30 p.m.	WC-Westmoreland West
ACerS Nuclear & Environmental Technology Division Com.	3 to 4:30 p.m.	WC-Armstrong
AIST Executive Committee	3 to 5:30 p.m.	MC-City Center B
ABET Training Session	3:30 to 5:30 p.m.	MC-Salon 6
TMS Nanomaterials Committee	4 to 5 p.m.	MC-City Center A
ASM Materials Education Foundation Board of Trustees	4 to 7:30 p.m.	HP-LeBateau



ASM Journal of Materials Engineering & Performance Com.
 TMS Mechanical Behavior of Materials Committee
 ASM Emerging Technology Awareness Committee
 ASM International Materials Review Committee
 ASM Materials Education Foun. Board of Trustees Dinner
 TMS Phase Transformations Committee
 ACerS Cements Division Executive Committee

4:30 to 6:30 p.m.
 6:30 to 8 p.m.
 7 to 9 p.m.
 7 to 10 p.m.
 7:30 to 8:30 p.m.
 7:30 to 9 p.m.
 8 to 9 p.m.

HP-Smithfield
 MC-Marquis C
 HP-Board Room
 HP-Rivers
 HP-TBD
 MC-City Center A
 WC-Crawford West

MONDAY

Conference Activities

Authors' Coffee
 ACerS Ceramographic Display
 Poster Session
 Registration
 Society Member Lounges
 MS&T Press Office
 Employment Center

Time

7 to 8:20 a.m.
 7 a.m. to 5 p.m.
 7 a.m. to 5 p.m.
 7 a.m. to 5 p.m.
 7 a.m. to 5 p.m.
 8 a.m. to 5 p.m.
 10 a.m. to 5 p.m.

Location

CC-Spirit of Pittsburgh Ballrooms B & C
 CC-Level 3, Between Rooms 307 & 310
 CC-Spirit of Pittsburgh Ballroom Foyer
 CC-Hall A Concourse
 CC-Hall A Concourse
 CC-Room 332
 CC-Room 320

Lectures

Opening Session and Keynote Address
 ACerS 110th Anniversary Symposium and
 Emerging Technologies Session
 ASM/TMS Distinguished Lecture
 ACerS Alfred R. Cooper Session and Award
 Alpha Sigma Mu Lecture

8:30 to 9:30 a.m.
 9:40 a.m. to 5:30 p.m.
 1 to 2 p.m.
 2 to 5:20 p.m.
 3 to 4 p.m.

CC-Spirit of Pittsburgh Ballrooms B & C
 CC-Rooms 404 & 405
 CC-Room 407
 CC-Room 334
 CC-Room 406

Material Advantage Student Functions

Undergraduate Student Poster Contest
 AIST Student Plant Tour

7 a.m. to 5 p.m.
 8 a.m. to noon

CC-Level 3, Riverside Foyer
 CC-Level 1, 10th Street, East Drop Off Lane

Social Functions

ACerS Companion Breakfast
 ASM Guest Hospitality
 ASM Student Leadership Breakfast
 Tour: Fallingwater
 AIST Board of Directors Luncheon
 ASM Leadership Awards Luncheon
 ASM Tuxedo Pickup
 University of Illinois Alumni Reception
 MSM/UMR/Missouri S&T Reception
 Colorado School of Mines Alumni Reception
 Purdue University Alumni Reception
 Michigan Tech University Alumni Reception
 AIST Steel Industry Student Reception
 ACerS Honors and Awards Banquet
 ACerS Afterglow
 ASM Canada Council Suite

7 to 9:30 a.m.
 7:30 to 9:30 a.m.
 8 to 10 a.m.
 8:30 a.m. to 2:30 p.m.
 11:30 a.m. to 12:15 p.m.
 11:45 a.m. to 1 p.m.
 1 to 6 p.m.
 5:30 to 7 p.m.
 5:30 to 7:15 p.m.
 6 to 7 p.m.
 6 to 7:30 p.m.
 6:30 to 8 p.m.
 7 to 8:30 p.m.
 7:30 to 9:30 p.m.
 9:30 to 11 p.m.
 10 p.m. to 1 a.m.

WC-Washington
 HP-Kings Terrace
 WC-Butler West
 CC-Level 1, 10th Street, East Drop Off Lane
 MC-Marquis A
 CC-Spirit of Pittsburgh Ballroom A
 HP-Duquesne
 WC-Cambria West
 WC-Somerset West
 MC-Marquis B
 MC-Marquis A
 WC-Fayette
 WC-Westmoreland Central
 WC-Allegheny Ballrooms II & III
 WC-Allegheny Ballroom Foyer
 HP-Kings Garden North & South

Annual Meetings

ACerS Annual Membership Meeting
 ASM 95th Annual Membership Meeting and Reception

1 to 2 p.m.
 4 to 6 p.m.

CC-Rooms 404 & 405
 CC-Spirit of Pittsburgh Ballroom A

Committee Meetings

Metallurgical Transactions "A" Board of Review
 ACerS Education Integration Committee
 ACerS Member Services Committee
 ASM Committee Council Office
 TMS Education Committee
 ASM Education Professional Subcommittee
 AIST Industry-University Round Table
 ASM College Education Subcommittee
 Metallurgical Transactions Joint Commission Meeting
 ASM New Products & Services Committee

7 to 8 a.m.
 7 to 9 a.m.
 7:30 to 8:30 a.m.
 7:30 a.m. to 5:30 p.m.
 8 to 9 a.m.
 8 to 9:30 a.m.
 8 to 10:30 a.m.
 8:30 to 10 a.m.
 8:30 to 10 a.m.
 9 to 10:30 a.m.

WC-Somerset East/West
 WC-Penn City Grille
 WC-Crawford East
 HP-Brigade
 MC-Marquis B
 HP-Board Room
 CC-Room 402
 HP-Smithfield
 WC-Somerset East/West
 HP-Benedum



ASM Chapter Council	10 to 11 a.m.	HP-LeBateau
ASM Heat Treating Education Committee	10 to 11:30 a.m.	HP-Board Room
ASM K-12 Education Subcommittee	10 to 11:30 a.m.	HP-Smithfield
TMS Membership & Student Development Committee	10 to 11:30 a.m.	CC-Room 415
TMS Executive Committee	11 a.m. to 12:30 p.m.	CC-Room 312
TMS Powder Materials Committee	noon to 2 p.m.	CC-Room 321
AIST Board of Directors Meeting	12:15 to 3 p.m.	MC-City Center A & B
TMS Biomaterials Committee	1 to 2 p.m.	CC-Room 415
ASM Awards Policy Committee	1:30 to 3:30 p.m.	CC-Room 311
ASM Education Committee	2 to 5 p.m.	HP-Kings Terrace
NICE Business Mtg. and Order of the Engineer Ceremony	2 to 5 p.m.	CC-Room 401
TMS Women in Materials Science & Engineering Com.	3 to 4:30 p.m.	CC-Room 322
ACerS Engineering Ceramics Division Business Meeting	4 to 6 p.m.	CC-Room 335
ASM Materials Education Foundation Annual Meeting	4:50 to 5 p.m.	CC-Spirit of Pittsburgh Ballroom A
ACerS Cements Division General Business Meeting	5:30 to 6:30 p.m.	CC-Room 331
TMS Advanced Characterization, Testing & Simulation Com.	5:30 to 6:30 p.m.	CC-Room 311
TMS Solidification Committee	5:30 to 7 p.m.	CC-Room 415
ASM Alloy Phase (ADP) Committee	5:30 to 7:30 p.m.	HP-LeBateau
ASM AM&P Committee	6 to 8 p.m.	HP-Smithfield
ASM Manufacturing Committee	6 to 7 p.m.	HP-Kings Terrace
TMS Nanomechanical Materials Behavior Committee	6 to 7 p.m.	CC-Room 321
TMS Nuclear Materials Committee	6 to 7:30 p.m.	MC-City Center A
TMS Computational Materials Science & Engineering Com.	8 to 9 p.m.	MC-City Center B
ASM Journal of Failure Analysis & Prevention Committee	8 to 10 p.m.	HP-Board Room

TUESDAY

Conference Activities

	Time	Location
Authors' Coffee	7 to 7:50 a.m.	CC-Spirit of Pittsburgh Ballrooms B & C
ACerS Ceramographic Display	7 a.m. to 6 p.m.	CC-Level 3, Between Rooms 307 & 310
Registration	7 a.m. to 6 p.m.	CC-Hall A Concourse
Society Member Lounges	7 a.m. to 6 p.m.	CC-Hall A Concourse
MS&T Press Office	8 a.m. to 5 p.m.	CC-Room 332
ASM Mini-Materials Camp	8:30 a.m. to 2 p.m.	CC-Hall A
Employment Center	2 to 5 p.m.	CC-Room 320

Exhibition

Show Hours	11 a.m. to 6 p.m.	CC-Hall A
Concessions	11 a.m. to 2:30 p.m.	CC-Hall A
Industry Track	2 to 4 p.m.	CC-Hall A
Happy Hour Reception	4 to 6 p.m.	CC-Hall A

Lectures/Workshops

ACerS Richard M. Fulrath Award Session	8 a.m. to noon	CC-Room 403
ACerS Arthur L. Friedberg Memorial Lecture	10 to 11 a.m.	CC-Room 402
ASM College Education Subcommittee "Best Practices for Materials Science Recruiting" Workshop	10 to 11:30 a.m.	HP-LeBateau
TMS Young Leaders Tutorial Lecture/Luncheon	noon to 2 p.m.	CC-Room 405
ASM Edward DeMille Campbell Memorial Lecture	12:45 to 1:45 p.m.	CC-Room 407
ACerS Edward Orton Jr. Memorial Lecture	1 to 2 p.m.	CC-Room 406
ACerS Della Roy Lecture	4 to 4:40 p.m.	CC-Room 331

Material Advantage Student Functions

Undergraduate Student Poster Contest	7 a.m. to 6 p.m.	CC-Level 3, Riverside Foyer
Mug Drop Contest	11 a.m. to 12:45 p.m.	CC-Hall A
Career Connection	11 a.m. to 2 p.m.	CC-Hall A
Putting Contest	12:15 to 1 p.m.	CC-Hall A
Student Award Ceremony	1 to 1:45 p.m.	CC-Hall A

Social Functions

ACerS Companion Breakfast	8 to 10 a.m.	WC-Washington
ASM Guest Hospitality	8:30 to 10:30 a.m.	HP-Kings Terrace
ASM Tuxedo Pickup	9 a.m. to 5 p.m.	HP-Duquesne
Acta Materialia Inc. Board of Governors Lunch (by invitation)	11:45 a.m. to 1 p.m.	WC-Somerset West



ACerS Della Roy Reception	4:50 to 5:30 p.m.	CC-Noresco Riverside Terrace
Penn State Materials Science & Eng. Alumni Reception	6 to 7 p.m.	WC-Cambria East/West
ACerS Section Q Pub	6 to 10 p.m.	WC-Washington
ASM Awards Dinner Reception	6:30 to 7:15 p.m.	HP-Ballrooms III & IV
Alfred University Alumni Reception	6:30 to 8 p.m.	WC-Westmoreland Central
ASM Awards Dinner	7 to 9:30 p.m.	HP-Ballrooms I & II
ACerS Women in Ceramics Reception	8 to 10 p.m.	WC-Westmoreland East
ASM President's Reception	9:30 to 11:30 p.m.	HP-Kings Garden North & South
ASM Canada Council Suite	10 p.m. to 1 a.m.	HP-Kings Terrace

Committee Meetings

ACerS Strategic Planning & Emerging Opportunities Com.	7 to 8:30 a.m.	WC-Butler West
Material Advantage Committee	7 to 8:30 a.m.	CC-Room 415
TMS MPMD Council Meeting	7 to 9 a.m.	MC-Marquis B
AACCM Executive Com. and General Business Mtg.	7:30 to 11 a.m.	WC-Armstrong
ASM Committee Council Office	7:30 a.m. to 5:30 p.m.	HP-Brigade
ASM Emerging Professionals Committee	8 to 10 a.m.	HP-Chartiers
ASM Finance Committee	8 a.m. to noon	HP-Ballroom III
C08 ASTM Committee Meeting	8 a.m. to 5 p.m.	WC-Fayette
Acta Materialia Inc. Board of Governors Committee	8 a.m. to 6 p.m.	WC-Somerset East
TMS Young Leader Committee	9 to 10 a.m.	CC-Room 338
ACerS Past Presidents Council	9 to 11 a.m.	WC-Butler East
ACerS Bulletin Editorial Committee	10 a.m. to noon	WC-Executive Board Room
ASM Materials Properties Database Committee	11 a.m. to 1 p.m.	HP-Chartiers
ASM Joining Technologies Committee	noon to 1 p.m.	HP-Kings Terrace
ACerS Basic Science Division General Business Meeting	noon to 1:15 p.m.	CC-Room 324
AIST Metallurgy – Rolling & Processing Committee	noon to 2 p.m.	WC-Westmoreland West
TMS SMD Council Meeting	noon to 2 p.m.	MC-Marquis B
ASM Technical Book & Materials Database Com./Luncheon	12:30 to 1:30 p.m.	HP-Rivers
ACerS Women in Science and Engineering Meeting	12:30 to 2 p.m.	WC-Cambria East/West
ASM Technical Books Committee	12:30 to 3 p.m.	HP-Traders
ASM Web Committee	2 to 3:30 p.m.	HP-Liberty
ASM Past President's Meeting	2:30 to 4:30 p.m.	HP-Benedum
ACerS Panel of Fellows Committee	3 to 5 p.m.	WC-Butler East
ACerS Phase Committee	3:30 to 4:30 p.m.	CC-Room 337
TMS Energy Harvesting & Storage Committee	5 to 6 p.m.	CC-Room 322
ACerS GOMD Division General Business Meeting	5:30 to 6:30 p.m.	CC-Room 334
ACerS Nuclear & Environmental Tech. Div. Business Mtg.	5:30 to 6:30 p.m.	CC-Room 326
TMS Surface Engineering Committee	5:30 to 6:30 p.m.	CC-Room 321
ACerS Electronics Division General Business Meeting	5:30 to 7 p.m.	CC-Room 317
TMS Refractory Metals Committee	5:30 to 7 p.m.	CC-Room 311
TMS Composite Materials Committee	5:45 to 6:45 p.m.	CC-Room 415
TMS Corrosion & Environmental Effects Committee	6 to 7 p.m.	CC-Room 338
TMS Titanium Committee	6 to 7 p.m.	MC-Marquis C
TMS Shaping & Forming Committee	6 to 7:30 p.m.	CC-Room 401

WEDNESDAY

Conference Activities

	Time	Location
Authors' Coffee	7 to 7:50 a.m.	CC-Spirit of Pittsburgh Ballrooms B & C
ACerS Ceramographic Display	7 a.m. to 5 p.m.	CC-Level 3, Between Rooms 307 & 310
Registration	7 a.m. to 5 p.m.	CC-Hall A Concourse
Society Member Lounges	7 a.m. to 5 p.m.	CC-Hall A Concourse
MS&T Press Office	8 a.m. to 5 p.m.	CC-Room 332
ASM Mini-Materials Camp	8:30 a.m. to 2 p.m.	CC-Hall A
Employment Center	10 a.m. to 5 p.m.	CC-Room 320

Exhibition

Show Hours	10 a.m. to 4 p.m.	CC-Hall A
Industry Track	10:10 a.m. to noon	CC-Hall A
	2 to 4 p.m.	CC-Hall A
Concessions	11 a.m. to 2:30 p.m.	CC-Hall A
Refreshment Break	3 to 3:40 p.m.	CC-Hall A



Lectures

ACerS Robert B. Sosman Lecture 1 to 2 p.m. CC-Room 406

Social Functions

ASM Tuxedo Drop-off 7 a.m. to noon HP-Brigade
 ACerS Companion Breakfast 8 to 10 a.m. WC-Washington
 ASM Guest Hospitality 8:30 to 10:30 a.m. HP-Kings Terrace
 ACerS Section Q Pub 6 to 10 p.m. WC-Washington

Committee Meetings

ACerS Refractory Ceramics Division Executive Com. 6:30 to 7:45 a.m. WC-Penn City Grille
 ASM Programming Committee 7 to 9:30 a.m. HP-Allegheny
 ASM Fellows Breakfast 7:30 to 9:30 a.m. HP-LeBateau, Kings Garden North/South
 ASM Committee Council Office 7:30 a.m. to 5:30 p.m. HP-Brigade
 MS&T Exhibitors Committee 9 to 10 a.m. CC-Hall A, Industry Track Area
 ACerS Nominating Committee 9 to 11 a.m. WC-Somerset East
 ASM Canada Council Committee 9 a.m. to noon HP-Rivers
 ASM Board of Trustees Meeting 9 a.m. to 2 p.m. HP-Benedum
 TMS EMPMD Council Meeting noon to 1:30 p.m. MC-City Center B
 ACerS Books Committee 2 to 3 p.m. CC-Room 322
 MS&T JPLT Meeting 2:30 to 3:30 p.m. HP-Allegheny
 MS&T Steering Committee 3:30 to 5 p.m. HP-Allegheny
 ACerS Refractory Ceramics Div. Business Mtg. 5 to 6 p.m. CC-Room 328
 ACerS Refractory Ceramics Div. Reception 6 to 7 p.m. CC-Room 329
 ASM Failure Analysis Committee 7 to 10 p.m. HP-Kings Garden North/South

THURSDAY

Conference Activities

Authors' Coffee 7 to 7:50 a.m. CC-Spirit of Pittsburgh Ballrooms B & C
 Registration 7 a.m. to 2 p.m. CC-Hall A Concourse
 Society Member Lounges 7 a.m. to 2 p.m. CC-Hall A Concourse
 MS&T Press Office 8 a.m. to 5 p.m. CC-Room 332

Committee Meetings

TRANSFAC '09 Organizing Committee 2 to 3 p.m. MC-Salon 6

THURSDAY and FRIDAY

Educational Courses

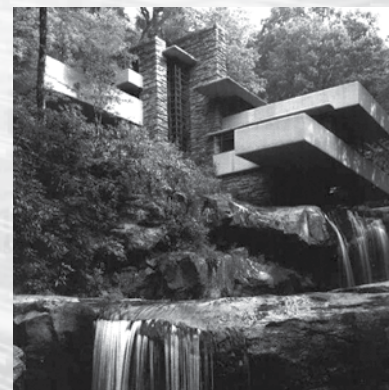
Computational Materials Design 8:30 a.m. to 4:30 p.m. HP-Liberty
 Failure Analysis Methodology and Case Histories 8:30 a.m. to 4:30 p.m. HP-Forbes
 Meeting the Challenges to the Materials Industries 8:30 a.m. to 4:30 p.m. HP-Board Room
 Powder Metallurgy Materials Processes and Design 8:30 a.m. to 4:30 p.m. HP-Duquesne

Guest Tour

Fallingwater • Monday • 8:30 a.m. to 2:30 p.m.

Drive through the magnificent mountain scenery of the Laurel Highlands by privately chartered coach to Fallingwater, famed architect Frank Lloyd Wright's most widely acclaimed work. More than 1 million people from every corner of the earth have come to see this masterpiece, built as a summer home for the Edgar Kaufmann family, prominent Pittsburgh merchants. Dramatic cantilevered terraces soar over a cascading waterfall. The living room hearth embodies an immense boulder in the setting nature created. Completed in 1939 with guest wing and servants quarters, it is as fresh today as when it was built. This breathtaking house was judged by the American Institute of Architects in 1986 to be the nation's most successful example of architectural design. It is described as the clearest expression of Wright's ideal ... that man can live in harmony with nature.

Tickets: \$80 (includes boxed lunch and beverage); on sale, Sunday only, on Level 2 near registration.





See calendar of events for times and locations.

Sunday **ACerS Frontiers of Science and Society – Rustum Roy Lecture**
“Society and MS&T – Materials, Science and Technology: Where GIGA Outshines Nano”
Dr. Rustum Roy, Citizen-Scientist, Pennsylvania State University and Arizona State University

Monday **Opening Session and Keynote Address**
“The Role of Science and Engineering in U.S. Competitiveness”
Dr. Cherry A. Murray, Principal Associate Director for Science and Technology, Lawrence Livermore National Laboratory

ACerS 110th Anniversary Symposium and Emerging Technologies Session

ASM/TMS Distinguished Lecture
“Engineering Material Systems for an Ever Demanding Society”
Dr. Leo Christodoulou, Program Manager, DARPA DSO

ACerS Alfred R. Cooper Session and Award
“Performance Stability of Glass Products”

Alpha Sigma Mu Lecture
“Is the H2 Economy Feasible or Not: Materials Challenges and Opportunities”
Dr. James A. Spearot, Director, Chemical and Environmental Sciences, General Motors Global Research and Development and Planning

Tuesday **ACerS Richard M. Fulrath Award Session**

ACerS Arthur L. Friedberg Memorial Lecture
“Hunting the Perovskite Range”
Professor Harlan U. Anderson, Missouri University of Science and Technology

TMS Young Leaders Tutorial Luncheon and Lecture
“Being a Technology Leader in a 21st Century Materials World”
Dr. William A. Baeslack III, P.E., Executive Vice President and Provost, Case Western Reserve University

ASM Edward DeMille Campbell Memorial Lectureship
“Cyclic Slip Irreversibilities and the Evolution of Fatigue Damage”
Professor Hael Mughrabi, former Department Head and Dean of the Engineering School, University of Erlangen-Nürnberg, Germany

ACerS Edward Orton Jr. Memorial Lecture
“Sol-Gel Processing – a Retrospective and Perspective”
Dr. C. Jeffrey Brinker, Fellow, Sandia National Laboratories; Professor, Chemical and Nuclear Engineering and Chemistry, University of New Mexico

ACerS Della Roy Lecture
“Understanding Frost Damage”
Dr. George Scherer, Princeton University

Wednesday **ACerS Robert B. Sosman Award, Lecture and Session**
“Interfacial Kinetic Engineering: How Far Have We Come Since Kingery’s Inaugural Sosman Address?”
Martin P. Harmer, Center for Advanced Materials and Nanotechnology, Lehigh University



See calendar of events for times and locations.

Monday

ASM Leadership Awards Luncheon

This luncheon is in recognition of the hard work and dedication of ASM volunteers. The ASM Materials Education Foundation, Committee Council and ASM organizational units awards will be presented. Committee council members meeting during MS&T, and awardees, received invitations to attend. Others may purchase tickets for \$25 at the conference registration desk.

ACerS Annual Membership Meeting

President Dr. L. David Pye will induct new officers, give an update on Society business including the new strategic plan, and open the floor for member discussion. ACerS members and guests are welcome.

ACerS Honors and Awards Banquet, and Afterglow

Enjoy dinner, conversation and the presentation of Society awards, followed by dessert and coffee. Purchase tickets for \$75 at the conference registration desk.

ASM 95th Annual Membership Meeting and Reception

Officers will be elected for the 2008-09 term, and other ASM business will be transacted. A brief presentation by the ASM Materials Education Foundation will be made at the conclusion of the annual meeting with a reception immediately following. ASM members and guests are welcome.

Tuesday

ASM Awards Dinner

Join us as outstanding award recipients and the 2008 Class of Fellows receive their well-deserved recognition. The President's Reception immediately follows the awards dinner and is included in the cost of the ticket. Purchase tickets for \$75 at the conference registration desk.

Wednesday

ASM Fellows Breakfast

Speaker: Dr. Jeff Wadsworth, Executive Vice President, Global Laboratory Operations, Battelle Memorial Institute

MS&T'08 Exhibition

**Visit the exhibition for the latest products and services in the materials field.
More than 130 companies are on-site to showcase new technologies!**

Tuesday 11 a.m. to 6 p.m.

Happy Hour Reception..... 4 to 6 p.m.

Wednesday 10 a.m. to 4 p.m.

Refreshment Break 3 to 3:40 p.m.

For a glimpse at what this year's exhibition has to offer you, flip over this program!



See calendar of events for times and locations.

Sponsored by:



Sunday

Student Orientation

This orientation will give Material Advantage members an overview of the Material Advantage program and the four partnering organizations. Learn how to make the most of your Material Advantage student membership!

Undergraduate Poster Contest

Stop by the David L. Lawrence Convention Center to view all the submissions to the 2008 undergraduate poster contest!

Student Speaking Contest

MS&T is hosting the national semifinal and final rounds of the student speaking contest. Material Advantage chapters held contests on campus prior to MS&T. Contest winners will now compete in the semifinal and final rounds. The presentation subjects are technical but can relate to any aspect of materials science and engineering. Participating students receive a \$300 travel grant awarded at the end of the semifinal and final rounds. Winners of the finals receive cash prizes.

Graduate School Information

Students interested in graduate school will benefit from discussing pros and cons with graduate students at this session. Hear directly from university representatives about the process for applying to, and selecting, a graduate school program.

The Art of Networking

Improve your networking skills and learn how to meet and talk with people who may be able to impact your future!

Resume Building and Career Tips Session

Find out what human resource representatives are looking for when reviewing resumes and interviewing candidates.

Career Forum

Discuss career options with professionals from industry, academia and government. Get insight into the value of professional memberships, make industry connections, and learn about career opportunities from those with experience.

Mock Interviews

Professionals from various industries will hold 30-minute "mock interviews" with students in a private setting. Interview appointments were pre-scheduled; remaining time slots will be filled at orientation.

Student Networking Mixer

Join in this relaxed, casual and fun atmosphere designed for students, Material Advantage faculty and society volunteer leaders. Students are encouraged to wear their school colors. Beer, soft drinks, snacks and music will be provided. In accordance with Pennsylvania state law, alcoholic beverages will be served only to attendees at least 21 years old; proper photo I.D. (with date of birth) must be presented by those wishing to drink alcohol.

Continued ...



See calendar of events for times and locations.

Monday **ASM Student Leadership Breakfast**

Take advantage of this chance to meet fellow student leaders!

AIST Student Plant Tour of U.S. Steel Research & Technology Center

See different labs including water modeling, hot rolling demonstration, hot dip galvanizing simulator, and metals characterization. Bus transportation is provided.

ACerS Safe and Educational Lab Demos

These demos outline the correct method of performing three simple demonstrations for both children and young adults, using corn starch putty, liquid nitrogen and superconductivity.

AIST Student Steel Industry Reception

Talk with industry representatives about the technological advances in today's steel industry and career opportunities available while enjoying refreshments.

Tuesday **Student Career Connection**

Job or Graduate School? Find out about potential employment and internship opportunities as well as graduate programs from representatives of corporate human resource departments and universities. Bring copies of your resume!

Ceramic Mug Drop

Mugs fabricated by students from ceramic raw materials are judged on aesthetics and breaking thresholds. Mugs are dropped from varying levels until the breaking threshold is reached. The mug with the highest successful drop distance wins!

Putting Contest

Teams of four students use putters and balls they fabricated! Each team member must use his/her putter and ball, which are judged prior to the contest. Prizes are awarded for aesthetics, closest putt and best putting team (team with shortest combined distance from hole).

Material Advantage Student Awards Ceremony

Join us as we congratulate the winners of this year's contests: Material Advantage Chapters of Excellence; Student Speaking Contest; Student Poster Competitions; Ceramic Mug Drop; Putting Contest; TMS Superalloys Awards; ASM Materials Design Competition; AIST/AISI Scholarships.

Wednesday **Student Tour of McDanel Advanced Ceramic Technologies**

Tour this leading manufacturer of refractory alumina, mullite and partially stabilized zirconia tubes. See processes from batching and forming to drying and firing. Bus transportation is provided.



	October 2008	
Continuous Casting – a Practical Training Seminar	14-16	Merrillville, Indiana (AIST)
ISS Aerospace Coatings Symposium	15-16	Hartford, Connecticut (ASM)
Safety Conference	27-29	Pittsburgh, Pennsylvania (AIST)
Cleaning Requirements for Heat Treatment-Development and Applications	29-30	Worcester, Massachusetts (ASM)
	November 2008	
Scrap Substitutes and Alternative Ironmaking V	2-4	Baltimore, Maryland (AIST)
34th International Symposium for Testing & Failure Analysis	2-6	Portland, Oregon (ASM)
Making, Shaping and Treating of Steel: 101	9-12	Merrillville, Indiana (AIST)
International Conference on Sintering	16-20	La Jolla, California (ACerS)
	December 2008	
Symposium on Improving Reliability and Consistency In Thermal Spray	2-3	Montreal, Quebec (ASM)
3rd International Conference on Processing Materials for Properties	7-10	Bangkok, Thailand (TMS)
	January 2009	
33rd International Conference and Exposition on Advanced Ceramics and Composites	18-23	Daytona Beach, Florida (ACerS)
	February 2009	
Process Systems Specialty Training Conference	2-5	Jacksonville, Florida (AIST)
TMS 2009 Annual Meeting & Exhibition	15-19	San Francisco, California (TMS)
Modern Electric Furnace Steelmaking – a Practical Training Seminar	16-20	Ontario, California (AIST)
Making, Shaping and Treating of Steel: 101	22-25	Memphis, Tennessee (AIST)
Cold Rolling Fundamentals – a Practical Training Seminar	22-26	Orlando, Florida (AIST)
	March 2009	
Lubrication Manual Seminar	16-19	Birmingham, Alabama (AIST)
Ladle Refractory Short Course	17-18	Birmingham, Alabama (AIST)
Hot Flat Rolling Fundamentals - a Practical Training Seminar	29-April 2	Ypsilanti, Michigan (AIST)
	April 2009	
5th International Ceramic Interconnect and Ceramic Microsystems Technologies Conference	20-23	Denver, Colorado (ACerS)
4th International Brazing and Soldering Conference and Exhibition	26-29	Orlando, Florida (ASM)
	May 2009	
AISTech 2009	4-7	St. Louis, Missouri (AIST)
International Thermal Spray Conference & Expo	4-7	Las Vegas, Nevada (ASM)
16th Annual Crane Symposium	31-June 2	Pittsburgh, Pennsylvania (AIST)
8th Pacific Rim Conference on Ceramic and Glass Technology	31-June 5	Vancouver, British Columbia (ACerS)
	June 2009	
20th Aerospace Materials & Processes Conference & Exposition	7-11	Dayton, Ohio (ASM)
Electronic Materials Conference	24-26	University Park, Pennsylvania (TMS)
	July 2009	
Microscopy & Microanalysis	26-30	Richmond, Virginia (ASM)
	September 2009	
13th International Conference on Defects – Recognition, Imaging and Physics in Semiconductors	13-17	Wheeling, West Virginia (TMS)
Heat Treating Society Conference & Exposition	14-17	Indianapolis, Indiana (ASM)
International Symposium on Liquid Metal Processing and Casting	20-23	Santa Fe, New Mexico (TMS)
	October 2009	
MS&T'09	25-29	Pittsburgh, Pennsylvania (MST)

Visit each society's Web site for more information about these meetings:

ACerS www.ceramics.org / AIST www.aist.org / ASM www.asminternational.org / TMS www.tms.org



The American Ceramic Society serves the informational, educational and professional needs of the global ceramics community. The Society's more than 6,000 members comprise a wide variety of individuals and interest groups that include engineers, scientists, researchers, manufacturers, plant personnel, educators, students, marketing and sales professionals, and others in related materials disciplines. Our members are pioneering today's research and information in fast growing ceramic fields such as nanotechnology, biomedicine, nuclear, armor and electronics, providing a platform for valuable research and discussion that will help build the future of ceramic materials. ACerS provides members in 80 countries with access to top ranked periodicals, books, meetings and online technical information. For more details, visit www.ceramics.org or contact Megan Mahan, director of membership and marketing, at (614) 794-5894.



Association for Iron & Steel Technology was established on January 1, 2004, by the merger of two longstanding societies, the Association of Iron and Steel Engineers (AISE) and the Iron & Steel Society (ISS). The goal of the association is to advance the technical development, production, processing and application of iron and steel. The best practices of both predecessor organizations were incorporated into AIST, and we now have a strong, international, member-based technical organization that can sustain itself in an environment of continual change. AIST is committed to presenting superior technical meetings, conferences, exhibits and publications to better serve those involved in the iron and steel community, including steel manufacturers, suppliers, consumers and academics. To learn more, visit www.aist.org.



ASM International is the worldwide society for materials engineers and scientists. Dedicated to advancing industry, technology and applications of metals and materials, ASM benefits the materials community by providing scientific, engineering and technical knowledge, education, networking, and professional development. The core values of ASM are: to provide exceptional member/customer service and input; to assure stewardship and integrity of materials information; to deliver the benefits of a diverse worldwide community of volunteers; to pursue continuous improvements and an adaptive, responsive and flexible organization; and to advance the importance of education, experience and lifelong learning. Learn more about ASM International's global strategies, services, and member benefits. Visit www.asminternational.org.



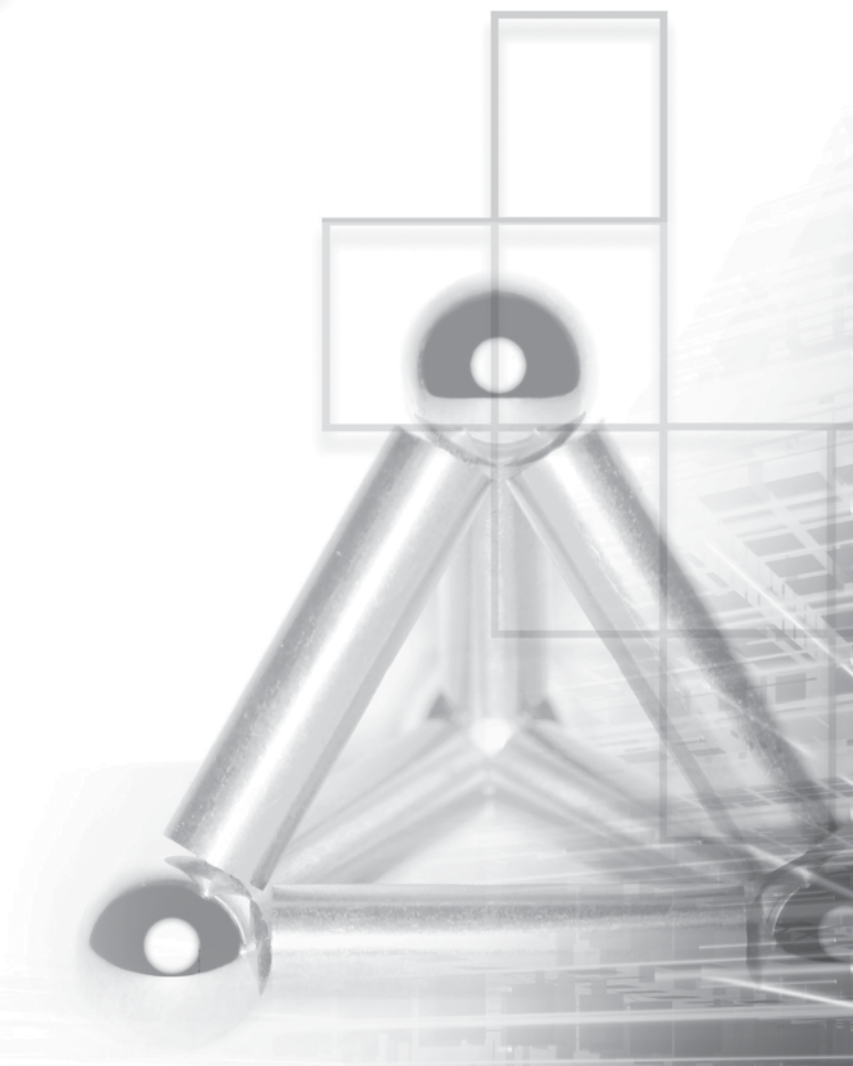
The **Minerals, Metals & Materials Society** is the professional organization encompassing the entire range of materials science and engineering, from minerals processing and primary metals production to basic research and the advanced applications of materials. The Society's broad technical focus covers light metals; electronic, magnetic and photonic materials; extraction and processing; structural materials; and materials processing and manufacturing. Included among TMS professional members are metallurgical and materials engineers, scientists, researchers, educators and administrators who work in industry, government and academia, as well as students. They hail from more than 70 countries on six continents. The mission of TMS is to promote the global science and engineering professions concerned with minerals, metals and materials. The Society works to accomplish its mission by providing technical learning and networking opportunities through interdisciplinary and specialty meetings; continuing education; publications, including four journals and proceedings; and its Web sites. To learn more, visit www.tms.org or www.materialstechnology.org.

**Materials Science
& Technology
2008 Conference
& Exhibition**

MS&T'08[®]

October 5-9, 2008

David L. Lawrence Convention Center
Pittsburgh, Pennsylvania



*The leading forum addressing structure,
properties, processing and performance
across the materials community*

08
ACerS
The American
Ceramic Society

08
AIST
Association
for Iron & Steel
Technology

08
ASM
ASM
International

08
TMS
The Minerals,
Metals & Materials
Society

**Table of
Contents**

Overview.....	22
At-A-Glance.....	23
Symposia Organizers.....	26
Poster Presenters.....	29
Presenting Authors.....	31
Presentations.....	42

Technical Program Overview

Sunday, October 5, 2008

General Lecture	5:00-6:00 PM
Poster Session/Welcome Reception	6:00-8:00 PM

Monday, October 6, 2008

Opening Session and Keynote Address	8:30-9:30 AM
Concurrent Technical Presentations	9:40 AM-12:00 Noon
Morning Break	10:40-11:00 AM
Lunch Break	12:00-2:00 PM
Lectures	1:00-2:00 PM
Concurrent Technical Presentations	2:00-5:40 PM
Afternoon Break	3:20-3:40 PM

Tuesday, October 7, 2008

Concurrent Technical Presentations	8:00 AM-12:00 Noon
Morning Break	9:40-10:00 AM
Exhibits	11:00 AM-6:00 PM
Lunch Break	12:00-2:00 PM
Lectures	1:00-2:00 PM
Concurrent Technical Presentations*	2:00-4:20 PM
Exhibit Reception*	4:00-6:00 PM

Wednesday, October 8, 2008

Concurrent Technical Presentations	8:00 AM-12:00 Noon
Morning Break	9:40-10:00 AM
Exhibits	10:00 AM-4:00 PM
Lunch Break	12:00-2:00 PM
Lectures	1:00-2:00 PM
Concurrent Technical Presentations	2:00-5:20 PM
Afternoon Break in Exhibit Hall	3:00-3:40 PM

Thursday, October 9, 2008

Concurrent Technical Presentations	8:00 AM-12:00 Noon
Morning Break	9:40-10:00 AM
Lunch Break	12:00-2:00 PM
Concurrent Technical Presentations	2:00-5:00 PM
Afternoon Break	3:20-3:40 PM

*No afternoon coffee break on Tuesday. Sessions will end early so that attendees may attend the Exhibit Reception.

Note: A few technical sessions may end slightly earlier or end slightly later than indicated in this overview. Please consult the Session Schedule.

Symposia	Room	Monday	Tuesday	Wednesday	Thursday
<i>SPECIAL LECTURES</i>					
ACerS Frontiers of Science and Society -- Rustum Roy Lecture (Sunday, 5:00 PM)	304/305				
MS&T Opening Session and Keynote Address	BR B/C	8:30 AM			
ASM/TMS Distinguished Lecture and Session	407	1:00 PM			
Alpha Sigma Mu Lecture	406	3:00 PM			
ACerS Arthur L. Freidberg Memorial Lecture	402		10:00 AM		
ACerS Edward Orton Jr. Memorial Lecture	406		1:00 PM		
Edward Demille Campbell Memorial Lecture	407		12:45 PM		
TMS Young Leaders Tutorial Luncheon & Lecture	405		12:00 PM		
ACerS Robert B. Sosman Lecture	406			1:00 PM	
<i>ELECTRONIC & MAGNETIC MATERIALS</i>					
Copper and Copper Based Alloys in the Electronics Industry	315	AM & PM			
Electroceramic Technologies: The Past and Future - ACerS Electronics Division 50th Anniversary	315		AM & PM		
Fabrication, Microstructures and Interfacial Properties of Multifunctional Oxide Thin Films	315			AM & PM	AM & PM
Ferroelectrics and Multiferroics	318	AM & PM	AM & PM	AM & PM	AM & PM
Interfaces and Defects in Functional Oxides	319		PM	AM	
International Symposium on Advanced Dielectric Materials & Electronic Devices	317	AM & PM	AM & PM	AM & PM	
Low Temperature Processing for Integration of Microelectronics Devices	319			PM	AM & PM
Pb-Free, Pb-Bearing Joining and Packaging Materials and Processes for Microelectronics	319	AM & PM	AM		
Perovskite Oxides: Films, Nanostructures, Properties, and Applications	316	AM & PM	AM & PM	AM & PM	AM & PM
<i>ENVIRONMENTAL & ENERGY ISSUES</i>					
Ceramics and Glass for Waste Minimization, Stabilization, and Disposition	326	AM & PM	AM & PM	AM	
Energy Materials	327	AM & PM	AM & PM	AM & PM	
Frontiers in Materials Science: Closing the Nuclear Fuel Cycle	326			PM	AM
Fuel Cells: Materials, Processing, Manufacturing, Balance of Plant and Systems Operation	325	PM	AM & PM	AM & PM	AM
Green Technologies for Materials Manufacturing and Processing	323			AM & PM	AM & PM
Materials and the Climate Change Challenge	327				AM
Nanoscale Design of Materials for Extreme Radiation Environments	323	AM & PM	AM		
Thermoelectric Materials: Science, Technology and Applications	324	PM	AM & PM	AM & PM	

Symposia	Room	Monday	Tuesday	Wednesday	Thursday
FUNDAMENTALS & CHARACTERIZATION					
ACerS Sosman Award Symposium: Kinetic Engineering of Interfacial Transport Processes	406			AM	
Ceramic Surfaces, Grain Boundaries and Interfaces	301	AM & PM	AM	PM	AM & PM
Discovery and Optimization of Materials through Computational Design	303	AM & PM	AM & PM	AM & PM	AM & PM
Failure Analysis for Problem Solving	304	AM & PM	AM & PM	AM & PM	AM
Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life	305	AM & PM	AM & PM	AM & PM	AM
International Symposium on Defects, Transport and Related Phenomena	307	AM & PM	AM & PM	AM & PM	AM
Lifecycle of Engineered Residual Stresses: Processing, Aging, and Rejuvenation	310				AM
Micro- and Nano- Mechanical Behavior of Low-Dimensional Structures and Materials	308	PM	AM & PM	AM & PM	
Modeling of Multi-Scale Phenomena in Materials Processing	306	AM & PM	AM & PM		
Performance and Growth of Bulk and Thin Film Materials - Role of Surface and Interface Phenomena	306			AM & PM	AM & PM
Phase Stability, Diffusion Kinetics & Their Applications (PSDK-III)	302	AM & PM	AM & PM	AM & PM	AM
Phase Transformations & Microstructural Changes during Sustained Mechanical Forcing	310		AM & PM	AM	
Recent Advances in Structural Characterization of Materials	309	AM & PM	AM & PM	AM & PM	AM & PM
Structure-Property Relationships in Multi-Functional Materials	311				AM
The Effect of Electrical Fields & Stress on Diffusional Transport in Ceramics & Related Phenomena	311			AM & PM	
IRON AND STEEL					
Advancements in Steel Production through EAF, Ladle Refining, and Continuous Casting Technologies and Practices	328				AM
International Symposium on Materials Engineering for Structural Applications	328		AM & PM		
New Developments in Processing and Properties of Zinc-Coated Sheet Steels	328	AM & PM			
Recent Developments in Steel Processing	329	AM & PM	AM		
Refractory Innovations and Novel Applications in Iron & Steel Manufacture	329			AM & PM	
Steel Product Metallurgy and Applications	330	AM & PM	AM & PM	AM & PM	AM & PM

Symposia	Room	Monday	Tuesday	Wednesday	Thursday
MATERIALS AND SYSTEMS					
Advances in Biomedical and Biomimetic Materials	333	AM & PM	AM & PM	AM & PM	AM & PM
Advances in Characterization and Modeling of Cementitious Materials, including Della Roy Lecture	331	AM & PM	AM & PM		
Amorphous Materials: Common Issues within Science and Technology	334		AM & PM		
Enabling Surface Coating Systems: Science and Technology	335		AM & PM	AM & PM	AM & PM
Glass and Optical Materials, including Alfred R. Cooper Session and Award	334	AM & PM	AM		
International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites	336	AM & PM	AM & PM	AM & PM	AM
NANOTECHNOLOGY					
Controlled Processing of Nanoparticle Structures and Composites	408	AM & PM	AM & PM	AM & PM	AM & PM
Nano-Materials for Electronic & Multifunctional Applications	409		PM	AM	
Nanotechnology for Power Generation	409			PM	AM
Nanotube-Reinforced Metal Matrix Composites	409	AM & PM	AM		
PROCESSING AND PRODUCT MANUFACTURING					
International Symposium on Ceramic Matrix Composites	413	AM & PM	AM & PM	AM	
Joining of Advanced and Specialty Materials X	410		AM & PM	AM & PM	AM
Micro-Manufacturing: Material Behavior, Deformation Mechanics, Process Control & Applications	410	AM & PM			
Paradigm Shift in the Metals Industry	411	AM & PM	AM		AM
Processing, Properties and Performance of Composite Materials	412	AM & PM	AM & PM	AM & PM	AM & PM
SPECIAL TOPICS					
ACerS 110th Anniversary Symposium and Emerging Technologies Session	404/405	AM & PM			
Education and Professional Development	403	AM & PM			
Industry Track	Hall A		PM	AM & PM	
Perspectives from Emerging Materials Professionals: Early Strategies for Career Development	403			AM & PM	
Poster Session and Welcome Reception (Sunday 6-8 PM)	BR Foyer	AM & PM			
Richard M. Fulrath Award Lectures	403		AM		
SBIR Program: Development of Innovative Materials Technologies for Military Systems	402		PM		
The National Materials Advisory Board Dissemination Series	401			AM	

SPECIAL TOPICS**ACerS 110th Anniversary Symposium**

Organizer: L David Pye, NYS College of Ceramics at Alfred University
Co-organizers: K.T. Faber, Northwestern University; J.A. Kaniuk, Zircoa Inc.; Brian Sundlof, IBM Microelectronics Division

ASM/TMS Distinguished Lecture Session

Organizer: Jim Marder, ASM International

Education and Professional Development

Organizer: Bill Fahrenholtz, Missouri University of Science and Technology
Co-organizer: Susan Holt, Virginia Polytechnic University

Industry Track 2008

Organizers: Donald Bray, Morgan Carbon Americas; Bill Albaugh, AIST

Perspectives from Emerging Materials Professionals: Early Strategies for Career Development

Organizer: Matthew Perricone, RJ Lee Group, Inc.
Co-organizers: Nate Ashmore, Boeing; P.I. Anderson, The Timken Company; T. Biles, Alcoa; M. Bush, Engel Metallurgical; L.J. Grant, Eastman Kodak Company; E. Kinser, IBM; D.A. Turnquist, Engineering Systems, Inc.; J.C. Villegas, Intel Corporation; C. Young, Engineering Systems, Inc.

SBIR Program; Development of Innovative Materials Technologies for Military Systems

Organizers: Timothy Langan, Surface Treatment Technologies; Barry Cole, Barry Cole Training and Technologies, LLC

Richard M. Fulrath Award Session

Organizer: Martin P. Harmer, Lehigh University

The National Materials Advisory Board Dissemination Series

Organizer: Gary Fischman, National Materials Advisory Board, National Academies,
Co-organizers: M. Moloney, National Materials Advisory Board, National Academies; K. Frase, IBM Software Group; L. Schwartz, Consultant

ELECTRONIC & MAGNETIC MATERIALS**Copper and Copper Based Alloys in the Electronics Industry**

Organizer: Larry Wojnicz, Molex, Inc.
Co-organizers: J. Stainbrook and B. Rickett, Molex, Inc.; P. Robinson, Olin Brass; G. Schuez, Wieland-Werke AG

Electroceramics Technologies: The Past and Future - A Celebration of the 50th Anniversary of the ACerS Electronics Division

Organizer: Robert Schwartz, Missouri University of Science and Technology
Co-organizers: Siu-Wai Chan, Columbia University; Sharmila M. Mukhopadhyay, Wright State University

Fabrication, Microstructures and Interfacial Properties of Multifunctional Oxide Thin Films

Organizer: Xiaoping Pan, University of Michigan
Co-organizers: Quanxi Jia, Los Alamos National Lab; Jiechao Jiang, University of Texas at Arlington; R. Ramesh, University of California at Berkeley; Isao Tanaka, University of Kyoto; C. Chen, University of Texas at San Antonio

Ferroelectrics and Multiferroics

Organizer: Shashank Priya, Virginia Polytechnic Institute and State University,
Co-organizers: P. Clem, Sandia National Laboratories; D. Viehland, Virginia Tech; A. Khachatryan, Rutgers University; X. Tan, Iowa State University; C. Chen, University of Texas at San Antonio

Interfaces and Defects in Functional Oxides

Organizer: Siu-Wai Chan, Columbia University
Co-organizers: Susanne Stemmer, University of California, Santa Barbara; Judith C. Yang, University of Pittsburgh

International Symposium on Advanced Dielectric Materials & Electronic Devices

Organizer: K. M. Nair, E.I. DuPont de Nemours & Company, Inc.
Co-organizers: D. Suvorov, Jozef Stefan Institute; R. Guo and A.S. Bhalla, The Pennsylvania State University; S.M. Mukhopadhyay, Wright State University; R.W. Schwartz, Missouri University of Science and Technology; S.I. Hirano, Nagoya University

Low Temperature Processing for Integration of Microelectronics Devices

Organizers: P.G. Clem, Sandia National Laboratories, J. Akedo, National Institute of Advanced Industrial Science and Technology; Y. Imanaka, Fujitsu Laboratories Ltd.

Pb-Free, Pb-Bearing Joining and Packaging Materials and Processes for Microelectronics

Organizer: Fu Guo, Beijing University of Technology
Co-organizers: K. Subramanian and T. Bieler, Michigan State University

Perovskite Oxides: Films, Nanostructures, Properties, and Applications

Organizer: Q. X. Jia, Los Alamos National Laboratory
Co-organizers: M. Paranthaman, Oak Ridge National Laboratory; S. Chan, Columbia University; H. Wang, Texas A&M University; W. Wong-Ng, National Institute of Standards and Technology

ENVIRONMENTAL AND ENERGY ISSUES**Ceramics and Glass for Waste Minimization, Stabilization, and Disposition**

Organizer: Alex Cozzi, Savannah River National Laboratory
Co-organizers: Kevin Fox, Elizabeth Hoffman, and James Marra, Savannah River National Laboratory; Pepa Matyas, Pacific Northwest National Laboratory; Chris Musick, Bechtel National Incorporated; Zachary Grasley, Texas A&M University

Energy Materials

Organizer: Fatih Dogan, Missouri University of Science and Technology
Co-organizers: M. Awano, National Institute of Advanced Industrial Science and Technology; W. Huebner, Missouri University of Science and Technology; D. Singh, Argonne National Laboratory

Frontiers in Materials Science: Closing the Nuclear Fuel Cycle

Organizer: James Earthman, University of California – Irvine; Robert Hanrahan, NNSA
Co-organizers: R.G. Reddy and S. Viswanathan, The University of Alabama; M.A. Rigdon, Institute for Defense Analyses; D. Chandra, University of Nevada - Reno

Symposia Organizers

Fuel Cells: Materials, Processing, Manufacturing, Balance of Plant and Systems Operation

Organizer: Prabhakar Singh, Pacific Northwest National Laboratory
Co-organizers: W. Huebner, Missouri University of Science and Technology; A. Azad, University of Toledo; D.C. Collins, US Department of Energy; P. Kumta, Carnegie Mellon University; C. Legzdins, Ballard Power Systems; A. Manthiram, University of Texas; A. Manivannan, US Department of Energy; S.K. Sundaram, Pacific Northwest National Laboratory; G. Yang, Pacific Northwest National Laboratory

Green Technologies for Materials Manufacturing and Processing

Organizers: Alex Cozzi, Savannah River National Laboratory and Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology
Co-organizers: Allen Apblett, Oklahoma State University; Elizabeth Hoffman and Carol Jantzen, Savannah River National Laboratory; Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center; ††Richard D. Sisson, Jr., Worcester Polytechnic Institute

Materials and the Climate Change Challenge

Organizer: Jean-Pierre Birat, Arcelor Research

Nanoscale Design of Materials for Extreme Radiation Environments

Organizer: Indrajit Charit, University of Idaho
Co-organizers: R. Devanathan, Pacific Northwest National Laboratory; L.W. Hobbs, Massachusetts Institute of Technology; K.L. Murty, North Carolina State University; L.K. Mansur, Oak Ridge National Laboratory

Thermoelectric Materials: Science, Technology and Applications

Organizer: Qiang Li, Brookhaven National Laboratory
Co-organizers: W. Wong-Ng, National Institute of Standards and Technology; T.M. Tritt, Clemson University; G.S. Nolas, University of South Florida

FUNDAMENTALS AND CHARACTERIZATION

ACerS Sosman Award Symposium: Kinetic Engineering of Interfacial Transport Processes

Organizer: Gregory Rohrer, Carnegie Mellon University
Co-organizers: S. Dillon, Carnegie Mellon University; M. Rühle, Max-Planck-Institut für Metallforschung

Ceramic Surfaces, Grain Boundaries and Interfaces

Organizer: Wayne Kaplan, Technion
Co-organizer: D. Chatain, Centre de Recherche en Matière Condensée et Nanosciences

Discovery and Optimization of Materials through Computational Design

Organizer: R. Edwin Garcia, Purdue University
Co-organizer: A. Van der Ven, Michigan University

Failure Analysis for Problem Solving

Organizer: R.J. Parrington, IMR Test Labs Inc
Co-organizers: D. Dennies, Boeing Company; D. McGarry, SEA Limited

Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life

Organizer: K. S. Ravi Chandran, University of Utah
Co-organizers: J.M. Larsen, Air Force Research Laboratory, Wright Patterson AFB; G.T. Cashman, GE Aviation

International Symposium on Defects, Transport and Related Phenomena

Organizer: Rudiger Dieckmann, Cornell University
Co-organizers: D. Edwards, Alfred University S. Kim, University of California Davis; M. Martin, RWTH Aachen University; T.O. Mason, Northwestern University

Lifecycle of Engineered Residual Stresses: Processing, Aging, and Rejuvenation

Organizer: Calvin Tszeng, Berkeley Materials Research
Co-organizer: D. Lahrman, LSP Technologies, Inc.

Micro- and Nano- Mechanical Behavior of Low-Dimensional Structures and Materials

Organizer: Fuqian Yang, University of Kentucky
Co-organizers: J. Hsia, National Science Foundation; D. Bahr, Washington State University; M. Dickinson, Hysitron, Inc.

Modeling of Multi-Scale Phenomena in Materials Processing

Organizer: Adrian S. Sabau, Oak Ridge National Laboratory
Co-organizer: A. D. Rollett, Carnegie Mellon University; A.V. Catalina, Caterpillar Inc.

Performance and Growth of Bulk and Thin Film Materials - Role of Surface and Interface Phenomena during Growth and Processing

Organizer: Nuggehalli Ravindra, New Jersey Institute of Technology
Co-organizers: N.B. Singh, Northrop Grumman Corporation; G. Krumdick, Argonne National Laboratory; R. Narayan, University of North Carolina

Phase Stability, Diffusion Kinetics and Their Applications (PSDK-III)

Organizer: Yongho Sohn, University of Central Florida
Co-organizers: J.E. Morral, Materials Science and Engineering, The Ohio State University; J.R. Morris, Oak Ridge National Laboratory; R. Arroyave, Texas A&M University; S. Babu, Edison Welding Institute; M. Asta, University of California - Davis

Phase Transformations and Microstructural Changes during Sustained Mechanical Forcing

Organizer: Rainer Hebert, University of Connecticut

Recent Advances in Structural Characterization of Materials

Organizer: Jacob L. Jones, University of Florida, Roumiana Petrova, New Jersey Institute of Technology,
Co-organizers: Juan C. Nino, University of Florida; Xiaoli Tan, Iowa State University; Zhonghou Cai and Dean Haefner, Argonne National Laboratory

Structure-Property Relationships in Multifunctional Materials

Organizer: Jim Marder, ASM International
Co-organizer: S. Mahajan, Arizona State University

The Effect of Electrical (and Electromagnetic) Fields and Stress (and Capillarity) on Diffusional Transport in Ceramics and Related Phenomena

Organizer: Rishi Raj, University of Colorado at Boulder
Co-organizers: S. Lee, University of Colorado at Boulder; D. Agrawal, Pennsylvania State University; P.F. Becher, Oak Ridge National Laboratory; H. Conrad, North Carolina State University

IRON AND STEEL**Advancements in Steel Production through EAF, Ladle Refining, and Continuous Casting Technologies and Practices**

Organizer: Les Niemi, Affval Inc.

Co-organizers: Ron OMalley, Nucor; Steel Decatur; Jeremy Jones, Nupro Corp.

International Symposium on Materials Engineering for Structural Applications

Organizer: Riad Asfahani, U. S. Steel Research & Technology

Co-organizers: D. Milbourn, M.J. Merwin; A.J. DeArdo and I.C. Garcia, U. S. Steel Research & Technology

New Developments in Processing and Properties of Zinc-Coated Sheet Steels

Organizer: Frank Goodwin, ILZRO

Co-organizer: J.R. McDermid, McMaster University

Recent Developments in Steel Processing

Organizers: Brian D. Nelson, Dofasco Inc; Elizabeth Worrall, Severstal North America

Refractory Innovations and Novel Applications in Iron & Steel Manufacture

Organizer: Dana Goski, Allied Mineral Products

Co-organizer: M. Alexander, Riverside Refractories

Steel Product Metallurgy and Applications

Organizer: Brian Nelson, Dofasco Inc.

Co-organizers: Raj Mohan, Severstal; Don Jordan, Ford Motor Co.; Elizabeth Worrall, Severstal North America

MATERIALS AND SYSTEMS**Advances in Biomedical and Biomimetic Materials**

Organizer: Roger Narayan, University of North Carolina

Co-organizers: P.N. Kumta, Carnegie Mellon University; W.R. Wagner, University of Pittsburgh

Advances in Characterization and Modeling of Cementitious Materials

Organizer: Zachary Grasley, Texas A&M University

Co-organizers: Arun Wagh, Argonne National Laboratory

Amorphous Materials: Common Issues within Science and Technology

Organizer: Steve Feller, Coe College

Enabling Surface Coating Systems: Science and Technology

Organizer: Dongming Zhu, NASA Glenn Research Center

Co-organizers: D.R. Mumm, University of California; H.T. Lin, Oak Ridge National Laboratory; P.S. Mohanty, University of Michigan; Y. Kagawa, University of Tokyo; R.W. Trice, Purdue University

Glass and Optical Materials

Organizer: Steve Feller, Coe College

Co-organizer: T.J. Kiczanski, Corning, Inc.

International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites

Organizer: Narottam P. Bansal, NASA Glenn Research Center

Co-organizer: J.P. Singh, Air Force Office of Scientific Research

NANOTECHNOLOGY**Controlled Processing of Nanoparticle Structures and Composites**

Organizer: Tom Hinklin, Ceramtec

Co-organizers: K. Lu and A. Aning Virginia Polytechnic Institute and State University; J. Voigt and K.G. Ewsuk, Sandia National Laboratories; M. Naito and H. Abe, Joining and Welding Research Institute, Osaka University; J.E. Smay, Oklahoma State University

Nano-Materials for Electronic & Multifunctional Applications

Organizer: Sharmila Mukhopadhyay, Wright State University

Co-organizer: S. Chan, Columbia University; R. Singh, University of Cincinnati

Nanotube-Reinforced Metal Matrix Composites

Organizer: Indrajit Charit, University of Idaho

Co-organizers: S. Seal, University of Central Florida; K.L. Murty, North Carolina State University

Nanotechnology for Power Generation

Organizers: Navin Manjoran, Siemens AG; Gary Pickrell, Virginia Polytechnic Institute and State University

PROCESSING AND PRODUCT MANUFACTURING**International Symposium on Ceramic Matrix Composites**

Organizer: Jitendra Singh, Air Force Office of Scientific Research

Co-organizers: N.P. Bansal, NASA Glenn Research Center; K. Niihara, Nagaoka University of Technology; A.R. Boccaccini, Imperial College of Science, Technology & Medicine

Joining of Advanced and Specialty Materials X

Organizer: Leijun Li, Utah State University

Co-Organizers: V.L. Acoff, The University of Alabama; Y. Huang, Key Safety Systems; M.C. Halbig, NASA Glenn Research Center; M. Brochu, McGill University; T. Lienert, Los Alamos National Laboratory; Norman Zhou, University of Waterloo

Micro-Manufacturing: Material Behavior, Deformation Mechanics, Process Control and Applications

Organizer: Muammer Koc, Virginia Commonwealth University

Co-organizers: Marwan K. Khraisheh, University of Kentucky

Paradigm Shift in the Metals Industry

Organizer: Y.V. Murty, Cellular Materials International

Co-organizers: Charles Parker, Honeywell Aerospace; J.F. Grubb, ATI Allegheny Ludlum

Processing, Properties and Performance of Composite Materials

Organizer: Nikhil Gupta, Polytechnic University

Co-organizers: P.C. Maity, National Institute of Foundry & Forge Technology; N. Chawla, Arizona State University; D.R. Herling, Pacific Northwest National Laboratory

Poster Presenter List

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
A					H				
Abe, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Hardy, J.S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Agrawal, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Hashibon, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Arellano, I.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	He, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Arellano, I.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Herman, D.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Arellano, I.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Hidalgo, R.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Arin, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Higuchi, T.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Arthur, W.G.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Honjo, T.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
B					I				
Bahmanpour, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Idalgo, W.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Bahmanpour, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Ionescu, R.D.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Bahmanpour, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	J				
Bahmanpour, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Jackson, W.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Barmak, K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Jang, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Barseghyan, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Jiang, B.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Bartwal, D.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Jin Woo, K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Beck, K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Jo, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Bellhouse, E.M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Jung, C.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Benitez, C.F.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	K				
Berhan, M.N.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Kalita, S.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Biering, I.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Kalita, S.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Bodhak, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Kalita, S.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Bontha, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Kamo, Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Boyne, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Kang, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Byun, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Kell, J.W.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
C					L				
Calderón, H.E.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Law, C.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Cardona, Y.P.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Lee, P.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Chan, H.M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Lee, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Chang, C.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Lee, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Chang, C.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Lee, W.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Chang, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Leonelli, C.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Chao, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Leonelli, C.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Chaves, M.R.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Lewandowski, J.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Chavez, T.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Lewandowski, J.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Cheng, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Li, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Cho, B.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Li, Z.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Choi, E.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Liao, Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Cintrón-Aponte, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	D				
Cruz, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Das, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
D					E				
DeCarlo, K.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Erdeniz, D.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Devine, B.D.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Espitia, M.I.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Dias, T.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Ewh, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Dominguez, O.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	F				
Dominguez, O.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Fan, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Drake, T.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Farahany, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Dutta, A.K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Farooqi, J.K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
E					G				
F					H				
G					I				
Godoi, G.S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	J				
Groven, L.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Jackson, W.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Gusman, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Jang, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
H					K				
I					L				
J					M				
K					N				
L					O				
M					P				
N					Q				
O					R				
P					S				
Q					T				
R					V				
S					W				
T					X				
V					Y				
W					Z				
X					AA				
Y					AB				
Z					AC				

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
M									
Ma, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Stoch, P.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Ma, Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Su, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Mahna, S.K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Su, Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Manisha, T.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Suarez-Orduña, R.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Mantina, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Suarez-Orduña, R.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Maurer, E.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Suarez-Orduña, R.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
McDowell, D.L.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Suarez-Orduña, R.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Mebane, D.S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Subramanian, K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Miller, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Sung, Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Mirhashemi, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	T				
Mitic, V.V.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Tancret, F.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Moelans, N.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Tang, Q.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Mohamed, A.E.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Tang, Z.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Monsegue, N.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Tatami, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Murari, N.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Thadhani, N.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Murari, N.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Thiele, G.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Muta, H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Thomas, R.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
N					Thompson, M.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Napolskii, K.S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Togambayeva, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Nathan, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Togambayeva, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Nishioka, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Topolov, V.Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Novick-Cohen, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Topolov, V.Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
O					Topolov, V.Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Olaya-Luengas, L.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Torrens, F.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
P					Torres, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Parga, C.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Trottier, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Park, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Tsai, C.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Park, N.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Tsuchiya, T.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Park, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	W				
Pathak, D.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Wang, B.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Pech-Canul, M.I.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47	Wang, J.H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Pee, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Wang, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Pee, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Wang, Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Pee, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Watari, K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Pérez-Acosta, J.A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Wei, G.C.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Piña Barba, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Wen, X.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Piña-Barba, C.M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Wu, L.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
Popescu, G.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Wu, X.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Popescu, G.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Wu, X.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Pradhan, D.K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Y				
Pramanick, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Yang, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Puri, S.R.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Yang, Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Q					Yoon, J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43
Qian, Z.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Yoon, Y.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
R					Yoshio, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
Rahman, S.W.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Yoshiya, M.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Rajgarhia, R.K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44	Yun, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42
RaviRaj, V.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Z				
Rivas-Vázquez, L.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Zhang, L.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Rivas-Vázquez, L.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Zhang, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Rodríguez Santoyo, H.H.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45	Zhang, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Rossa, A.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42	Zhu, D.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46
S					Zhu, G.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44
Saavedra-Arias, J.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43	Zhu, G.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Salem, H.G.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Zhu, G.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	45
Samant, A.N.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	46	Zhu, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	47
Sereda, B.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43					
Shang, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44					
Shankar, K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44					
Shi, X.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	44					
Silva, J.J.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42					
Singh, M.K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	42					
Sridharan, K.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43					
Stefanovsky, S.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43					
Stoch, P.	5-Oct	6:00PM	Ballroom Foyer, 3rd Floor	43					

Presenting Author List

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
A					Bahmanpour, H.	7-Oct	11:40AM	410	79
Abe, H.	6-Oct	3:40PM	408	65	Bahr, D.F.	7-Oct	8:40AM	308	73
Abraham, B.M.	9-Oct	10:20AM	310	114	Bai, B.	6-Oct	4:20PM	305	61
Adamo, C.	6-Oct	2:00PM	316	58	Bai, J.	7-Oct	3:20PM	410	88
Adams, S.N.	8-Oct	10:00AM	307	94	Baker, I.	8-Oct	11:00AM	309	96
Adedokun, S.	6-Oct	5:20PM	309	63	Baker, I.	8-Oct	4:20PM	408	108
Adeosun, S.O.	7-Oct	10:20AM	412	80	Baker, I.	9-Oct	8:40AM	333	117
Adler, A.	8-Oct	5:00PM	302	106	Bakshi, S.R.	6-Oct	11:40AM	409	54
Advani, S.G.	6-Oct	11:00AM	412	55	Balla, V.K.	7-Oct	10:00AM	333	76
Agaogullari, D.	8-Oct	4:20PM	336	108	Balla, V.K.	9-Oct	12:00PM	311	116
Agarwal, A.	6-Oct	2:10PM	409	65	Balla, V.K.	9-Oct	2:20PM	335	122
Agrawal, D.	7-Oct	8:00AM	336	77	Balla, V.K.	9-Oct	4:00PM	335	122
Aguirre Perales, L.Y.	9-Oct	8:00AM	311	116	Ballinger, R.G.	7-Oct	3:20PM	327	82
Ahn, C.	6-Oct	4:00PM	318	57	Banerjee, R.	7-Oct	8:40AM	333	76
Akarapu, R.	9-Oct	10:40AM	335	117	Baram, M.	6-Oct	4:00PM	301	60
Akbar, S.A.	8-Oct	9:20AM	409	99	Barbero, J.I.	7-Oct	10:00AM	329	75
Al Hajeri, K.	7-Oct	10:40AM	329	75	Bardez, I.	6-Oct	4:00PM	326	58
Albu, M.	8-Oct	5:20PM	309	106	Barney, I.T.	8-Oct	9:00AM	409	99
Alexander, D.	8-Oct	11:20AM	413	99	Baroghel-Bouny, V.	6-Oct	9:40AM	331	53
Alexandrov, B.T.	8-Oct	4:20PM	410	109	Barsoum, M.	8-Oct	8:00AM	323	92
Alford, N.	8-Oct	8:40AM	317	90	Barsoum, M.	8-Oct	9:00AM	308	94
Aliya, D.	9-Oct	10:40AM	304	113	Barsoum, M.W.	8-Oct	9:00AM	323	92
Alizadeh, R.	7-Oct	2:00PM	331	86	Bartolo, L.M.	6-Oct	12:00PM	403	48
Al-Jamal, W.T.	7-Oct	3:00PM	333	86	Basu, B.	6-Oct	11:00AM	408	54
Al-Jamal, W.T.	9-Oct	9:00AM	333	117	Basu, S.	7-Oct	11:40AM	308	73
Allan, D.C.	6-Oct	5:00PM	334	65	Basu, S.	8-Oct	8:40AM	308	94
Allan, S.M.	8-Oct	11:20AM	336	98	Bataille, A.	7-Oct	11:40AM	301	71
Allan, S.M.	8-Oct	2:00PM	323	103	Bathias, C.	7-Oct	8:00AM	305	72
Allazadeh, M.R.	8-Oct	9:40AM	330	97	Beach, E.R.	9-Oct	10:00AM	315	110
Allen, A.J.	6-Oct	11:20AM	309	52	Becker, C.A.	6-Oct	10:20AM	303	50
Allen, A.J.	6-Oct	4:00PM	331	64	Becker, K.D.	8-Oct	2:00PM	307	104
Allen, T.	6-Oct	9:40AM	323	50	Behera, S.K.	9-Oct	4:00PM	301	121
Almer, J.	7-Oct	8:00AM	309	74	Beladi, H.	6-Oct	2:20PM	330	63
Alshaaer, M.	8-Oct	4:40PM	323	103	Bell, L.	6-Oct	3:40PM	324	59
Al-Sharab, J.	8-Oct	11:00AM	308	94	Bellhouse, E.M.	6-Oct	10:00AM	328	52
Alvarez, E.	7-Oct	3:40PM	325	83	Bellon, P.M.	7-Oct	9:40AM	310	74
Amancio, S.	7-Oct	11:20AM	410	79	Bellon, P.M.	9-Oct	2:40PM	303	121
Amini, S.	7-Oct	4:00PM	412	88	Bender, B.A.	6-Oct	11:40AM	317	49
Amoroso, J.W.	8-Oct	10:40AM	307	94	Beniash, E.	6-Oct	11:20AM	333	53
Amruthaluri, S.	7-Oct	10:00AM	409	78	Bernthaler, T.	8-Oct	11:00AM	304	93
An, L.	7-Oct	3:20PM	412	88	Bestor, M.A.	9-Oct	10:00AM	306	115
An, L.	8-Oct	8:40AM	335	98	Bhaduri, S.B.	8-Oct	4:20PM	333	107
An, S.	9-Oct	11:20AM	301	112	Bharadwaja, S.	8-Oct	3:20PM	319	102
Anderson, H.U.	7-Oct	10:00AM	402	67	Bhujang Mutt, S.	9-Oct	2:00PM	318	120
Anderson, I.E.	7-Oct	8:00AM	319	69	Bi, Z.	6-Oct	3:00PM	316	58
Anderson, I.E.	8-Oct	11:00AM	403	89	Bian, Y.	6-Oct	11:20AM	328	52
Anderson, I.E.	8-Oct	2:00PM	409	108	Bieler, T.R.	7-Oct	10:40AM	319	69
Andio, M.A.	9-Oct	1:00PM	408	119	Bieler, T.R.	7-Oct	2:20PM	306	84
Aning, A.O.	8-Oct	9:20AM	412	100	Biener, J.	6-Oct	2:00PM	308	61
Annamalai, S.	8-Oct	3:40PM	409	108	Biernacki, J.J.	7-Oct	8:00AM	331	76
Annamalai, S.	9-Oct	10:40AM	409	119	Bilitz, E.A.	8-Oct	2:20PM	330	107
Antony, J.M.	7-Oct	10:40AM	412	80	Billings, K.D.	6-Oct	10:20AM	326	50
Apblett, A.	6-Oct	11:00AM	326	50	Blunk, R.H.	8-Oct	3:40PM	325	102
Apblett, A.	8-Oct	10:00AM	323	92	Bobnar, V.	7-Oct	11:40AM	317	69
Arfaei, B.	6-Oct	9:40AM	319	49	Boddapati, S.	8-Oct	8:40AM	410	100
Arroyave, R.	8-Oct	11:00AM	303	93	Bodhak, S.	8-Oct	3:20PM	301	103
Arroyave, R.	8-Oct	2:40PM	302	105	Bodhak, S.	8-Oct	9:20AM	333	97
Asta, M.	6-Oct	9:40AM	303	50	Boehlert, C.J.	8-Oct	10:40AM	305	94
Asthana, R.	8-Oct	10:20AM	410	100	Boehlert, C.J.	9-Oct	8:00AM	309	115
August, C.	7-Oct	3:40PM	413	88	Bontha, S.	6-Oct	10:00AM	410	55
Auliff, J.	8-Oct	3:50PM	403	101	Booth, J.C.	8-Oct	8:00AM	318	89
Avila Paredes, H.J.	6-Oct	2:40PM	307	61	Borges, M.S.	6-Oct	5:00PM	403	56
Awano, M.	8-Oct	8:40AM	327	91	Böttger, B.	9-Oct	8:00AM	302	115
Ayayee, P.	8-Oct	5:40PM	308	105	Böttner, H.	6-Oct	4:10PM	324	59
Ayers, J.E.	9-Oct	2:00PM	306	121	Bourell, D.L.	6-Oct	2:40PM	403	56
Azizi-Alizamini, H.	7-Oct	9:20AM	329	75	Bowan, B.W.	7-Oct	4:00PM	326	82
B					Bowman, K.J.	6-Oct	11:20AM	318	49
Babu, G.	7-Oct	11:40AM	331	77	Brahme, A.	6-Oct	2:00PM	306	61
Babu, S.S.	8-Oct	4:20PM	302	106	Branagan, D.J.	7-Oct	10:40AM	411	79
Bae, C.	6-Oct	3:40PM	336	65	Branagan, D.J.	9-Oct	2:40PM	335	122
Bae, C.	8-Oct	11:00AM	336	98	Brantley, W.	7-Oct	10:20AM	333	76
Bae, C.	8-Oct	8:40AM	336	98	Brennecka, G.L.	9-Oct	8:40AM	408	118
Bae, C.	8-Oct	9:00AM	336	98	Brenneman, R.G.	8-Oct	10:20AM	329	97
Bae, D.	7-Oct	8:40AM	409	78	Brinker, C.	7-Oct	1:00PM	406	67
Baeslack, W.A.	7-Oct	1:00PM	405	67	Brinson, C.	6-Oct	2:00PM	408	65
					Briselden, T.	9-Oct	8:40AM	325	111
					Brochu, M.	7-Oct	4:00PM	410	88

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Brown, R.E.	6-Oct	10:20AM	411	55	Chen, Q.	7-Oct	9:00AM	302	74
Brown-Shaklee, H.J.	7-Oct	10:00AM	413	79	Chen, R.	6-Oct	10:20AM	319	49
Brundidge, C.L.	8-Oct	9:00AM	305	94	Chen, S.	6-Oct	2:00PM	319	57
Buchanan, D.	9-Oct	11:00AM	310	114	Chen, T.	7-Oct	4:00PM	408	87
Budai, J.D.	6-Oct	4:40PM	309	62	Chen, X.	6-Oct	11:00AM	317	49
Bueno, P.R.	7-Oct	11:20AM	317	69	Chen, Z.	7-Oct	3:00PM	331	86
Bumrongjaroen, W.	6-Oct	11:20AM	331	53	Cheng, H.	6-Oct	4:40PM	302	62
Burns, M.G.	7-Oct	3:00PM	304	83	Cheng, J.	6-Oct	11:00AM	319	49
Buyukhatipoglu, K.	7-Oct	4:00PM	333	86	Chien, H.	8-Oct	4:20PM	335	108
Bykowski, M.	6-Oct	3:40PM	329	63	Ching, W.	9-Oct	4:20PM	316	120
C					Chiofalo, G.	8-Oct	3:40PM	330	107
Caillat, T.	6-Oct	2:30PM	324	59	Chisholm, B.	8-Oct	8:00AM	333	97
Calvert-Doyle, K.	9-Oct	10:40AM	333	117	Chisholm, M.	9-Oct	8:00AM	315	110
Campbell, C.	7-Oct	3:20PM	302	85	Cho, H.	9-Oct	10:20AM	330	117
Campbell, C.	8-Oct	10:20AM	303	93	Chockalingam, R.	7-Oct	8:40AM	307	72
Campbell, G.H.	8-Oct	2:00PM	309	106	Choi, J.	8-Oct	2:40PM	325	102
Cann, D.	7-Oct	3:40PM	316	82	Choi, S.	8-Oct	11:00AM	319	90
Cantres, N.	9-Oct	4:40PM	323	121	Chou, Y.	7-Oct	2:40PM	325	83
Cao, F.	7-Oct	3:20PM	335	87	Chou, Y.	8-Oct	8:00AM	325	91
Cao, G.	9-Oct	2:20PM	408	119	Choudhary, P.	7-Oct	9:00AM	330	76
Cao, J.	9-Oct	11:00AM	315	110	Choudhary, P.	7-Oct	9:20AM	330	76
Caputo, G.	8-Oct	8:40AM	408	98	Choudhuri, D.	6-Oct	10:00AM	319	49
Caram, R.	7-Oct	11:00AM	333	76	Choudki, B.L.	7-Oct	2:20PM	330	85
Cardona, Y.P.	9-Oct	2:20PM	318	120	Choudki, B.L.	7-Oct	2:20PM	330	85
Caris, J.	6-Oct	11:20AM	315	48	Christen, H.M.	6-Oct	4:40PM	316	58
Caris, J.	7-Oct	2:40PM	334	86	Christodoulou, L.	6-Oct	1:00PM	407	55
Carrasquillo, R.	7-Oct	8:40AM	412	80	Chueh, W.C.	7-Oct	11:40AM	307	72
Carter, E.A.	8-Oct	8:00AM	406	93	Chung, C.	7-Oct	8:20AM	331	76
Carter, W.C.	8-Oct	11:00AM	406	93	Chung, C.	7-Oct	8:40AM	331	76
Case, E.D.	6-Oct	11:00AM	327	50	Ciski, A.	7-Oct	2:20PM	328	85
Cashman, G.T.	8-Oct	8:00AM	305	93	Ciski, A.	7-Oct	2:20PM	328	85
Cass, R.B.	7-Oct	11:40AM	327	70	Clarke, R.	8-Oct	8:00AM	309	96
Catalina, A.V.	6-Oct	2:20PM	306	62	Colanto, D.	7-Oct	9:20AM	412	80
Caton, M.	9-Oct	10:00AM	305	113	Cole, M.W.	7-Oct	11:00AM	318	68
Cerezo, A.	6-Oct	11:20AM	301	50	Collins, G.	6-Oct	10:20AM	318	49
Cerreta, E.	6-Oct	11:20AM	306	51	Collins, J.G.	6-Oct	4:40PM	308	61
Cerully, L.B.	6-Oct	9:40AM	329	52	Collins, J.G.	8-Oct	10:00AM	305	94
Cha, P.	8-Oct	10:20AM	333	97	Compson, C.	9-Oct	8:40AM	336	118
Chakraborty, T.	9-Oct	3:20PM	319	120	Conrad, H.	8-Oct	8:00AM	311	96
Chan, H.M.	7-Oct	10:40AM	301	71	Contreras-Garcia, M.	7-Oct	3:40PM	408	87
Chan, K.S.	6-Oct	11:40AM	305	51	Contreras-Garcia, M.	8-Oct	5:00PM	333	107
Chan, S.	9-Oct	8:00AM	336	118	Contreras-Garcia, M.	9-Oct	4:40PM	335	122
Chandran, K.	6-Oct	2:20PM	305	60	Cook, L.P.	8-Oct	3:40PM	317	101
Chandran, K.	7-Oct	3:20PM	336	87	Cooper, K.P.	7-Oct	2:00PM	409	87
Chandran, P.	7-Oct	11:00AM	336	78	Cora, O.N.	8-Oct	10:00AM	330	97
Chang, K.	6-Oct	3:40PM	306	62	Cormack, A.N.	7-Oct	2:00PM	307	84
Chang, P.	8-Oct	9:20AM	305	94	Corral, E.L.	6-Oct	2:40PM	413	66
Chang, S.	9-Oct	10:40AM	408	118	Corral, E.L.	8-Oct	3:40PM	408	108
Chao, S.	7-Oct	2:40PM	317	81	Cosandey, F.	7-Oct	3:20PM	319	81
Charit, I.	7-Oct	10:00AM	323	70	Cottrell, M.A.	9-Oct	8:40AM	318	110
Chaswal, V.	8-Oct	2:40PM	317	101	Coulter, P.	9-Oct	11:40AM	323	112
Chaswal, V.	9-Oct	11:20AM	310	114	Cozzi, A.	6-Oct	3:40PM	326	58
Chaswal, V.	9-Oct	8:40AM	302	115	Cross, L.	7-Oct	10:00AM	315	67
Chatterjee, M.	7-Oct	10:20AM	330	76	Crowell, M.W.	7-Oct	9:00AM	335	77
Chawla, K.	6-Oct	2:00PM	412	66	Crum, J.V.	9-Oct	9:00AM	326	111
Chawla, N.	6-Oct	10:20AM	412	55	Cui, X.T.	8-Oct	8:20AM	333	97
Chawla, N.	8-Oct	5:00PM	303	104	Cunningham, D.J.	7-Oct	2:00PM	413	88
Chawla, N.	8-Oct	8:00AM	408	98	Curiotto, S.	6-Oct	3:20PM	301	60
Chen, C.	6-Oct	10:20AM	316	49	Curtarolo, S.	6-Oct	11:40AM	303	50
Chen, H.	7-Oct	8:00AM	325	70	D				
Chen, H.	9-Oct	10:20AM	315	110	Daniels, J.	7-Oct	8:40AM	309	74
Chen, I.	6-Oct	9:40AM	408	54	Dantal, B.R.	7-Oct	4:00PM	317	82
Chen, I.	8-Oct	10:00AM	315	89	Darsell, J.	8-Oct	8:00AM	410	100
Chen, I.	8-Oct	8:00AM	317	90	Darsell, J.	8-Oct	8:20AM	410	100
Chen, I.A.	7-Oct	11:00AM	331	77	Das, D.	6-Oct	4:40PM	329	63
Chen, J.	7-Oct	3:20PM	328	85	Dauskardt, R.	8-Oct	4:00PM	305	104
Chen, J.	7-Oct	3:20PM	328	85	Day, J.C.	7-Oct	8:40AM	335	77
Chen, L.	6-Oct	11:00AM	315	48	Dayananda, M.A.	8-Oct	8:00AM	302	95
Chen, L.	6-Oct	4:40PM	412	67	De Cooman, B.C.	6-Oct	10:00AM	330	53
Chen, L.	8-Oct	11:00AM	318	90	De Graef, M.	8-Oct	4:00PM	309	106
Chen, L.	8-Oct	8:40AM	318	89	De Souza, R.	8-Oct	3:40PM	307	104
Chen, L.	8-Oct	9:20AM	317	90	Deacon, R.	8-Oct	9:20AM	335	98
Chen, L.	9-Oct	2:00PM	303	121	Deibler, L.	7-Oct	9:00AM	334	77
Chen, L.	9-Oct	3:40PM	315	120	Dennies, D.P.	7-Oct	11:00AM	304	72
Chen, P.	8-Oct	10:40AM	323	92					

Presenting Author List

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Desai, P.G.	8-Oct	10:00AM	329	97	Feller, S.	7-Oct	11:00AM	334	77
Detrez, F.	8-Oct	2:40PM	308	105	Feng, W.	7-Oct	2:40PM	306	84
Deva, A.	7-Oct	2:40PM	330	85	Fife, J.L.	9-Oct	10:40AM	302	115
Deva, A.	7-Oct	2:40PM	330	85	Finkel, M.	7-Oct	3:20PM	334	86
Devanathan, R.	6-Oct	3:20PM	323	59	Finkel, M.	8-Oct	10:50AM	324	92
Devrani, G.	8-Oct	10:40AM	306	95	Firrao, D.	8-Oct	4:20PM	330	107
DeVries, P.H.	6-Oct	11:20AM	304	51	Fischman, G.	8-Oct	8:00AM	401	88
Dexheimer, S.L.	7-Oct	10:20AM	309	74	Flage-Larsen, E.	8-Oct	9:10AM	324	92
DiAntonio, C.	6-Oct	3:40PM	318	57	Fleig, J.	8-Oct	8:00AM	307	94
Dickinson, M.E.	9-Oct	10:20AM	333	117	Flower, L.	7-Oct	8:00AM	411	79
Dillon, A.	8-Oct	10:40AM	311	96	Foltz, J.	9-Oct	12:00PM	305	114
Dillon, S.J.	6-Oct	3:40PM	301	60	Fong, D.D.	7-Oct	9:00AM	309	74
Dinan, B.	9-Oct	1:20PM	408	119	Foreman, J.	7-Oct	2:00PM	Hall A	80
Dixit, V.	8-Oct	10:40AM	309	96	Foroozmehr, E.	9-Oct	9:20AM	410	119
Do, T.B.	7-Oct	3:40PM	317	82	Forsdike, J.P.	9-Oct	10:20AM	410	119
Doering, K.T.	6-Oct	10:20AM	304	51	Fox, K.M.	7-Oct	3:00PM	326	82
Dogan, F.	7-Oct	8:00AM	327	69	Fox, K.M.	8-Oct	9:00AM	326	91
Doherty, K.	9-Oct	10:40AM	311	116	Frafjord, J.	8-Oct	4:30PM	403	101
Dong, L.	8-Oct	9:00AM	310	95	Franch, B.	8-Oct	9:00AM	311	96
Dorr, J.	7-Oct	2:30PM	Hall A	80	Franch, B.	9-Oct	8:40AM	307	114
Dorsey, J.	7-Oct	8:40AM	334	77	Fredenburg, D.A.	9-Oct	10:00AM	311	116
Dougherty, L.M.	8-Oct	2:00PM	330	107	Freitag, B.	6-Oct	11:00AM	301	50
Dragomir-Daescu, D.	6-Oct	4:40PM	333	64	Freitag, B.	6-Oct	2:20PM	327	58
Dravid, V.	7-Oct	9:00AM	403	67	Fu, Q.	6-Oct	4:00PM	333	64
Droopad, R.	8-Oct	10:20AM	319	90	Fujii, H.	8-Oct	8:40AM	302	95
Drymiotis, F.	8-Oct	10:00AM	324	92	Fujishiro, Y.	8-Oct	10:00AM	327	91
Du, B.	6-Oct	3:00PM	412	67	Fujita, K.	8-Oct	4:00PM	315	101
Du, H.	7-Oct	3:40PM	319	81	Fukushima, M.	8-Oct	4:20PM	323	103
Duarte, L.I.	8-Oct	4:40PM	302	106	Fullen, W.J.	9-Oct	11:20AM	323	112
Dubois, S.	6-Oct	2:40PM	336	65	Fullen, W.J.	9-Oct	3:00PM	323	120
Dubois, S.	7-Oct	11:20AM	412	80	Fuller, E.R.	9-Oct	8:00AM	303	113
Dubois, S.	8-Oct	8:20AM	308	94	Funahashi, R.	6-Oct	4:40PM	324	59
Dunand, D.	7-Oct	2:20PM	333	86	Funakubo, H.	6-Oct	4:20PM	317	57
Dunand, D.	7-Oct	8:00AM	333	76	Funakubo, H.	7-Oct	8:00AM	403	67
Dunand, D.	9-Oct	10:00AM	302	115	Furuya, K.	8-Oct	9:00AM	408	99
Duong, A.	6-Oct	4:20PM	325	59					
Dutta, B.	9-Oct	10:00AM	335	117					
Dutta, B.	9-Oct	8:20AM	410	119					
Dynys, F.	8-Oct	11:20AM	327	91					
		E					G		
Earthman, J.C.	8-Oct	3:00PM	305	104	Gaikwad, V.B.	8-Oct	2:40PM	316	102
Ebert, W.	7-Oct	9:00AM	326	69	Gairola, A.	7-Oct	10:40AM	336	78
Ebrahimi, M.E.	7-Oct	10:40AM	317	69	Gammill, W.	9-Oct	11:00AM	335	117
Ebrahimi, M.E.	7-Oct	11:20AM	325	70	Ganef, P.	6-Oct	2:20PM	329	63
Eichel, R.	8-Oct	9:00AM	309	96	Ganeshan, S.	9-Oct	9:20AM	302	115
Eiblbeshy, M.A.	6-Oct	11:40AM	333	53	Gangireddy, S.	7-Oct	11:20AM	413	79
Elmaryami, A.	6-Oct	10:40AM	329	52	Gao, M.	7-Oct	9:20AM	319	69
El-Raghy, S.	7-Oct	10:40AM	327	70	Gao, M.	8-Oct	11:40AM	303	93
Elwazri, A.	6-Oct	2:40PM	330	63	Gao, N.	6-Oct	11:00AM	328	52
Elwazri, A.	7-Oct	8:00AM	329	75	Garas, V.Y.	7-Oct	10:40AM	331	76
Endo, Y.	7-Oct	4:00PM	327	82	Garboczi, E.J.	6-Oct	2:40PM	331	64
Eom, C.	6-Oct	9:40AM	316	49	Garboczi, E.J.	6-Oct	3:00PM	331	64
Eom, C.	9-Oct	2:40PM	315	120	Garboczi, E.J.	6-Oct	3:40PM	331	64
Erdman, N.	8-Oct	8:40AM	304	93	Garcia, C.	7-Oct	8:20AM	328	75
Ernst, F.	8-Oct	11:20AM	302	95	Garcia, D.	7-Oct	10:20AM	317	68
Esfahanian, M.	8-Oct	2:00PM	336	108	Garcia, D.	7-Oct	9:20AM	317	68
Esposito, V.	7-Oct	8:40AM	408	78	Garcia, R.	6-Oct	4:00PM	325	59
Estevane, J.	9-Oct	9:00AM	409	118	Garcia, R.	6-Oct	4:40PM	317	57
Evans, A.	6-Oct	2:00PM	407	55	Garofalini, S.	8-Oct	3:40PM	301	103
Evans, N.D.	8-Oct	2:40PM	309	106	Garofano, J.K.	9-Oct	10:40AM	309	115
Evans, P.	6-Oct	2:40PM	309	62	Gearing, D.	7-Oct	2:00PM	402	80
		F			Geltmacher, A.B.	8-Oct	3:40PM	303	104
Faber, K.T.	6-Oct	11:10AM	404/405	48	Gentile, P.S.	7-Oct	10:40AM	325	70
Fabian, R.	8-Oct	2:50PM	403	100	George, P.	8-Oct	9:00AM	333	97
Faeghi-Nia, A.	6-Oct	4:00PM	413	66	Gerogiorgis, D.I.	6-Oct	2:40PM	306	62
Faierson, E.J.	7-Oct	2:00PM	336	87	Ghosal, S.	8-Oct	11:00AM	330	97
Falk, M.L.	7-Oct	8:00AM	310	74	Gibbons, B.	8-Oct	4:40PM	307	105
Fall, M.L.	7-Oct	9:20AM	336	78	Gibbons, B.J.	6-Oct	3:40PM	316	58
Fallahi, A.	6-Oct	10:00AM	306	51	Giles, M.M.	7-Oct	2:20PM	413	88
Fang, J.	8-Oct	4:20PM	308	105	Gill, A.	9-Oct	9:20AM	310	114
Fang, L.	6-Oct	3:40PM	308	61	Gill, P.S.	7-Oct	10:40AM	409	78
Farooqi, J.K.	8-Oct	5:40PM	303	104	Gin, S.	7-Oct	9:20AM	326	69
Fatehi, A.	7-Oct	8:20AM	329	75	GINLEY, D.	6-Oct	3:30PM	404/405	56
					Giri, R.	6-Oct	10:20AM	329	52
					Gitis, N.	8-Oct	4:00PM	308	105
					Goin, R.D.	7-Oct	9:20AM	411	79
					Gokhale, A.M.	7-Oct	2:00PM	305	84
					Gokhale, A.M.	8-Oct	4:20PM	303	104
					Gomez, H.	8-Oct	11:20AM	409	99

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Gong, M.	9-Oct	8:20AM	325	111	Hill, D.M.	9-Oct	10:00AM	336	118
Goran, D.	9-Oct	11:20AM	311	116	Hilmas, G.E.	7-Oct	11:00AM	413	79
Gorman, B.P.	9-Oct	11:20AM	309	116	Hirao, K.	6-Oct	3:00PM	334	65
Gorman, B.P.	9-Oct	9:00AM	319	110	Hoffman, E.	9-Oct	2:40PM	323	120
Gorzakowski, E.P.	7-Oct	3:20PM	317	82	Hoffmann, M.J.	8-Oct	10:20AM	406	93
Gothard, N.	7-Oct	9:00AM	324	71	Holesinger, T.G.	7-Oct	8:40AM	315	67
Goto, T.	8-Oct	3:40PM	335	108	Holgate, T.	8-Oct	10:30AM	324	92
Goudy, C.	8-Oct	11:00AM	Hall A	89	Holt, S.	7-Oct	2:40PM	336	87
Goyal, A.	7-Oct	11:20AM	408	78	Hopper, E.	7-Oct	3:40PM	307	84
Goyal, G.	8-Oct	11:40AM	335	98	Hosohara, S.	8-Oct	4:00PM	329	107
Grabulov, A.	7-Oct	12:00PM	305	72	Hovanski, Y.	7-Oct	8:00AM	410	79
Graeve, O.A.	8-Oct	5:00PM	408	108	Howard, K.E.	6-Oct	2:20PM	403	56
Granasy, L.	9-Oct	10:00AM	303	113	Howe, J.M.	9-Oct	3:40PM	301	121
Grande, T.	7-Oct	8:00AM	307	72	Howell, P.R.	6-Oct	11:20AM	403	48
Grande, T.	8-Oct	9:20AM	318	89	Howell, P.R.	6-Oct	4:40PM	403	56
Granzow, T.	9-Oct	9:00AM	318	110	Hoyt, J.J.	7-Oct	8:00AM	302	74
Grasley, Z.C.	6-Oct	11:00AM	331	53	Hu, L.	7-Oct	3:00PM	335	87
Grasley, Z.C.	6-Oct	2:00PM	326	58	Hu, M.Z.	7-Oct	2:40PM	408	87
Gray, G.T.	7-Oct	8:20AM	304	72	Hua, M.	7-Oct	9:20AM	328	75
Green, E.	6-Oct	4:00PM	404/405	56	Huang, C.	7-Oct	2:00PM	334	86
Gremillard, L.	7-Oct	9:20AM	301	71	Huang, L.	6-Oct	9:40AM	410	55
Gross, S.J.	6-Oct	11:40AM	315	48	Huang, R.	9-Oct	9:20AM	306	115
Gross, S.J.	6-Oct	2:00PM	315	56	Huang, X.	6-Oct	2:40PM	308	61
Gross, T.M.	7-Oct	10:00AM	334	77	Huang, Y.	7-Oct	8:00AM	304	72
Grubb, J.F.	6-Oct	2:40PM	411	66	Huang, Y.	9-Oct	10:40AM	410	119
Grubb, J.F.	6-Oct	9:40AM	411	55	Huang, Y.	9-Oct	8:40AM	410	119
Grylls, R.	9-Oct	8:00AM	410	119	Huey, B.D.	8-Oct	10:00AM	309	96
Guerra, Z.	9-Oct	8:40AM	327	112	Huey, B.D.	8-Oct	9:00AM	318	89
Guo, F.	6-Oct	11:20AM	319	49	Huey, B.D.	9-Oct	11:20AM	315	110
Guo, H.	9-Oct	9:20AM	325	111	Hwang, B.	6-Oct	4:00PM	329	63
Guo, R.	7-Oct	8:00AM	317	68	Hwang, J.	7-Oct	9:20AM	409	78
Guo, Y.	7-Oct	8:20AM	334	77					
Gupta, N.	9-Oct	2:40PM	412	123					
Gupta, N.	9-Oct	8:40AM	412	119					
		H							
Habermeier, H.	7-Oct	10:30AM	324	71	Ibberson, R.M.	6-Oct	10:00AM	309	52
Hahn, D.	6-Oct	3:00PM	317	57	Ibrahim, A.	8-Oct	9:00AM	410	100
Halbig, M.	8-Oct	9:20AM	410	100	Ice, G.E.	6-Oct	2:40PM	323	59
Halloran, J.W.	8-Oct	8:00AM	336	98	Ice, G.E.	6-Oct	4:00PM	309	62
Halloran, J.W.	9-Oct	8:00AM	327	112	Ikuhara, Y.	9-Oct	2:40PM	301	121
Halloran, J.W.	9-Oct	8:20AM	327	112	Ikuhara, Y.H.	8-Oct	5:40PM	309	106
Hamann, J.A.	8-Oct	5:20PM	335	108	Imam, M.	7-Oct	10:20AM	336	78
Hamilton, B.	7-Oct	8:40AM	319	69	Imanaka, Y.	9-Oct	2:00PM	319	120
Han, M.	9-Oct	10:40AM	330	117	Imrich, K.	7-Oct	3:20PM	326	82
Han, W.	7-Oct	4:20PM	334	86	Infiguez-Sánchez, C.A.	6-Oct	2:00PM	331	64
Han, X.	9-Oct	4:00PM	306	121	Iqbal, S.S.	9-Oct	11:40AM	311	116
Hanaki, S.	9-Oct	8:40AM	305	113	Isaacs, E.D.	6-Oct	3:40PM	309	62
Handa, K.	9-Oct	10:00AM	330	117	Isaacs, J.	9-Oct	10:00AM	323	112
Haneda, H.	9-Oct	10:00AM	307	114	Isaacs, J.	9-Oct	10:20AM	323	112
Hanke, L.	8-Oct	11:20AM	304	93	Ishihara, T.	9-Oct	9:00AM	307	114
Hanke, L.	8-Oct	2:10PM	403	100	Ishikawa, T.	8-Oct	10:40AM	413	99
Hanrahan, R.J.	9-Oct	9:20AM	326	111	Ishimoto, Y.	7-Oct	10:20AM	308	73
Hansen, E.	6-Oct	2:40PM	326	58	Islam, M.	6-Oct	10:40AM	327	50
Hansford, B.E.	9-Oct	11:20AM	304	113	Islam, M.	6-Oct	9:40AM	307	51
Harkness, J.C.	6-Oct	3:40PM	315	56	Islam, M.	8-Oct	5:40PM	302	106
Harlow, G.	7-Oct	2:40PM	305	84	Islam, R.	7-Oct	4:00PM	318	81
Harmer, M.P.	8-Oct	1:00PM	406	100	Ivanov, V.A.	9-Oct	8:00AM	301	112
Harris, R.D.	7-Oct	2:00PM	304	83	Iwasawa, J.	9-Oct	10:20AM	319	111
Hasegawa, M.	7-Oct	2:00PM	335	86	Izui, H.	8-Oct	10:40AM	412	100
Hashibon, A.	7-Oct	10:00AM	301	71					
Hashimura, M.	7-Oct	8:20AM	330	75					
Haugan, T.	9-Oct	3:40PM	316	120	Jain, G.H.	8-Oct	11:00AM	315	89
Havelia, S.	6-Oct	4:20PM	316	58	Jain, M.	9-Oct	10:20AM	316	111
Hayzelden, C.	9-Oct	8:40AM	309	115	Jain, V.	8-Oct	11:20AM	326	91
He, J.	9-Oct	4:20PM	315	120	Jang, B.	6-Oct	11:40AM	413	54
Headrick, W.L.	8-Oct	11:00AM	329	97	Janssens, K.G.	7-Oct	4:00PM	305	84
Heard, R.	8-Oct	10:20AM	323	92	Jansto, S.G.	7-Oct	8:00AM	328	75
Heller, D.	8-Oct	10:20AM	335	98	Jantzen, C.M.	7-Oct	8:40AM	326	69
Helmick, L.	9-Oct	10:20AM	301	112	Jantzen, C.M.	9-Oct	2:00PM	323	120
Heo, T.	7-Oct	2:00PM	306	84	Jaques, B.J.	7-Oct	3:00PM	336	87
Herderick, E.D.	8-Oct	10:00AM	409	99	Jaques, B.J.	8-Oct	3:40PM	326	102
Herman, C.C.	8-Oct	8:00AM	326	91	Jayasinghe, S.	6-Oct	2:40PM	333	64
Heuer, A.H.	6-Oct	10:00AM	329	52	Jean, J.	8-Oct	10:40AM	317	90
Heuer, A.H.	8-Oct	8:40AM	406	93	Jeevan Kumar, D.	9-Oct	9:00AM	412	119
Hibbard, G.D.	9-Oct	8:40AM	311	116	Jenkins, C.F.	7-Oct	2:40PM	328	85
					Jenner, F.	6-Oct	10:20AM	330	53
					Jeong, D.	9-Oct	8:00AM	304	113

Presenting Author List

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Scherer, G.W.	7-Oct	4:00PM	301	86	Singh, V.	6-Oct	2:50PM	409	65
Scheu, C.	9-Oct	3:20PM	301	121	Singh, V.	8-Oct	10:40AM	333	97
Schirer, J.	8-Oct	5:20PM	308	105	Singleton, O.R.	9-Oct	4:20PM	323	121
Schmidt, Jr. - P.E., F.E.	8-Oct	2:20PM	304	104	Sinha, K.	9-Oct	9:20AM	408	118
Schneider, J.	9-Oct	10:00AM	412	119	Sinnott, S.B.	7-Oct	2:20PM	308	84
Schofield, J.M.	8-Oct	10:20AM	326	91	Sintay, S.D.	7-Oct	3:20PM	305	84
Schreiber, H.D.	6-Oct	4:20PM	326	58	Sisson, R.D.	6-Oct	3:00PM	329	63
Schubert, H.	8-Oct	8:40AM	307	94	Sisson, R.D.	9-Oct	8:00AM	323	112
Schultz, B.F.	7-Oct	3:40PM	412	88	Smith, J.	6-Oct	11:40AM	403	48
Schurwanz, M.	7-Oct	2:20PM	317	81	Smith, M.E.	7-Oct	2:20PM	326	82
Schwartz, R.W.	6-Oct	2:00PM	403	56	So, Y.	9-Oct	10:40AM	412	119
Schwartz, R.W.	7-Oct	8:40AM	316	68	Soboyejo, W.O.	6-Oct	10:00AM	333	53
Scott, B.L.	8-Oct	2:40PM	409	108	Sohma, M.	8-Oct	8:00AM	327	91
Scott, B.L.	9-Oct	8:00AM	409	118	Sojka, P.E.	9-Oct	8:00AM	335	117
Scumpu, S.	7-Oct	8:40AM	328	75	Sonderegger, B.	7-Oct	11:40AM	302	74
Sears, J.W.	9-Oct	10:00AM	319	110	Song, H.	9-Oct	9:00AM	310	114
Seelam, U.R.	8-Oct	11:00AM	335	98	Soni, S.K.	6-Oct	11:00AM	333	53
Sehrioglu, A.	6-Oct	11:40AM	309	52	Sorge, J.D.	8-Oct	9:20AM	408	99
Sehrioglu, A.	9-Oct	10:00AM	318	110	Spanos, G.	7-Oct	2:40PM	302	85
Seidman, D.N.	6-Oct	11:00AM	302	52	Spearot, J.A.	6-Oct	3:00PM	406	56
Seidman, D.N.	8-Oct	10:40AM	302	95	Spowart, J.E.	6-Oct	9:40AM	412	55
Self, B.G.	8-Oct	2:20PM	329	106	Srivastava, G.	7-Oct	2:40PM	316	82
Semboshi, S.	6-Oct	3:00PM	315	56	Srivastava, V.K.	8-Oct	11:00AM	412	100
Sen, S.	6-Oct	2:00PM	307	61	Srolovitz, D.J.	6-Oct	2:40PM	301	60
Sereda, B.	6-Oct	3:00PM	306	62	Stafslien, S.J.	8-Oct	8:40AM	333	97
Sereda, B.	8-Oct	11:20AM	330	97	Stainbrook, J.	6-Oct	4:20PM	315	56
Seyfarth, A.	9-Oct	8:40AM	328	116	Stan, M.	8-Oct	2:00PM	326	102
Shahhosseini, A.	9-Oct	11:00AM	330	117	Stefanovsky, S.	7-Oct	2:00PM	326	82
Shahhosseini, A.	9-Oct	8:20AM	330	116	Steighner, M.	8-Oct	10:00AM	308	94
Shahhosseini, A.	9-Oct	8:40AM	330	116	Steiner, K.	8-Oct	10:40AM	304	93
Shahhosseini, A.	9-Oct	9:00AM	330	117	Stoudt, M.R.	7-Oct	8:40AM	306	73
Shakouri, A.	7-Oct	8:30AM	324	71	Strachan, A.	7-Oct	4:00PM	303	83
Sham, K.	8-Oct	3:40PM	410	109	Struble, L.J.	6-Oct	4:20PM	331	64
Shamimi Nouri, A.	7-Oct	2:20PM	334	86	Struble, L.J.	6-Oct	4:40PM	331	64
Shan, Z.	6-Oct	3:00PM	308	61	Subhash, G.	7-Oct	11:20AM	309	75
Shankar, C.	7-Oct	8:00AM	334	77	Subhash, G.	7-Oct	3:40PM	334	86
Shanov, V.	8-Oct	8:00AM	409	99	Subramanian, K.	7-Oct	8:40AM	310	74
Shao, L.	8-Oct	4:40PM	409	109	Suda, S.	8-Oct	9:00AM	325	91
Shaw, L.	7-Oct	10:00AM	408	78	Suh, D.	8-Oct	4:00PM	330	107
Shaw, L.	8-Oct	2:40PM	333	107	Sui, L.	8-Oct	11:40AM	408	99
Shaw, L.	9-Oct	8:00AM	310	114	Sun, T.	6-Oct	5:00PM	309	62
Sheng, G.	7-Oct	8:00AM	318	68	Sun, Y.	8-Oct	10:20AM	409	99
Sheng, G.	7-Oct	8:20AM	318	68	Sunayama, H.	8-Oct	3:40PM	329	107
Shet, S.	8-Oct	10:00AM	306	95	Sundaram, S.K.	6-Oct	10:20AM	404/405	48
Shet, S.	8-Oct	2:20PM	306	105	Sundaram, S.K.	8-Oct	3:40PM	323	103
Shet, S.	9-Oct	10:20AM	306	115	Sundlof, B.	6-Oct	4:30PM	404/405	56
Shi, D.	9-Oct	8:00AM	333	117	Sunny, G.	7-Oct	3:00PM	334	86
Shi, X.	8-Oct	8:30AM	324	92	Sunseri, E.	7-Oct	10:40AM	302	74
Shibata, J.	9-Oct	4:00PM	323	121	Surappa, M.K.	7-Oct	2:40PM	412	88
Shim, K.	6-Oct	2:00PM	413	66	Surappa, M.K.	8-Oct	10:00AM	412	100
Shimamura, J.	8-Oct	4:40PM	330	107	Susan, D.F.	6-Oct	2:20PM	315	56
Shimamura, K.	7-Oct	3:00PM	317	81	Sussman, R.	6-Oct	2:00PM	411	66
Shimizu, S.	7-Oct	3:40PM	305	84	Suvorov, D.	7-Oct	8:40AM	317	68
Shin, D.	7-Oct	11:40AM	303	71	Suzuki, T.	9-Oct	2:40PM	319	120
Shiozawa, K.	7-Oct	10:00AM	305	72	Sychterz, J.	8-Oct	2:00PM	Hall A	100
Shipley, R.J.	6-Oct	2:00PM	304	60	Sychterz, J.	8-Oct	2:40PM	Hall A	100
Shipley, R.J.	6-Oct	4:40PM	304	60	Szczepanski, C.J.	7-Oct	8:40AM	305	72
Shoda, H.	7-Oct	10:20AM	328	75					
Shrestha, T.	6-Oct	4:20PM	409	66					
Shulman, H.S.	7-Oct	10:00AM	336	78					
Shyam, A.	7-Oct	11:00AM	327	70	Tachibana, T.	7-Oct	11:00AM	410	79
Shyam, A.	8-Oct	4:40PM	305	104	Tadesse, Y.	8-Oct	4:00PM	317	101
Siegel, D.	7-Oct	8:40AM	303	71	Takeda, N.	6-Oct	3:40PM	319	58
Sigmund, W.M.	8-Oct	10:40AM	408	99	Takenaka, T.	7-Oct	11:00AM	317	69
Sikha, S.K.	8-Oct	4:20PM	306	105	Tanaka, S.	7-Oct	9:00AM	317	68
Silva, R.	6-Oct	4:20PM	333	64	Tancrret, F.	9-Oct	10:00AM	301	112
Sim, C.	8-Oct	2:00PM	315	101	Tang, J.	7-Oct	11:20AM	324	71
Sinclair, D.	6-Oct	9:40AM	317	49	Tang, L.	6-Oct	3:00PM	325	59
Singh Anterpreet, B.	8-Oct	4:40PM	317	101	Tang, Y.	9-Oct	8:20AM	336	118
Singh, A.	9-Oct	4:40PM	306	121	Tani, T.	9-Oct	8:00AM	408	118
Singh, A.K.	8-Oct	3:40PM	336	108	Tanzer, A.B.	8-Oct	8:00AM	304	93
Singh, D.	7-Oct	10:00AM	308	73	Tao, X.	7-Oct	11:00AM	412	80
Singh, M.	8-Oct	10:00AM	410	100	Task, M.N.	7-Oct	3:00PM	327	82
Singh, N.B.	7-Oct	11:20AM	334	77	Tatami, J.	8-Oct	2:00PM	408	108
Singh, N.B.	9-Oct	2:40PM	306	121	Tatsumi, H.	6-Oct	3:00PM	319	57
Singh, R.N.	8-Oct	8:40AM	413	99	Tennent, D.	7-Oct	3:00PM	Hall A	80
Singh, S.K.	8-Oct	8:40AM	325	91	Thom, A.J.	7-Oct	9:00AM	333	76

T

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Thomas, E.L.	7-Oct	11:00AM	324	71	Wakihara, T.	8-Oct	4:00PM	323	103
Thompson, C.	6-Oct	4:20PM	309	62	Walker, R.	6-Oct	2:00PM	328	63
Thompson, M.J.	7-Oct	8:40AM	413	78	Walkosz, W.	6-Oct	4:20PM	301	60
Thornton, K.	8-Oct	2:40PM	303	104	Wang, C.	9-Oct	8:20AM	328	116
Tiley, J.	7-Oct	9:20AM	309	74	Wang, H.	8-Oct	2:00PM	324	103
Tiruvalam, R.	9-Oct	11:00AM	309	116	Wang, H.	9-Oct	4:00PM	316	120
Tiwari, S.	7-Oct	10:40AM	308	73	Wang, J.	9-Oct	2:40PM	316	120
Todd, R.I.	6-Oct	11:00AM	413	54	Wang, K.	6-Oct	3:00PM	408	65
Tomeckova, V.	8-Oct	10:40AM	336	98	Wang, K.	7-Oct	11:00AM	302	74
Tomeckova, V.	8-Oct	9:20AM	336	98	Wang, L.	8-Oct	4:20PM	317	101
Tomes, P.	7-Oct	2:30PM	324	83	Wang, S.	6-Oct	11:40AM	306	51
Tomimatsu, T.	6-Oct	4:20PM	308	61	Wang, S.	6-Oct	2:40PM	316	58
Tomozawa, M.	6-Oct	4:20PM	334	65	Wang, X.	6-Oct	3:00PM	309	62
Tomsia, A.P.	8-Oct	2:00PM	301	103	Wang, X.	7-Oct	9:00AM	319	69
Tomsia, A.P.	8-Oct	3:40PM	333	107	Wang, X.	9-Oct	2:20PM	330	122
Topping, T.D.	7-Oct	8:20AM	412	80	Wang, Y.	7-Oct	2:00PM	302	85
Torres-Garibay, C.	8-Oct	10:00AM	336	98	Wang, Y.	7-Oct	4:00PM	335	87
Torres-Garibay, C.	8-Oct	10:20AM	336	98	Wang, Y.	7-Oct	9:00AM	306	73
Torsner, E.	6-Oct	4:00PM	411	66	Wang, Y.	8-Oct	10:20AM	412	100
Touzin, M.	6-Oct	10:20AM	336	53	Wang, Y.U.	6-Oct	2:00PM	318	57
Trice, R.	7-Oct	10:00AM	335	77	Wang, Y.U.	8-Oct	11:20AM	309	96
Trolier-McKinstry, S.	6-Oct	11:20AM	316	49	Warren, J.A.	9-Oct	10:40AM	303	113
Trolier-McKinstry, S.	6-Oct	9:40AM	318	49	Watanabe, T.	9-Oct	4:00PM	333	122
Tryon, R.	9-Oct	10:40AM	305	113	Watari, K.	8-Oct	2:40PM	323	103
Tschopp, M.	7-Oct	10:40AM	306	73	Watcharotone, S.	6-Oct	4:40PM	408	65
Tschopp, M.	9-Oct	11:00AM	301	112	Watts, J.	7-Oct	10:20AM	413	79
Tsuchiya, T.	6-Oct	11:00AM	316	49	Watts, J.L.	6-Oct	9:40AM	306	51
Tsujino, M.	6-Oct	2:20PM	410	66	Way, H.	7-Oct	3:30PM	Hall A	80
Tsurumi, T.	8-Oct	2:00PM	319	102	Way, H.	8-Oct	2:40PM	408	108
Tu, J.J.	7-Oct	3:30PM	324	83	Weeks, M.D.	7-Oct	11:00AM	335	77
Tucker, J.	7-Oct	11:40AM	413	79	Wei, Q.	7-Oct	8:20AM	308	73
Tuller, H.L.	7-Oct	10:00AM	307	72	Weichert, K.	6-Oct	11:20AM	307	51
Tyson, T.A.	7-Oct	3:10PM	324	83	Weidenkaff, A.	7-Oct	2:00PM	324	83
		U			Welk, M.	8-Oct	9:00AM	403	89
Ubic, R.	6-Oct	10:20AM	317	49	Wentz, J.D.	7-Oct	3:00PM	402	80
Ueda, M.	8-Oct	11:20AM	333	97	Wereszczak, A.	7-Oct	10:20AM	403	67
Ugorek, M.	6-Oct	4:20PM	318	57	Wessels, B.	9-Oct	9:00AM	316	111
Ulvan, E.	7-Oct	9:00AM	304	72	Weyant, J.	8-Oct	2:40PM	335	107
Umemoto, M.	8-Oct	8:00AM	310	95	Whitbeck, R.	7-Oct	11:20AM	329	75
Umezawa, O.	8-Oct	11:00AM	323	92	White, C.E.	6-Oct	11:40AM	334	54
Uno, M.	7-Oct	3:40PM	327	82	White, J.	8-Oct	11:00AM	325	92
Uranga, P.	7-Oct	9:00AM	328	75	White, K.	6-Oct	3:40PM	403	56
Utsuno, S.	7-Oct	3:40PM	409	87	Wiemhöfer, H.D.	7-Oct	3:00PM	307	84
Uzomah, C.	7-Oct	3:40PM	333	86	Wilde, G.	7-Oct	2:40PM	310	85
		V			Wildridge, G.A.	8-Oct	4:00PM	304	104
Vajram, R.	9-Oct	11:00AM	412	119	Wilkinson, A.P.	6-Oct	11:00AM	309	52
van de Walle, A.	9-Oct	4:00PM	303	121	Wilks, G.B.	7-Oct	11:00AM	306	73
Van de Walle, C.G.	7-Oct	11:00AM	303	71	Williams, J.C.	6-Oct	2:30PM	407	55
Van der Ven, A.	6-Oct	2:00PM	302	62	Willsey, A.G.	7-Oct	9:20AM	325	70
Van der Ven, A.	8-Oct	9:00AM	307	94	Wilson, O.C.	6-Oct	10:20AM	333	53
Van Iseghem, P.	7-Oct	8:00AM	326	69	Wilson, O.C.	8-Oct	4:40PM	333	107
Van Iseghem, P.	7-Oct	8:20AM	326	69	Winchester, B.	7-Oct	10:00AM	318	68
Vander Wal, R.L.	8-Oct	5:00PM	409	109	Winter, M.R.	6-Oct	4:40PM	318	57
Vicente Alvarez, M.A.	8-Oct	2:40PM	330	107	Wirth, B.D.	6-Oct	11:00AM	323	50
Vielzeuf, D.P.	8-Oct	2:40PM	301	103	Wirth, B.D.	6-Oct	3:40PM	303	60
Vienna, J.	8-Oct	10:00AM	326	91	Woldesenbet, E.	9-Oct	2:00PM	412	123
Villafuerte, J.	6-Oct	11:20AM	336	54	Wolverton, C.	7-Oct	10:20AM	303	71
Villanueva, W.	7-Oct	8:40AM	302	74	Wong-Ng, W.	7-Oct	2:50PM	324	83
Vincent, T.S.	9-Oct	8:40AM	319	110	Wong-Ng, W.	8-Oct	2:20PM	317	101
Viswanathan, G.	9-Oct	9:00AM	309	115	Wood, B.	7-Oct	9:40AM	303	71
Viswanathan, G.B.	9-Oct	10:20AM	302	115	Wooddell, M.	8-Oct	4:00PM	409	109
Viswanathan, S.	8-Oct	10:20AM	330	97	Woodward, P.M.	7-Oct	3:00PM	316	82
Viswanathan, S.	8-Oct	2:00PM	412	109	Wu, C.	6-Oct	4:40PM	325	59
Vogt, R.	7-Oct	8:00AM	412	80	Wu, J.	9-Oct	10:20AM	325	111
Voyles, P.	7-Oct	2:00PM	319	81	Wu, K.	7-Oct	10:40AM	330	76
Vozdecky, P.	6-Oct	10:20AM	410	55	Wu, L.	8-Oct	3:40PM	324	103
Vullum, F.	6-Oct	11:00AM	336	54	Wu, Q.	6-Oct	11:40AM	331	53
Vyas, A.	8-Oct	12:00PM	408	99	Wu, W.	7-Oct	4:20PM	410	88
		W			Wu, X.	7-Oct	3:20PM	330	85
Wada, K.	7-Oct	10:40AM	335	77	Wu, X.	7-Oct	3:20PM	330	85
Wagner, B.	8-Oct	8:00AM	306	95	Wynblatt, P.	6-Oct	10:20AM	301	50
Wagner, W.	7-Oct	11:40AM	333	76			X		
					Xiao, H.	9-Oct	8:20AM	409	118
					Xing, L.	7-Oct	10:00AM	410	79
					Xu, T.	9-Oct	9:40AM	326	111

Presenting Author List

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Y									
Yamaguchi, S.	6-Oct	3:40PM	307	61					
Yamamoto, Y.	7-Oct	2:00PM	410	88					
Yamanaka, S.	8-Oct	4:00PM	326	102					
Yan, L.	7-Oct	10:20AM	316	68					
Yan, L.	7-Oct	11:00AM	329	75					
Yang, G.	7-Oct	10:40AM	309	75					
Yang, J.	6-Oct	2:00PM	324	59					
Yang, J.	8-Oct	8:50AM	324	92					
Yang, R.	8-Oct	2:00PM	306	105					
Yang, X.	7-Oct	4:00PM	413	88					
Yang, Z.	9-Oct	8:00AM	325	111					
Yanke, J.M.	7-Oct	11:40AM	335	77					
Yao, K.	9-Oct	9:00AM	315	110					
Yasuda, Y.	6-Oct	2:40PM	319	57					
Yedidi, E.p.	7-Oct	11:00AM	409	78					
Yedidi, E.p.	7-Oct	3:20PM	333	86					
Yeh, T.C.	6-Oct	11:00AM	307	51					
Yeon, D.	7-Oct	8:20AM	306	73					
Yoo, H.	9-Oct	10:40AM	307	114					
Yoon, S.	7-Oct	4:00PM	307	84					
Yoshiya, M.	7-Oct	11:40AM	324	71					
Youchak, A.L.	8-Oct	11:00AM	326	91					
Youngsman, J.	7-Oct	11:20AM	327	70					
Yu, H.	6-Oct	3:00PM	302	62					
Yu, W.	7-Oct	10:20AM	329	75					
Yu, X.	6-Oct	2:40PM	328	63					
Yuh, C.	7-Oct	2:00PM	325	83					
Yuki, N.	6-Oct	10:20AM	315	48					
Yun, S.	9-Oct	8:40AM	304	113					
Z									
Zacherl, D.	8-Oct	2:00PM	329	106					
Zavattieri, P.D.	8-Oct	8:20AM	330	96					
Zeagler, A.	8-Oct	4:00PM	412	109					
Zhai, J.	7-Oct	2:00PM	315	81					
Zhang, G.	8-Oct	8:00AM	308	94					
Zhang, H.	6-Oct	5:40PM	309	63					
Zhang, H.	8-Oct	5:20PM	302	106					
Zhang, L.	7-Oct	3:40PM	315	81					
Zhang, L.	9-Oct	10:00AM	328	116					
Zhang, L.	9-Oct	3:40PM	323	121					
Zhang, L.	9-Oct	9:00AM	328	116					
Zhang, L.	9-Oct	9:20AM	328	116					
Zhang, S.	7-Oct	9:20AM	413	79					
Zhang, T.	7-Oct	3:00PM	308	84					
Zhang, W.	8-Oct	8:00AM	324	92					
Zhang, X.	6-Oct	2:40PM	410	66					
Zhang, X.	7-Oct	10:40AM	413	79					
Zhang, X.	7-Oct	11:00AM	309	75					
Zhang, X.	7-Oct	8:00AM	323	70					
Zhang, X.	7-Oct	9:20AM	308	73					
Zhang, Z.	8-Oct	11:40AM	306	95					
Zhang, Z.	9-Oct	9:20AM	336	118					
Zhao, X.	8-Oct	2:40PM	318	101					
Zhao, Y.	7-Oct	2:40PM	308	84					
Zhao, Y.	8-Oct	2:40PM	412	109					
Zhao, Y.	9-Oct	8:40AM	310	114					
Zhou, G.	8-Oct	4:40PM	309	106					
Zhou, J.	8-Oct	4:10PM	324	103					
Zhou, Y.	8-Oct	2:00PM	410	109					
Zhu, S.	7-Oct	9:00AM	413	79					
Zhu, Y.	7-Oct	2:40PM	319	81					
Zhu, Y.	8-Oct	3:00PM	309	106					
Zok, F.	8-Oct	10:00AM	413	99					
Zumbilev, I.	7-Oct	3:00PM	328	85					
Zuogui, Z.	9-Oct	2:00PM	330	122					

Keynote & Lectures**Frontiers of Science and Society: Rustum Roy Lecture**

Room: 304/305

5:00 PM

Society and M.S.T. Materials, Science and Technology: Where GIGA outshines Nano (Invited)

R. Roy*, Pennsylvania State University, USA

Posters

Room: Ballroom Foyer, 3rd Floor

6:00-8:00 PM

(ELEC-001) The Initial Oxidation Behavior of CuNi alloys observed by in-situ UHV-TEM

Z. Li*, J. C. Yang, L. Sun, University of Pittsburgh, USA

(ELEC-002) Roles of Ba/Ti ratio on the Crystal Structure of Barium Titanate Powders

C. Chang*, M. Tu, C. Su, C. Huang, National Cheng Kung University, Taiwan

(ELEC-003) Ferroelectric Properties of Ho-Doped BaTiO₃ Ceramics

V. V. Mitic*, Faculty of Electronic Engineering, Serbia; V. Pavlovic, Faculty of Agriculture, University of Belgrade, Serbia; V. Paunovic, M. Dragan, P. Petkovic, Z. Ljiljana, Faculty of Electronic Engineering, Serbia

(ELEC-004) Predicting the morphotropic phase boundary composition in (Bi_{0.5}Na_{0.5})TiO₃-based lead-free piezoelectric ceramics

W. Lee*, C. Huang, L. Tsao, National Cheng Kung University, Taiwan

(ELEC-005) Multiferroic Pb(Fe_{0.66}W_{0.33})_{0.80}Ti_{0.20}O₃ thin films: A room-temperature relaxor ferroelectric and weak ferromagnetic

A. Kumar*, I. Rivera, R. Katiyar, UPR, USA

(ELEC-006) Effect of SiO₂ Interlayer to Plasma Resistance of Y₂O₃ Coatings on the oxide substrates

Y. Oh, S. Lee, D. Kim, H. Kim*, KICET (Korea Institute of Ceramic Engineering & Technology), South Korea; J. Lee, H. Kim, Inha University, South Korea

(ELEC-007) Crystal Habit Dependent Quantum Confined Photoluminescence of Zinc Oxide Nanostructures

I. J. Arellano*, R. V. Sarmago, L. M. Payawan, University of the Philippines, Philippines

(ELEC-009) Epitaxial Growth of SnO₂ Film on (001) TiO₂ Substrate by Excimer Laser-assisted Metal Organic Deposition at Room Temperature

T. Tsuchiya*, National Institute of Advanced Industrial Science and Technology, Japan; F. Kato, Chiba Institute and Technology, Japan; T. Nakajima, T. Kumagai, National Institute of Advanced Industrial Science and Technology, Japan

(ELEC-010) Measurement of non-180° domain switching in PZT ceramics under cyclic electric fields

A. Pramanick*, J. Jones, University of Florida, USA

(ELEC-011) Synthesis and Characterization of Lead Ferrite-Bismuth Ferrite Multiferroic Composite

A. Rossa*, Y. P. Cardona, R. Pérez, J. D. Jiménez, J. Silva, P. Vargas, O. Uwakweh, University of Puerto Rico, USA

(ELEC-012) Effect Of CoFe₂O₄ Coercivity By High Energy Ball Mill

J. J. Silva*, Y. P. Cardona, R. Perez, A. Rossa, P. Vargas, O. N. Uwakweh, University of Puerto Rico in Mayaguez, USA

(ELEC-013) Hybrid Nanofractography of BaTiO₃ ceramics by PFM and SNDM

J. Tatami*, S. Nakada, S. Tasaki, T. Wakihara, K. Komeya, T. Meguro, Yokohama National University, Japan

(ELEC-014) Magnetic properties and microstructure of Soft and Hard Ferrites Materials

L. Rivas-Vázquez*, R. Suárez-Orduña, J. Hernandez-Torres, M. Valera-Zaragoza, Universidad del Papaloapan, Mexico; E. Rocha-Rangel, M. A. Romero-Romo, A. Altamirano-Torres, 2Universidad Autónoma Metropolitana, Azcapotzalco, Mexico

(ELEC-015) Structural, magnetic and dielectric properties of multiferroic CuFeO₂

P. P. Shojan, M. K. Singh*, G. L. Sharma, R. S. Katiyar, University of Puerto Rico., USA

(ELEC-016) Pt/BiFeO₃ /DyScO₃ /Si MFIS structures for FeRAM applications

N. Murari*, R. Thomas, R. Katiyar, University of PuertoRico, USA

(ELEC-017) Ferroelectric and magnetic properties of chemical solution deposited Bi(Fe_{0.9}Ti_{0.05}Co_{0.05})O₃ thin films

R. Malgarejo, N. Murari*, R. Thomas, R. Katiyar, University of PuertoRico, USA

(ELEC-018) Effect of A-site Sr substitution on the orientation of Pb(Zr_{0.5}Ti_{0.5})O₃ thin films on Pt(111)/TiO_x/SiO₂/Si substrates

R. Thomas*, N. K. Karan, J. J. Saavedra-Arias, N. M. Murari, D. K. Pradhan, R. S. Katiyar, University of Puerto Rico, USA

(ELEC-019) Structural and dielectric properties of strontium doped barium titanate stannate ferroelectric ceramics with diffused phase transition

S. Yun*, D. Xu, School of Material Science and Engineering, Xi'an University of Architecture & Technology, Xi'an, 710055, China, China; X. Wang, Department of Materials Physics, School of Science, Xi'an Jiaotong University, Xi'an, 710049, China, China

(ELEC-020) Potential for textured bismuth titanate as a high temperature piezoceramic

T. Chavez*, C. DiAntonio, Sandia National Laboratories, USA

(ELEC-021) Features of Heterophase States in PMN-xPT Solid Solutions Near the Morphotropic Phase Boundary

V. Y. Topolov*, Southern Federal University, Russian Federation

(ELEC-022) Comparative Analysis of Electromechanical Properties in Ferroelectric Perovskite-type Ceramics

V. Y. Topolov*, Southern Federal University, Russian Federation

(ELEC-023) Surface Analysis of Nano-structured Carbon Nitride Films for Microsensors

C. Chang*, J. Kim, Y. Jeong, Y. Seo, Kyungnam University, South Korea; S. Chowdhury, Intel Corporation, USA; S. Lee, Kyungnam University, South Korea

(ELEC-024) Impact of High Pressure Deuterium Annealing on Electrical Characteristics for 512Mb DRAMs with 80nm Design rule

H. Chang*, Korea Institute of Ceramic Engineering & Technology, South Korea; J. Suh, S. Hong, Hynix Semiconductor Co. Ltd, South Korea; M. Chang, H. Hwang, Gwang-ju Institute Science and Technology (GIST), South Korea; K. Choi, Korea Institute of Ceramic Engineering & Technology, South Korea

(ELEC-025) Low-Temperature Polyol Synthesis of Nanocrystalline Cobalt and Cobalt-Platinum

J. A. Pérez-Acosta*, university of Puerto Rico - Mayaguez, USA

(ELEC-026) Understanding the Dielectric Behavior of (Sr_{0.8}Pb_{0.2})TiO₃-MgO Tunable Dielectric in Paraelectric Phase

J. H. Wang*, H. Liu, Pennsylvania State University, USA; R. Guo, A. S. Bhalla, University of Texas at San Antonio, USA

(ELEC-027) Dielectric Behavior of (1-x) BaTiO₃-x (Na_{1/4}Bi_{3/4}) (Mg_{1/4}Ti_{3/4}) O₃

L. Wu*, X. Wang, Xi'an Jiaotong University, China; R. Guo, A. S. Bhalla, University of Texas at San Antonio, USA

(ELEC-028) Novel Tunable Dielectric and Magneto-electric Composites

S. Agrawal*, J. Cheng, R. Guo, D. K. Agrawal, A. Bhalla, Pennsylvania State University, USA; S. Priya, University of Texas, USA

(ELEC-029) Effects of BiScO₃ addition on Dielectric Properties of Acceptor-doped BaTiO₃

S. Jo*, SungKyunKwan University, South Korea; J. Hong, Samsung Electro-Mechanics, South Korea; Y. Han, SungKyunKwan University, South Korea

(ELEC-031) Effects of non-stoichiometry on dielectric and piezoelectric properties of Pb-free Bi based ferroelectric titanate ceramics

Y. Sung*, H. Lee, H. Yeo, T. Song, M. Kim, Changwon National University, South Korea

(ELEC-032) Standardization of bending impact test of lead free solder paste joint

J. Park*, RIST, South Korea

(ELEC-033) Dissolution Kinetics and Diffusion of Cobalt in Pb-free Sn-Bi-In-Zn-Sb Soldering Alloys

K. Barmak*, D. C. Berry, Carnegie Mellon University, USA; V. G. Khoruzha, V. R. Sidorko, K. A. Meleshevich, A. V. Samelyuk, V. I. Dybkov, Institute for Problems of Materials Science, Ukraine

(ELEC-034) Chemical Solution Deposited Ba[(Ni^{1/2},W^{1/2})_{0.1}Ti_{0.9}]O₃ Thin Films for High Energy Density Capacitors Applications

D. K. Pradhan*, N. K. Karan, J. J. Saavedra-Arias, R. Thomas, R. S. Katiyar, University of Puerto Rico, USA

(ELEC-035) The Effect of Type of Glass on the Mechanical Property of BaTiO₃ Ceramics for MLCC Application

S. Ryu, H. Kim*, H. Kim, Korea Institute of Ceramic Engineering and Technology, South Korea

(ELEC-036) Building nanostructured cathode-electrolyte interfaces for high efficiency thin film SOFC

J. Yoon*, R. Araujo, Texas A&M University, USA; A. Serquis, Instituto Balseiro-Centro Atomico Bariloche, Argentina; H. Wang, Texas A&M University, USA

(ELEC-037) Electronic structure and electronic transport properties of BaPrO₃ doped with Yb

T. Higuchi*, Tokyo University of Science, Japan; S. Mimuro, S. Miyoshi, University of Tokyo, Japan; K. Kobayashi, NIMS, Japan; P. Glans, Y. Liu, P. Yao, J. Guo, Lawrence Berkeley National Laboratory, USA; Y. Oyama, S. Yamaguchi, University of Tokyo, Japan

(ENVIRO-001) Characterization of Vitrified Savannah River Site SB4 Waste Surrogate Produced in Cold Crucible

S. Stefanovsky*, SIA Radon, Russian Federation; J. C. Marra, SRNL, USA; A. Akatov, Institute of Technology, Russian Federation; O. Stefanovsky, SIA Radon, Russian Federation

(ENVIRO-002) Capacitance of ZnO Under UV Light

C. Su, C. Huang, C. Tsai*, C. Chang, National Taipei University of Technology, Taiwan

(ENVIRO-003) Vitrification of Radioactive Hospital Waste Incineration Ash

P. Stoch*, Institute of Atomic Energy, Poland; M. Ciecinska, AGH - University of Science and Technology, Poland; A. Stoch, Institute of Electron Technology Krakow Division, Poland

(ENVIRO-004) Nanowell-like Growth of AgInSe₂ Films for Solar Cell Applications

D. Pathak*, R. Bedi, D. Kaur, GNDU-Physics, India

(ENVIRO-005) Plutonium Usage and Management in PWR

A. E. Mohamed*, ims, Egypt

(ENVIRO-006) Sintering Behaviour of (La, Ca, Sr)_{1-x}Mn_xO₃ as an Active Magnetic Material for Magnetic Refrigeration at Room Temperature

I. Biering*, M. Menon, N. Pryds, Risø National Laboratory for Sustainable Energy, Technical University of Denmark, Denmark

(ENVIRO-007) Serpentine Materials from Slovakia Inertized by Microwave Treatments

C. Leonelli*, D. N. Boccaccini, P. Veronesi, University of Modena and Reggio Emilia, Italy; M. Kovacova, S. Cuvanova, S. Jakabsky, Slovak Academy of Sciences, Slovakia

(ENVIRO-008) Processing Fly Ash from Coal Burning Power Station in a Variable Radiofrequency Field

I. Lancellotti, L. Barbieri, F. Andreola, C. Leonelli*, University of Modena and Reggio Emilia, Italy; M. La Robina, Institute of Materials Engineering, Australian Nuclear Science and Technology Organisation, Australia

(ENVIRO-009) Structural and Electrochemical Properties of LiMn_{0.5}Ni_{0.5-x}CoxO₂ (X=0.2-0.3): A Cathode Material for Secondary Lithium-ion Batteries

J. J. Saavedra-Arias*, N. K. Karan, A. Kumar, D. K. Pradhan, R. Thomas, R. S. Katiyar, University of Puerto Rico, USA

(ENVIRO-010) Adsorption of Cadmium Ions Using Low-cost Materials

M. R. Chaves*, P. M. Büchler, São Paulo State University, Brazil; E. R. Dockal, São Carlos Federal University, Brazil; R. R. Souza, Amazonas Federal University, Brazil

(ENVIRO-011) Corrosion of Materials in Molten Salts

K. Sridharan*, L. C. Olson, J. W. Ambrosek, D. C. Ludwig, Y. Chen, M. H. Anderson, L. Tan, T. R. Allen, University of Wisconsin, USA

(ENVIRO-012) Processing and dielectric properties of Nanostructured TiO₂ film made by tape casting method

S. Chao*, V. Petrovsky, F. Dogan, Missouri University of Science and Technology, USA

(ENVIRO-013) EBSP study of hydride precipitation behavior in Zr-Nb alloys

S. Nishioka*, M. Ito, H. Muta, M. Uno, S. Yamanaka, Graduate School of Engineering, Osaka University, Japan

(ENVIRO-014) Preparation of CuInS₂ Films by Electrodeposition: Effect of Metal Element Addition to Electrolyte Bath

T. Honjo*, M. Uno, S. Yamanaka, Osaka University, Japan

(ENVIRO-015) Variable Charge Molecular Dynamics Simulation of Intergranular Films in SiC Ceramics

Y. Ma*, Xiangtan University, China; S. H. Garofalini, Rutgers, the State University of New Jersey, USA

(ENVIRO-016) Characterization of Composite Nitride Pellet Prepared by SPS Technique

H. Muta*, K. Kurosaki, M. Uno, S. Yamanaka, Osaka University, Japan

(ENVIRO-017) Thermal expansion and elastic moduli of Yt_{0.08}Zr_{0.2}O₂, Sc_{0.1}Ce_{0.01}Zr_{0.2}O₂, Sc_{0.11}Ce_{0.002}Zr_{0.2}O₂ and Gd_{0.2}Ce_{0.8}O₂ electrolyte materials for Solid Oxide Fuel Cells as a function of temperature

T. Manisha*, M. Radovic, Texas A & M University, USA; N. Orlovskaya, University of Central Florida, USA; B. Armstrong, Oak Ridge National Laboratory, USA

(ENVIRO-018) Chromium incorporation into SOFC cathode materials and effects on electrical properties

B. Jiang*, S. Chao, J. Jung, D. D. Edwards, S. T. Mixture, Alfred University, USA

(ENVIRO-019) Increased Thermal Stability of Infiltrated Nickel Anode Catalysts on YSZ Scaffolds by Chemical Anchoring Techniques

C. Law*, S. Sofie, Montana State University, USA

(ENVIRO-020) The effect of Al₂O₃ addition on the sintering behavior of 10% Y₂O₃ - 10% ZrO₂ - CeO₂ (mol %)

G. S. Godoi*, D. P. Souza, Federal University of São Carlos, Brazil

(ENVIRO-021) Novel Single-chamber Solid Oxide Fuel Cell Developed with E-beam/Photo Lithography Technologies

Z. Xu, North Carolina A&T State University, USA; M. Yang*, S. Desai, North Carolina A&T State University, USA; D. Kumar, J. Sankar, North Carolina A&T State University, USA

(ENVIRO-022) Gd-doped ceria (GDC)/Y-doped zirconia (YSZ) bilayer electrolytes

T. Dias*, D. P. Ferreira de Souza, UFSCar, Brazil

(ENVIRO-023) Zinc Oxide Microstructural Architecture showing Efficient Photocatalytic Activity towards the Degradation of Methylene Blue and Rhodamine B

I. J. Arellano*, R. V. Sarmago, L. M. Payawan, University of the Philippines, Philippines

(ENVIRO-024) Novel Ceramics Fabrication for Reducing Process Steps and Energy Consumption -Development of Compact Processing Technology

K. Watari*, T. Shirai, M. Yasuoka, Y. Hotta, AIST, Japan

(ENVIRO-025) Mechanical properties of PET- Portland Cement Composite

L. Rivas-Vázquez*, R. Suárez-Orduña, M. Valera-Zaragoza, E. Ramírez-Vargas, Universidad del Papaloapan, Mexico; E. Rocha-Rangel, M. A. Romero-Romo, A. Altamirano-Torres, Universidad Autónoma Metropolitana, Azcapotzalco, Mexico

(ENVIRO-026) Structural Evolution and Mechanical Properties of Clays Sintered with Additions of CaF₂ Nanoparticles

O. Dominguez*, M. Lomeli, Instituto de Metalurgia, Mexico; H. Valle, R. Torres, Mexichem Fluor, Mexico; J. Cruz, Instituto de Metalurgia, Mexico

(ENVIRO-027) Deterioration of Waterproofing Sheets in Building Substructure

V. Husakova*, CTU in Prague, Czech Republic

(ENVIRO-028) Preparation of Metal Oxide Photocatalyst by Soft Solution Process Using Anion Exchange Resin

Y. Kamo*, M. Uno, S. Yamanaka, Osaka University, Japan

(ENVIRO-029) Arsenic Removal from Ground Water Using Novel Nanomaterials

V. RaviRaj*, B. Mandal, VIT University, India

(ENVIRO-030) Calculation of distribution on depth of structures of the introduced ions In and As in Si

A. Togambayeva*, Al-Farabi Kazakh National University, Kazakhstan; F. Komarov, Belarus State University, Belarus

(FUND-001) Upper Bounds for Coarsening: Temperature Dependence

A. Novick-Cohen*, Technion, Israel; A. Shishkov, Institute of Applied Math and Mechanics, Ukraine

(FUND-002) Deformation Microstructures of Mg Alloys Induced by Sliding Contact at Elevated Temperatures

S. Das*, University of Windsor, Canada; A. T. Morales, General Motors R&D Center, USA; A. T. Alpas, University of Windsor, Canada

(FUND-003) Atomistic Study of Structure and Failure of fcc/bcc Heterophase Boundaries

A. Hashibon*, University of Karlsruhe, Germany; C. Elsaesser, Fraunhofer-Institut fuer Werkstoffmechanik (IWM), Germany; Y. Mishin, George Mason University, USA; P. Gumbsch, Fraunhofer-Institut fuer Werkstoffmechanik (IWM), Germany

(FUND-004) Phase field modeling of island formation in thin films under the influence of stress centers

A. Boyne*, M. D. Rauscher, S. A. Akbar, S. A. Dregia, Y. Wang, The Ohio State University, USA

(FUND-005) Reception of Ceramic Aluminum Silicate Castables Intended for Aluminium Electrolytic Tank

B. Sereda*, S. Sheyko, I. Krugljak, V. Sharapova, ZSEA, Ukraine

(FUND-006) A Study Of Oxide Defects On Surface Of ZnO Films

C. Su, C. Huang*, C. Chang, C. Tsai, National Taipei University of Technology, Taiwan

(FUND-007) Relative Grain Boundary Sliding in a Three Phase Superplastic Alumina – Zirconia – Mullite Composite

C. Hoo*, L. Taherabadi, D. Men, Q. Ying, M. Mecartney, University of California, Irvine, USA

(FUND-008) Overview of Recent Results in Simulation of Dislocation Nucleation

M. A. Tschopp, Universal Technology Corporation, USA; G. Tucker, D. L. McDowell*, Georgia Tech, USA

(FUND-009) Enhanced Conversion of Polycrystalline Ceramics to Single Crystals Using Selected Dopants

G. C. Wei*, A. M. Scotch, Ostram Sylvania, USA

(FUND-010) Effects of Particle Shape on Measured Particle Size

G. Thiele*, M. Poston, L. Dudu, T. Thornton, P. Bouza, Micromeritics Analytical Services, USA; R. Brown, MVA Scientific Consultants, USA

(FUND-011) Preparation and characterization of silica nanorods

G. Zhu*, Beijing Information Technology Institute, China

(FUND-012) Oxygen Transport and Growth Kinetics of Oxide Features at the Aluminum-Sapphire Interface

S. Dutta, H. M. Chan*, R. P. Vinci, Lehigh University, USA

(FUND-013) Study on Analyzing the Fabrication Process of Metal Matrix Composites

I. Ss, K. Shankar*, S. Krishnan, Anna University, India

(FUND-014) Twinning of TiO₂ Precipitates in Sapphire Matrix

J. He*, GE Consumer & Industrial Lighting, USA; P. Lagerlof, A. Heuer, Case Western Reserve University, USA

(FUND-015) Alumina Dissolution Rate into Glasses that Mimic Grain Boundary Chemistry

K. J. DeCarlo*, T. F. Lam, B. Ponack, K. Strong, W. Carty, Alfred University, USA

(FUND-016) Origins of Grain Boundary Resistance for Oxide Ion Conduction in Zirconia by Molecular Dynamics

M. Yoshiya*, Y. Yoshizawa, K. Shimizu, H. Yasuda, Osaka University, Japan; T. Oyama, Murata Manufacturing Co. Ltd., Japan

(FUND-017) Influence of the Silica Nanoparticles on the Crystallization Behavior of the Cesium Hydrogen Sulfate

M. Kisilitsyn*, California Institute of Technology, USA

(FUND-018) Cross-interface Diffusion in Fiber Drawing Nanomanufacturing

M. Su*, Z. Ma, Y. Hong, University of Central Florida, USA

(FUND-019) Cohesive Strength of Metal/Ceramic Interfaces Fe/M[C,N] and the Role of Misfit Dislocations and Surface Roughness

O. Y. Kontsevoi*, A. J. Freeman, G. B. Olson, Northwestern University, USA

(FUND-020) Effect of Impurities on Grain Boundary Strength in Chromium

O. Y. Kontsevoi*, A. J. Freeman, Northwestern University, USA

(FUND-021) Effect of Impurity Segregation on Grain Boundary Cohesion of Al

S. Zhang*, O. Kontsevoi, A. Freeman, G. B. Olson, Northwestern University, USA

(FUND-022) Role of Grain Boundary Complexions in the Sintering of Undoped and SiO₂-doped Y₂O₃

S. Ma*, C. Kiely, M. Harmer, H. Caram, Lehigh University, USA

(FUND-023) Wetting of Liquid Metals on Multiphase Ceramics

W. Jackson*, University of Pittsburgh, USA; C. Eckert, Apogee Technology, Inc., USA; F. S. Pettit, G. H. Meier, University of Pittsburgh, USA

(FUND-024) Segregation and Disordering at Tungsten Grain Boundaries in Well-Quenched Specimens

X. Shi*, J. Luo, Clemson University, USA

(FUND-025) Meshless Numerical Simulation of Stress-Assisted Crack Growth in a Brittle Solid

Z. Tang*, G. Liu, Zhejiang Ocean University, China

(FUND-026) Development of a Polarizable, Variable Charge Potential for the Molecular Dynamics Simulation of Aluminum –Aluminum Oxide Interfaces

B. D. Devine*, A. McGaughey, S. R. Phillpot, S. B. Sinnott, University of Florida, USA

(FUND-027) Computational Tools for the Design of Weldable and Creep Resistant Superalloys

F. Tancret*, Université de Nantes, France

(FUND-028) Investigating Predictive Capabilities of Image-based Modelling for Woven Composites in a Scalable Computing Environment

J. K. Farooq*, F. C. Plaza, L. Margetts, M. A. Sheikh, P. Mummery, The University of Manchester, United Kingdom

(FUND-029) 3D Phase Field Simulations of Grain Growth in Thin Films: Pinning Effect of Second-Phase Particles and Thermal Grooving

N. Moelans*, K.U.Leuven, Belgium

(FUND-030) Effect of Antimony Dopants on the Plastic Deformation Behavior of Single Crystal and Nanocrystalline Copper

R. K. Rajgarhia*, D. E. Spearot, A. Saxena, University of Arkansas, USA

(FUND-031) First-Principles Phonon and Thermodynamic Properties of Disordered Alloys: Application to the Ni-Pt System

S. Shang*, Y. Wang, Z. Liu, Pennsylvania State University, USA

(FUND-032) Direct First-Principles Approach to the Order-Disorder Transition

Y. Wang*, S. Shang, L. Chen, Z. Liu, Penn State, USA

(FUND-033) Corrosion behavior of SiC ceramics under High Temperature Sulfuric Acid Conditions

C. Jung*, C. Park, J. Park, Korea Atomic Energy Research Institute, South Korea

(FUND-034) Cluster Variation Method in Defective Solids

D. S. Mebane*, Max Planck Institute for Solid State Research, Germany; J. Wang, National Chiao Tung University, Taiwan; M. Liu, Georgia Institute of Technology, USA

(FUND-035) Effects of Inner Ag/Pd electrode on Microstructure and Resistivity of Cofired PZT-SKN Multilayer Actuators

J. Kim*, N. J. Donnelly, C. A. Randall, Center for Dielectric Studies, Materials Research Institute, The Pennsylvania State University, USA

(FUND-036) Measurement of Chemical Diffusivities of Proton Conductor Oxides

J. Kim*, H. Yoo, Seoul National University, South Korea

(FUND-037) Oxygen reduction kinetics of LSM model cathodes: partial pressure dependence and rate limiting steps

J. Fleig*, Vienna University of Technology, Austria; K. Hae-Ryoung, Max Planck Institute for Solid State Research, Germany; J. Jamnik, National Institute of Chemistry, Slovenia; J. Maier, Max Planck Institute for Solid State Research, Germany

(FUND-038) Point Defects and Cation Diffusion in Cobaltorthosilicate

Q. Tang*, R. Dieckmann, Cornell University, USA

(FUND-039) Effects of Oxygen Vacancies on the Dielectric Relaxation Behavior of Al-doped BaTiO₃

S. Lee*, Y. Han, Sungkyunkwan University, South Korea

(FUND-040) Grain Conductivity of Acceptor or Donor-doped Polycrystalline AlN Ceramics

S. Lee*, H. Kim, Y. Oh, H. Kim, KICET(Korea Institute of Ceramic Engineering & Technology), South Korea

(FUND-042) Study of Properties in MgB₂ Doped with CaB₆ by High Energy Ball Mill (SPEX 8000D)

Y. P. Cardona*, R. Perez, University of Puerto Rico in Mayaguez, USA; J. Silva, A. Rossa, O. Uwakweh, University of Puerto Rico, USA; E. E. Hellstrom, D. C. Larbalestier, Florida State University and the National High Magnetic Field Laboratory, USA

(FUND-043) Fabrication and characterization of ZnO nanorod arrays and nanowires from aqueous solutions

Y. Su*, Beijing Information Technology Institute, China

(FUND-044) Statistical Analysis: Effect of Boron in Al-Si Composites Under Different Types of Castings

A. Cintron-Aponte*, O. Suarez, J. Gonzalez, L. Principe, University of Puerto Rico, Mayaguez, USA

(FUND-045) Phase Constituents and Microstructure of Ternary Uranium-Alloys and Their Interdiffusion with Al

A. Ewh*, University of Central Florida, USA; D. D. Keiser, Idaho National Laboratory, USA; Y. Sohn, University of Central Florida, USA

(FUND-046) Effect of Heat Treatment on Aluminum Boron Silicon Composites

C. F. Benitez*, university of puerto rico at mayaguez, USA; O. Suarez, University of puerto rico mayaguez campus, USA

(FUND-047) Growth Mechanisms of Fine and Coarse Precipitates in the Superalloy IN738LC

D. Erdeniz*, E. Balikci, Bogazici University, Turkey

(FUND-048) Athermal Martensitic Transformation in Yttria Doped Zirconia

J. Pee*, Y. Kim, H. Kim, E. Choi, KICET, South Korea

(FUND-049) Thermal Characterization of a Metastable Aluminum Borides

J. Torres*, J. R. Vazquez, O. Suarez, University of Puerto Rico, Mayaguez Campus, USA

(FUND-050) Effect of Stress on the High Temperature Microstructural Stability of γ -TiAl alloys

K. Subramanian*, R. Babu, Indian Institute of Science, India

(FUND-051) Phase studies of the Fe_3PO_7 - FePO_4 system

L. Zhang*, M. E. Schlesinger, R. K. Brow, UMR, USA

(FUND-052) First-Principles Calculation of Diffusion Coefficients

M. Mantina*, Y. Wang, S. Shang, L. Chen, Z. Liu, Pennsylvania State University, USA

(FUND-053) Critical Evaluation and Thermodynamic Modeling of the Mg-Mn, Al-Mn and Mg-Al-Mn systems

M. A. Khan*, M. Medraj, Concordia University, Canada

(FUND-054) Phase separation in $\text{Sr}_{1-x}\text{Ba}_x\text{SO}_4$ solid solution by Hydrothermal Synthesis

R. Suarez-Orduña*, L. P. Rivas-Vázquez, Universidad del Papaloapan, Mexico; J. C. Rendon-Angeles, Centro de Investigación y de Estudios Avanzados del IPN, Unidad Saltillo, Mexico; K. Yamagisawa, Research Laboratory of Hydrothermal Chemistry, Kochi University, Japan

(FUND-055) Thermodynamic Model of the Mg-Ca-Zn System

S. W. Rahman*, M. Medraj, Concordia University, Canada

(FUND-057) Investigation of Brazing Steel Sheets for Laminated Tools

X. Wu*, Wayne State University, USA; M. Lowney, Fast4m, USA

(FUND-058) Compressive Deformation Behavior of High Temperature Mo-Si-B Alloy

X. Wen*, University of Cincinnati, USA; P. Jain, Brown University, USA; J. Schneibel, Oak Ridge National Laboratory, USA; K. Kumar, Brown University, USA; V. K. Vasudevan, University of Cincinnati, USA

(FUND-059) Electron Microscopy Observation of $\text{R}_5(\text{Si},\text{Ge})_4$ Alloys

Z. Qian*, L. Chumbley, Iowa State University, USA

(FUND-060) Amorphous Orientation and Its Relationship to Processing Stages of Blended Polypropylene/Polyethylene Fibers

A. Trottier*, J. W. Zwanziger, Dalhousie University, Canada

(FUND-061) Synthesis of straight Y-shaped silica nanorods

G. Zhu*, Beijing Information Technology Institute, China

(FUND-062) Synthesis of Flower-like Silica Nanowires

G. Zhu*, Beijing Information Technology Institute, China

(FUND-063) Microstructural Changes of the Plasma Resistant Ceramics during the Exposure to $\text{CF}_4\text{-O}_2$ Plasma

S. Lee, Y. Oh, D. Kim, H. Kim*, KICET(Korea Institute of Ceramic Engineering & Technology), South Korea

(FUND-065) Characterization of Al-Cu Alloys Reinforced with Dodecaborides

M. Cruz*, C. S. Principe, A. Rodriguez, L. Olaya, O. M. Suarez, University of Puerto Rico, USA

(FUND-066) A method for life assessment of Ni-base superalloy

S. Farahany*, M. Aghaie-khafri, K.N.T University, Iran

(FUND-067) Thermophysical properties and microstructural analysis of AZ80 magnesium alloys designed for automotive industry

G. Popescu*, P. Moldovan, S. D. Bejan, M. Manea, Politehnica University of Bucharest, Romania

(FUND-068) Microstructures of aluminum alloy composites manufactured by liquid state methods

G. Popescu*, C. Popescu, P. Moldovan, S. Bejan, A. Buzaiianu, University "POLITEHNICA" of Bucharest, Romania

(FUND-069) Grain Refinement Techniques in γ -TiAl Alloys in Nano- and Micrometer Scales

H. Bahmanpour*, Wayne State University, USA; S. Heshmatimanes, M. Nili Ahmadabadi, H. Ghasemianmaki, University of Tehran, Iran

(FUND-070) Microstructure-Properties Relationship of Aluminum Alloys Inoculated with Nanosized Borides

H. E. Calderón*, University of Puerto Rico - Mayaguez Campus, USA; C. Smith, Austin College, USA; O. Menéndez, O. Suárez, University of Puerto Rico - Mayaguez Campus, USA

(FUND-071) Characterization of Brake Pads Materials Development for Light Rail Transit Application

M. N. Berhan*, D. G. Solomon, Universiti Teknologi Mara, Malaysia

(FUND-072) Meso-Scale Simulation of the Shock-Compression Response of Ni+Al Powder Mixtures Using Real Microstructures

D. E. Eakins, P. Specht, K. Johnson, N. Thadhani*, Georgia Tech, USA

(IRON-001) Effect of Al-Killed Steel Making Practices on Inclusion Content: Implementation of Benchmarking for Improved Process Control

T. J. Drake*, Aspex Corporation, USA

(IRON-002) Effect of Processing Conditions on Decarburization in the RH Process

Y. Kim*, K. Yi, Seoul National University, South Korea

(IRON-003) Multi-phase field simulation during austenite-ferrite transformation

J. Kim*, Kookmin Univ., South Korea; S. Kim, Kunsan Univ., South Korea; W. Kim, Chongju Univ., South Korea; S. Park, P. Kim, Kookmin Univ., South Korea

(IRON-004) Microstructure and Mechanical Properties of a Eutectoid FeNiMnAl Alloy

Y. Liao*, I. Baker, Dartmouth College, USA

(IRON-005) Development of 1MW arc plasma system for low carbon process of iron production

D. Kim*, J. Hong, B. Chung, J. Jeon, K. Lee, KAPRA, South Korea

(IRON-006) effect of temperature and atmosphere on the precipitates distribution of Fe-3%Si

E. Choi*, J. Yim, Y. Yoon, Y. Joo, Seoul national university, South Korea

(IRON-009) Influential Factors on the Superfinished Surfaces

R. D. Ionescu*, D. Amarandei, Stefan cel Mare University, Romania

(IRON-010) Effects of Heat Treatment Parameters on the Microstructure and Tensile Property for Q&P, AM and Hard Bainite Steels

S. Byun*, J. Jin, Pusan National University, South Korea; C. Oh, Korea Institute of Materials Science(KIMS), South Korea; N. Kang, K. Cho, Pusan National University, South Korea

(IRON-011) Galvanizing of TRIP-assisted Steels: Mechanical Properties and Reactive Wetting

E. M. Bellhouse*, J. R. McDermid, McMaster University, Canada

(MATL-001) Preclinic Test of Collagen Membranes

C. M. Piña-Barba*, K. V. Dávalos-de la Cruz, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico; B. León-Mancilla, Fac. de Medicina, Mexico

(MATL-002) Bone Tissue Growth on Microcellular Carbon Foam

E. Maurer*, S. M. Mukhopadhyay, Wright State University, USA; S. Hussain, Air Force Research Laboratories, USA

(MATL-003) Bone Cement Reinforced with Zirconium and Osteoblast Cells

H. H. Rodríguez Santoyo*, M. C. Piña Barba, I. González Hernández, Universidad Nacional Autónoma de México, Mexico

(MATL-004) Bone cement reinforced with zirconium oxide particles

H. H. Rodríguez Santoyo, E. B. Montufar Jiménez, Universidad Nacional Autónoma de México, Mexico, Universidad Nacional Autónoma de México, Mexico; Universidad Nacional Autónoma de México, Mexico; M. Piña Barba*, Universidad Nacional Autónoma de México, Mexico

(MATL-005) Bioinspired Ceramic Microstructures Prepared by Freezing of Suspensions

Q. Fu*, M. N. Rahaman, Missouri University of Science and Technology, USA; S. B. Bal, University of Missouri-Columbia, USA; F. Dogan, Missouri University of Science and Technology, USA

(MATL-006) Metal Ion Doped β -TCP Bioceramic with Enhanced Properties

S. J. Kalita*, A. Davenport, University of Central Florida, USA

(MATL-007) Synthesis and Characterization of Mg-doped β -TCP, and Fabrication of Mandible Graft via indirect FDM

S. J. Kalita*, University of Central Florida, USA; J. P. Cardello, Timber Creek High School, USA

(MATL-008) Realistic Magnetic Separation of Nanoparticles

S. R. Puri*, G. Mukhopadhyaya, Indian Institute Of Technology, Bombay, India, India

(MATL-009) Fracture and Fatigue of Fe78 Si9 B13 Metallic Glass Ribbons

A. B. El-Shabasy, H. A. Hassan, Ain Shams University, Egypt; W. H. Wang, Chinese Academy of Science, China; J. J. Lewandowski*, Case western Reserve University, USA

(MATL-010) Effect of Thermal Treatment on the Corrosion Behavior of Fe-based Bulk Metallic Glass

J. Miller*, H. Ha, J. Payer, Case Western Reserve University, USA

(MATL-011) Effects of Energy Dispersion of Incident Atoms on the Aomic Structure of ta-C Films : A Molecular Dynamics Study

K. Kim*, Kookmin University, School of Advanced Materials Engineering, South Korea; S. Lee, K. Lee, Korea Institute of Science and Technology, South Korea; P. Cha, Kookmin University, School of Advanced Materials Engineering, South Korea

(MATL-012) Atomistic modeling of the atomic size effect on glass forming ability

N. Park*, H. Nam, Kookmin University, South Korea; W. Kim, Cheongju University, South Korea; Y. Kim, H. Seok, Korea Institute of Science and Technology, South Korea; P. Cha, Kookmin University, South Korea

(MATL-013) Corrosion Behavior of Mechanically Alloyed Cu-Zr-Ti Bulk Metallic Glasses

P. Lee*, National Taiwan Ocean University, Taiwan

(MATL-014) Preparation and microstructural evolution of foamed glasses by sol-gel process

R. Suarez-Orduña*, L. P. Rivas-Vázquez, J. Hernandez-Torres, M. Valera-Zaragoza, Universidad del Papaloapan, Mexico

(MATL-015) TSDC Spectroscopy of Polyester Amide Polymer Liquid Crystal

S. Garg, G. Goyal, B. K. Kaushik, S. K. Mahna*, National Institute of Technology, India

(MATL-016) The Computational Modeling of the cascade areas in constructional materials

A. Togambayeva*, A. Kupchishin, Al-Farabi Kazakh National University, Kazakhstan; F. Komarov, Belarus State University, Belarus; T. Shmygaleva, Al-Farabi Kazakh National University, Kazakhstan

(MATL-018) Mixed Mode Fracture Behavior of A Plasma-Sprayed ZrO₂-Y₂O₃ Thermal Barrier Material System

D. Zhu*, NASA Glenn Research Center, USA; S. R. Choi, Naval Air Systems Command, USA; L. L. Ghosn, NASA Glenn Research Center, USA

(MATL-019) Adhesion of vitreous enamel coatings on the carbon steel applied via various methods

D. Kim*, M. Kim, KEPCO, South Korea

(MATL-020) Mixing of Solid Particles in Coarse Particle Fluidized Beds

H. Fan*, D. Xu, Y. Chen, H. Li, J. Fan, Xi'an University of Architecture and Technology, China

(MATL-021) Faradayic EPD Processing of Thermal Barrier Coatings

J. W. Kell*, H. McCrabb, Faraday Technology, USA; B. Kumar, University of Dayton Research Institute, USA

(MATL-022) Corrosion Resistance of ZrO₂, Al₂O₃, Ceramic Coatings in NaOH Solution

M. I. Espitia*, Universidad Michoacana de San Nicolas de Hidalgo, Mexico; M. Contreras-García, Universidad Michoacana de San Nicolás de Hidalgo, Mexico; M. Espinoza-Medina, 3Instituto Mexicano del Petróleo, Mexico; H. Orozco-Hernández, Universidad Michoacana de San Nicolás de Hidalgo, Mexico

(MATL-023) Preparation and Characterization of Bioglass Based Coatings on 316L Alloy Treated under Hydrothermal Conditions

R. Suarez-Orduña*, L. P. Rivas-Vázquez, Universidad del Papaloapan, Mexico; J. C. Rendón-Angeles, CINVESTAV, Mexico; K. Yanagisawa, Kochi University, Japan

(MATL-024) Effect of sol viscosity on the structure of NiO-SiO₂ nanocomposite thin films by the sol-gel method

J. Hernandez-Torres, R. Suarez-Orduña*, Universidad del Papaloapan, Mexico; L. García-González, Centro de Investigación en Micro y Nanotecnología, Universidad Veracruzana, Mexico; A. Mendoza-Galvan, Centro de Investigación y de Estudios Avanzados del IPN - Unidad Querétaro, Mexico

(MATL-025) Method for Surface Modification of Aluminum Parts

S. Barseghyan*, M. Atzmon, National Academy of Sciences, Armenia

(MATL-026) Simulation of Low Pressure Cold Spray as a Powder Shock Consolidation Process

W. G. Arthur*, E. Leshchinsky, R. Maev, University of Windsor, Canada

(MATL-027) Composition and properties of mould flux glasses

P. Stoch*, Institute of Atomic Energy, Poland; M. Ciecinska, AGH-University of Science and Technology, Poland; L. Stoch, Institute of Glass Ceramics, Refractories and Building Materials, Poland

(MATL-028) Magnesium Phosphate Crystal Precipitation on Magnesium Borosilicate Glass when Reacted in a Phosphate Solution

S. Kim*, J. Nam, C. Kim, Inha university, South Korea

(MATL-029) Sodium tracer diffusion in sodiumborosilicate glasses

X. Wu*, R. Dieckmann, Cornell University, USA

(MATL-030) Laser Machining of Ceramics

A. N. Samant*, N. B. Dahotre, University of Tennessee, USA

(MATL-031) Anodic titanium oxide films with improved porous structure

I. Kolesnik*, D. Petukhov, D. Buldakov, A. Eliseev, A. Lukashin, Y. Tretyakov, Moscow State University, Russian Federation; S. Grigoriev, Petersburg Nuclear Physics Institute, Russian Federation; H. Eckerlebe, GKSS Forschungszentrum, Germany

(MATL-032) Preparation and Characterization of Iron-doped Mesoporous Titania

I. Kolesnik*, M. Kharlamova, A. Eliseev, A. Lukashin, Y. D. Tretyakov, Moscow State University, Russian Federation

(MATL-033) Highly purity AlN powders synthesized by SHS method

J. Pee*, Y. Kim, H. Kim, E. Choi, KICET, South Korea

(MATL-035) Innovative Si₃N₄ ready-to-press powders for advanced ceramic applications

T. Schmidt, H.C. Starck GmbH, Germany; K. Beck*, H.C. Starck Inc., USA; S. DiPietro, Exothermics Inc., USA

(MATL-036) Preparation and Characterization of Fused Silica Based Ceramic Cores Used in Superalloy Casting

M. Arin*, A. B. Kayihan, S. Sevik, The Scientific and Technological Research Council of Turkey, Turkey

(MATL-037) Advanced Processing Routes for Ultra High Temperature Ceramics

M. Gusman*, ELORET Corp. at NASA Ames Research Ctr., USA; K. Lau, A. Sanjurjo, SRI International, USA; S. M. Johnson, M. Gasch, NASA Ames Research Center, USA

(MATL-038) MgAl₂O₄/SiC Composite Ceramic Material Produced by Combustion Synthesis

P. Kirill*, E. Diatlova, L. Nikitina, BELARUSIAN STATE TECHNOLOGICAL UNIVERSITY, Belarus

(MATL-039) Pure and Mg/Zn/Si-doped Nanocrystalline TiO₂ through Sol-Gel processing

A. K. Menon, S. J. Kalita*, University of Central Florida, USA

(MATL-040) Mechanical Behavior of Spark Plasma Sintered Alumina-Zirconia Nano-composites with Addition of Hydroxyapatite

S. Li*, H. Izui, M. Okano, Nihon University, Japan; W. Zhang, Xi'an university of technology, China; T. Watanabe, Nihon University, Japan

(MATL-041) Fabrication of high strength porous mullite ceramics by microwave sintering

S. Bodhak*, S. Bose, A. Bandyopadhyay, Washington State University, USA

(MATL-042) Powder Injection Molding of SiC Sintered in Microwave Oven

W. Idalgo*, UFSCar, Brazil; J. Aroni, G. Link, Forschungszentrum Karlsruhe, Germany

(NANO-001) Finite Element Analysis on Thermal Nanoimprint Lithography Process

B. Cho*, S. Park, T. Won, INHA University, South Korea

(NANO-002) Effects of Notch Radius, Test Temperature and Mixed Mode Loading on the Toughness of a Nano-Structured Al Composite

H. A. Hassan, A. B. El-Shabasy, Ain Shams University, Faculty of Eng., Egypt; J. J. Lewandowski*, Case Western Reserve University, USA

(NANO-003) Controlling the Processing Parameters for Consolidation of Nanocrystalline Micro and Nanopowders into Bulk Nanostructured Material

H. G. Salem*, A. A. Sadek, American University in Cairo, Egypt

(NANO-004) Mechanically Activated Nanoparticle Deposition for Rich Triple-Phase-Boundary SOFC

H. Abe*, K. Sato, G. Okamoto, M. Naito, Osaka University, Japan

(NANO-005) The Syntheses and Physical Properties of Nanosized SiO₂-Coated Fe₂O₃

J. Pee*, Y. Kim, H. Kim, E. Choi, KICET, South Korea

(NANO-006) Carbon Nanotubes Obtained by ECC Technique with Cobalt Chloride as Catalyst Precursor

M. Wang*, Research Center for Sensor Technology, Beijing Information Technology, China

(NANO-007) Transformation of Mechanically Milled and Compacted Crystalline Ni and Ti to Bulk Amorphous Alloy

N. Monsegue*, A. O. Aning, Virginia Tech, USA

(NANO-008) Synthesis, Phase Stability and Thermal Evolution of Bi₂O₃ Nanoparticles Containing Cr/Cu Additions

O. Dominguez*, Instituto de Metalurgia, Mexico; I. Esparza, CIMAV, Mexico; M. Paredes, L. Flores, A. Aviles, Instituto de Metalurgia, Mexico; R. Martinez, CIMAV, Mexico

(NANO-009) Fabrication of CNT dispersed Si₃N₄ ceramics with electrical conductivity and high strength

S. Yoshio*, J. Tatami, T. Wakihara, K. Komeya, T. Meguro, Yokohama National University, Japan

(NANO-010) Large-Scale Synthesis (Mn_{0.5}Zn_{0.5})Fe₂O₄-BaTiO₃ Alloy with Controllable Nanostructure

Y. Yang*, S. Priya, J. Li, D. Viehland, Virginia Tech, USA

(NANO-011) Novel method to control microstructure and properties of inkjet printed metal films: laser annealing

Y. Yoon*, S. Yi, J. Jung, J. Yim, Y. Joo, Seoul National University, South Korea

(NANO-013) Cluster Nature of the Solvent Features of Single-Wall Carbon Nanohorns

F. Torrens*, Universitat de Valencia, Spain; G. Castellano, Universidad Catolica de Valencia, Spain

(NANO-015) Iron-Filled Carbon Nanotubes Arrays synthesized by Floating Catalyst Chemical Vapor Deposition

J. Cheng*, X. Zou, Beijing Information Science and Technology University, China

(NANO-016) Anodic Alumina Membranes as Nanoreactors for Preparation of Magnetic Nanowires

K. S. Napolskii*, I. V. Roslyakov, A. A. Eliseev, A. V. Lukashin, Y. D. Tretyakov, Moscow State University, Russian Federation; S. V. Grigoriev, PNPi, Russian Federation; N. A. Grigorieva, St-Petersburg SU, Russian Federation; H. Eckerlebe, GKSS Forschungszentrum, Germany

(NANO-017) Combustion Synthesized Nickel Aluminide Reinforced with Ni-coated Carbon Nanotubes

L. Groven*, J. Puszynski, South Dakota School of Mines & Technology, USA

(PROC-001) Synthesis and characterization of Si/Si₂N₂O/Si₃N₄ composites from solid-gas precursor system via CVD

J. C. Flores-Garcia, A. L. Leal-Cruz, M. I. Pech-Canul*, Cinvestav Saltillo, Mexico

(PROC-002) Effect of Carbon Content on the Strength of Pressurelessly Sintered Zirconium Diboride – Silicon Carbide Ceramics

M. J. Thompson*, B. Fahrenholtz, G. Hilmas, S. Zhang, Missouri University of Science and Technology, USA

(PROC-003) Investigation on sintering behavior and physical Properties of Three-Layered Alumina Based Nanocomposites

S. Mirhashemi*, H. Baharvandi, MUT university, Iran; H. Abdizade, Tehran university, Iran; N. Ehsani, MUT university, Iran

(PROC-004) Pressureless Sintering of Al₂O₃- Carbon Nanotube Composites

S. Zhang*, W. Fahrenholtz, G. Hilmas, Missouri University of Science and Technology, USA; E. Yadlowsky, C. Klepper, Hy-Tech Research Co., USA

(PROC-005) Oxidation of ZrB₂-SiC ceramics in dissociated air plasma and low pressure air conditions

S. Zhu*, W. G. Fahrenholtz, G. E. Hilmas, Missouri University of Science and Technology, USA; J. Marschall, SRI International, USA

(PROC-006) Microstructure and failure behavior of dissimilar resistance spot welds between low carbon and dual phase steels

M. Pouranvari, Islamic Azad University of Dezful, Iran; M. Mousavaizadeh, Tarbiat Modares University, Iran; P. Marashi, Amirkabir University of Technology, Iran; M. Goodarzi, Iran University of Science and Technology, Iran; H. Bahmanpour*, Wayne State University, USA

(PROC-007) Microstructural Changes due to the Friction Stir Processing of IN 738 Superalloy and Its Contribution to the Grain Boundary Liquation

M. Mousavizade, F. Malek Ghaini, Tarbiat Modares University, Iran; H. Bahmanpour*, Wayne State University, USA; M. Torkamany, A. Abdollah-zadeh, Tarbiat Modares University, Iran

(PROC-008) Metallurgical factors affecting failure mode of resistance spot welds

M. Pouranvari, Islamic Azad University of Dezful, Iran; P. Marashi, Amirkabir University of Technology, Iran; M. Goodarzi, Iran University of Science and Technology, Iran; H. Bahmanpour*, Wayne State University, USA

(PROC-010) Effect of Different Sub-Zero Treatments on the Wear Resistance of AISI D2 Steel

D. Das, Bengal Engineering and Science University, Shibpur, India; K. K. Ray, Indian Institute of Technology - Kharagpur, India; A. K. Dutta*, Bengal Engineering and Science University, Shibpur, India

(PROC-011) Effect of the Ni Particle Size on the High-Energy Milled Mixtures of Ni and Al Powders

E. T. Kubaski*, University of Sao Paulo - Escola Politecnica, Brazil; F. A. Farias, L. B. Mendes, O. M. Cintho, Universidade Estadual de Ponta Grossa, Brazil; J. T. Capocchi, University of Sao Paulo - Escola Politecnica, Brazil

(PROC-012) The microstructure of AZ31 flake fabricated by rapid solidification and mechanical property of extruded flake

K. Jin Woo*, K. Dea Hwan, L. Su Gun, Gyeongsang National University, South Korea

(PROC-013) Microcharacterization of Al-B-Cu-Mg Composites Subject to Mechanical Wear and Abrasion

R. Hidalgo*, N. Plaza, A. Callejo, O. Suárez, University of Puerto Rico Mayagüez Campus, USA

(PROC-014) Optimization of Insert Edge Preparation in Cutting Tool Development Using FEM Simulation

S. Bontha*, T. J. Long, Kennametal Inc, USA

(PROC-016) Low Temperature Oxidation Behavior of Zr-Nb-Ti Alloys in Air

C. J. Parga*, J. A. Ventura, S. K. Varma, University of Texas at El Paso, USA

(PROC-017) Process to Increase Fatigue Life of Metals

D. H. Horne*, Energy Independence, USA

(PROC-018) First-Principles Elastic Constants and Formation Energies of Ni-X (X=alloying elements) Alloys

D. Kim*, S. Shang, Z. Liu, The Pennsylvania State University, USA

(PROC-019) Hot Forging Characteristics of Mg Alloys

Y. Kwon*, S. Kim, Y. Lee, J. Lee, Korea Institute of Materials Science, South Korea

(PROC-020) Fabrication and Characterization of Squeezed Cast Aluminum Matrix Composites with Boride Reinforcements

L. Olaya-Luengas*, E. G. Estremera, O. M. Suarez, University of Puerto Rico, USA

(PROC-021) Effective Properties of Magnetoelastoelectric Composites with Interfacial Cracking

B. Wang*, The University of Sydney, Australia

(PROC-022) Fatigue and Toughness of Niobium-Silicon Alloys

D. Herman*, J. J. Lewandowski, Case Western Reserve University, USA

(PROC-023) Fabrication and Mechanical Testing of FLYASH-EPOXY Composite

D. Bartwal*, College of Technology, Pantnagar, India

(PROC-024) Consolidation of Mechanical Alloyed Ti-Al Intermetallic Compound by Electro Discharge Sintering

H. Jang*, W. Lee, T. Kang, Y. Jo, Sejong University, South Korea

(PROC-025) Effect of Load Direction on Plain Woven CFRP in Fracture Toughness Evaluation

M. Kang*, H. Kim, S. Kim, J. Koo, C. Seok, Sungkyunkwan University, South Korea

(PROC-026) Study on Effect of Incorporation of SiC Fillers on Tensile and Flexural Behavior of GV Composites by Experimental and Simulation Methods

S. Murthylal, S. K. Venkatachar, A. Nathan*, S J College of Engineering, India

(PROC-027) Numerical Study on Carbon Co-implant posterior to amorphization Process

S. Park*, B. Cho, T. Won, Inha University, South Korea

(PROC-028) Advantages Caused by Orientation Effects in Piezo-composites based on Relaxor-ferroelectric Single Crystals

V. Y. Topolov*, A. V. Krivoruchko, Southern Federal University, Russian Federation

(PROC-029) A Study on Failure Strength of Woven CRRP Composite Plate with Hole Subject to Remote Load

S. Kim*, J. Choi, W. Lee, M. Kang, J. Koo, C. Seok, Sungkyunkwan University, South Korea

(PROC-030) Atomic Structure of Molten Ag-CuO Air Brazing Filler Alloys

J. S. Hardy*, J. Y. Kim, L. R. Pederson, PNNL, USA; M. J. Kramer, Ames Laboratory, USA; R. Weber, Materials Development, Inc, USA; C. J. Benmore, Argonne National Laboratory, USA; S. Weil, PNNL, USA

(SPEC-001) M/Polypyrrole/Carbon Nanotube (M=Pt,Pd,Ru,Pt/Pd,Pt/Ru,Pd/Ru,Pt/Pd/Ru) Nanocomposite Electrode for Hydrogen Generation from Methanol and Ethylene Glycol

I. J. Arellano*, K. P. Badrina, M. G. Banaag, M. H. Diomampo, R. B. Leyma, University of the Philippines, Philippines

Monday, October 6, 2008

Keynote & Lectures

Opening Session and Keynote Address

Room: Ballroom B/C

8:30 AM

Opening Remarks

Hon. Luke Ravenstahl, Mayor of Pittsburgh (Invited)
L. David Pye, President, The American Ceramic Society (ACerS)
Andrew S. Harshaw, President, Association for Iron and Steel (AIST)
Dianne Chong, President, ASM International
Diran Apelian, President, The Minerals, Metals, and Materials Society (TMS)

Keynote Presentation

9:00 AM

The Role of Science and Engineering in U.S. Competitiveness (Invited)

C. A. Murray*, Lawrence Livermore National Lab, USA

Special Topics: ACerS 110th Anniversary Symposium

ACerS 110th Anniversary Session

Room: 404/405

Session Chair: L. David Pye, Alfred University

9:40 AM

Opening Remarks

L. David Pye, John Kaniuk, Katherine Faber

9:50 AM

History and Evolution of the American Ceramic Society (Invited)

J. McCauley*, Army Research Laboratory, USA

10:20 AM

The Eleven Best Papers in 110 Years (Invited)

S. K. Sundaram*, Pacific Northwest National Laboratory, USA; D. Pye, Alfred University, USA;
J. A. Kaniuk, Zircoa, Inc., USA; K. T. Faber, Northwestern University, USA

10:50 AM

Break

11:10 AM

Ceramic and Glass Opportunities in the NAE's Grand Challenges for Engineering in the 21st Century (Invited)

K. T. Faber*, Northwestern University, USA

11:40 AM

Concluding Remarks

L. David Pye, John Kaniuk, Katherine Faber

Special Topics: Education and Professional Development

Education Trends and Methods

Room: 403

Session Chair: William Fahrenholtz, Missouri University of Science and Technology

9:40 AM

Outcomes of the Future of MSE Education Workshop (Invited)

I. Robertson*, University of Illinois at Urbana-Champaign, USA; C. Singh, University of Pittsburgh, USA; R. J. Hamers, University of Wisconsin, USA

10:20 AM

Discussion Period

10:40 AM

Break

11:00 AM

Update on ABET Accreditation Activities

E. Judson*, Georgia Institute of Technology, USA; J. W. Fergus, Auburn University, USA; G. Bond, New Mexico Tech, USA

11:20 AM

The Design and Performance of Intermediate Constraint Questions for Assessing Student Performance

P. R. Howell*, J. Sturgeon, R. DeFrain, The Pennsylvania State University, USA

11:40 AM

Federation for International Refractory Research and Education (Invited)

J. Smith*, Missouri University of Science & Technology, USA

12:00 PM

Materials Science and Engineering Education: An Open Letter to the Materials Community

L. M. Bartolo*, Kent State University, USA; I. Robertson, A. Powell, University of Illinois - Urbana Champaign, USA; T. Osman, TMS, USA

Electronic & Magnetic Materials: Copper and Copper Based Alloys in the Electronics Industry

Copper and Copper Based Alloys in the Electronics Industry I

Room: 315

Session Chair: Larry Wojnicz, Molex Incorporated

9:40 AM

Copper Nickel Silicon Alloys for High Density Processor Sockets (Invited)

P. W. Robinson*, J. E. Gerfen, Olin Brass, USA

10:00 AM

New Generation Copper Alloys and Tin Coatings for Connector Applications (Invited)

A. Kamf*, Luvata, USA

10:20 AM

Development of Innovative Copper Alloys for Electronic Devices (Invited)

N. Yuki*, Nippon Mining & Metals, Japan; T. Ono, Nippon Mining & Metals Co., Ltd., Japan; K. Fukamachi, Nippon Mining & Metals, Japan

10:40 AM

Break

11:00 AM

Inlay Clad Metal for High Temperature Connector Applications

L. Chen*, B. Njoes, D. Williams, Technical Materials, Inc., USA

11:20 AM

Fatigue Behavior, Strength, and Structural Evolution of Cu-15Ni-8Sn with Heat Treatment

J. Caris*, R. Varadarajan, J. J. Lewandowski, Case Western Reserve University, USA; J. J. Stephens, Sandia National Laboratories, USA

11:40 AM

SUPRALLOY: A New High Performance Bronze (Invited)

S. J. Gross*, F. Bubeck, A. Kuhn, I. Buresch, Wieland-Werke AG, Germany

Electronic & Magnetic Materials: Ferroelectrics and Multiferroics

Piezoelectric Ceramics and Thin Films

Room: 318

Session Chair: Xiaoli Tan, Iowa State University

9:40 AM

High Frequency Piezoelectric MEMS Devices (Invited)

R. G. Polcawich, US Army Research Laboratory, USA; I. G. Mina, H. Kim, I. Kim, S. Park, K. Choi, T. N. Jackson, R. L. Tutwiler, K. Cheng, Penn State, USA; D. Judy, J. S. Pulskamp, M. Dubey, US Army Research Laboratory, USA; S. Trolrier-McKinstry*, Penn State, USA

10:20 AM

Ferroelectric BaTiO₃ Thin Films on Ni Metal Tapes Using NiO as Buffer Layer

G. Collins*, J. Liu, J. Weaver, C. Chen, University of Texas at San Antonio, USA; J. Jiang, E. Meletis, University of Texas at Arlington, USA; V. Giurgiutiu, University of South Carolina, USA; R. Guo, A. Bhalla, University of Texas at San Antonio, USA

10:40 AM

Break

11:00 AM

Fundamental Processing Concepts Affecting Texture Quality in Piezoelectric Ceramics

S. Poterala*, R. J. Meyer, G. L. Messing, Pennsylvania State University, USA

11:20 AM

Understanding Domain Orientation Effects in Polycrystalline Piezoelectrics (Invited)

K. J. Bowman*, T. S. Key, Purdue University, USA

Electronic & Magnetic Materials: International Symposium on Advanced Dielectric Materials & Electronic Devices

Composition, Processing, Microstructure, and Property Relationships I

Room: 317

Session Chair: Danilo Suvorov, Jozef Stefan Institute

9:40 AM

Dielectric Properties of AA'3Ti4O12-type Perovskites (Invited)

D. Sinclair*, A. R. West, M. Ferrarrelli, M. Li, University of Sheffield, United Kingdom

10:20 AM

Structure and properties of compounds in the Sr_{1-3x/2}CexTiO₃ homologous series (Invited)

R. Ulic*, Boise State University, USA; G. Subodh, M. T. Sebastian, Institute of Interdisciplinary Sciences and Technology, India; D. Gout, T. Proffen, Los Alamos Neutron Science Center, USA

10:40 AM

Break

11:00 AM

Relaxor-like Behaviors and Giant Dielectric Response in La₂NiMnO₆ Multiferroic Ceramics (Invited)

X. Chen*, Y. Lin, X. Liu, Zhejiang University, China

11:20 AM

Incipient ferroelectricity and microwave dielectric resonance properties of CaCu_{2.85}Mn_{0.15}Ti₄O₁₂ ceramics

M. Li*, A. Feteira, D. C. Sinclair, A. R. West, The University of Sheffield, United Kingdom

11:40 AM

Effect of Dopants and Processing on the Microstructure and Dielectric Properties of CaCu₃Ti₄O₁₂ (CCTO)

B. A. Bender*, M. Pan, E. P. Gorzkowski, Naval Research Laboratory, USA

Electronic & Magnetic Materials: Pb-Free, Pb-Bearing Joining and Packaging Materials and Processes for Microelectronics

Mechanical Properties and Service Reliability of Solders and Solder Joints

Room: 319

Session Chairs: Fu Guo, Beijing University of Technology; Thomas Bieler, Michigan State University

9:40 AM

The Effect of the number of Sn Grains and their Orientations on the Shear Fatigue Life of SnAgCu Solder Joints

B. Arfaei*, Y. Xing, J. Woods, J. Wolcott, P. Turne, SUNY Binghamton, USA; P. Borgesen, Unovis-Solutions, USA; T. Bieler, Michigan State University, USA; E. Cotts, SUNY Binghamton, USA

10:00 AM

Influence of Nano-structured Additions on the Thermomechanical Fatigue Behavior of Sn-based Solder Alloys

D. Choudhuri*, A. Lee, K. N. Subramanian, Michigan State University, USA

10:20 AM

Impression Creep of Pure Tin

R. Chen*, F. Yang, University of Kentucky, USA

10:40 AM

Break

11:00 AM

New Mechanism for Tin Whisker Growth

J. Cheng*, University of Rochester, USA; P. T. Vianco, Sandia National Laboratories, USA; J. Li, University of Rochester, USA

11:20 AM

Electromigration Induced Whisker Growth in Eutectic SnBi Solder Alloy

G. Xu, H. He, F. Guo*, Beijing University of Technology, China

11:40 AM

Thickness Effect on the Whisker Growth in Pure Tin

Y. Li*, F. Yang, University of Kentucky, USA

Electronic & Magnetic Materials: Perovskite Oxides: Films, Nanostructures, Properties, and Applications

Perovskite Oxide Films and Nanostructures I

Room: 316

Session Chairs: Haiyan Wang, Texas A & M University; Quanxi Jia, Los Alamos National Lab

9:40 AM

Giant Piezoelectricity on Silicon for Integrated Sensors and Actuators (Invited)

C. Eom*, University of Wisconsin-Madison, USA

10:20 AM

Interface Engineered Multifunctional Thin Films and Anomalous Phenomena (Invited)

C. Chen*, University of Texas at San Antonio, USA

11:00 AM

Low temperature growth of epitaxial La_{1-x}Sr_xMnO₃ film by excimer laser-assisted metal organic deposition

T. Tsuchiya*, T. Nakajima, T. Kumagai, National Institute of Advanced Industrial Science and Technology, Japan

11:20 AM

Tilt Transitions in Perovskite Films (Invited)

S. Trolrier-McKinstry*, D. Tinberg, R. Johnson, Penn State, USA; Y. Han, I. Reaney, University of Sheffield, United Kingdom; I. Levin, NIST, USA

Environmental & Energy Issues: Ceramics and Glass for Waste Minimization, Stabilization, and Disposition

Materials for Nuclear Applications and Environmental Treatment

Room: 326

Session Chairs: Connie Herman, Savannah River National Lab; Sharon Marra, Savannah River National Lab

9:40 AM

Inert-Matrix Fuels in Gas-Cooled Reactors (Invited)

T. Lindemer*, Consultant, USA

10:20 AM

Synergistic Effects of Gamma Radiation, Elevated Temperature and Alkaline Chemistry on Modified Crosslinked Polyethylene (XLPE)

K. D. Billings*, T. Skidmore, M. C. Kane, Savannah River National Laboratory, USA

10:40 AM

Break

11:00 AM

Adsorption and Separation of Uranium Using Tungsten Oxides

A. Apblett*, H. Al Busaidi, Oklahoma State University, USA

Environmental & Energy Issues: Energy Materials

Batteries

Room: 327

Session Chairs: Fatih Dogan, Missouri University of Science and Technology; Masanobu Awano, National Institute of Advanced Industrial Science and Technology

10:20 AM

Structural and electrochemical properties of chemical solution derived Li(Mn_{0.475}Cr_{0.05}Ni_{0.475})O₂ layered cathodes for rechargeable Li ion batteries

N. Karan*, D. Pradhan, J. Saavedra-Arias, A. Kumar, R. Thomas, R. Katiyar, University of Puerto Rico, USA

10:40 AM

Atomic-Scale Insight into the LiFePO₄ Battery Material: Defects, Dopants and Surfaces

M. Islam*, C. A. Fisher, University of Bath, United Kingdom

11:00 AM

Thermoelectric and mechanical properties of polycrystalline copper aluminate

C. Liu, F. Ren, D. Morelli, E. D. Case*, B. D. Hall, Michigan State University, USA; H. Wang, Oak Ridge National Laboratory, USA

Environmental & Energy Issues: Nanoscale Design of Materials for Extreme Radiation Environments

Fundamentals of Nanoscale Design for Radiation Damage Tolerance I

Room: 323

Session Chair: Brian Wirth, University of California, Berkeley

9:40 AM

Corrosion and Radiation Response of a 9Cr ODS Steel (Invited)

T. Allen*, Y. Chen, K. Sridharan, U.Wisconsin, USA; J. Gan, Idaho National Laboratory, USA

10:20 AM

The Mechanism of Irradiation Hardening Accompanied by No-loss-of-elongation in ODS steels (Invited)

A. Kimura*, Kyoto University, Japan

11:00 AM

Structure and composition of Y-Ti-O nanoclusters in nanostructured ferritic alloys (Invited)

B. D. Wirth*, University of California, Berkeley, USA; G. Odette, University of California, Santa Barbara, USA

Fundamentals & Characterization: Ceramic Surfaces, Grain Boundaries and Interfaces

Interface Thermodynamics and Segregation/Adsorption I

Room: 301

Session Chairs: Dominique Chatain, CNRS; Wayne Kaplan, Technion

9:40 AM

High-Temperature Spreading (Invited)

E. Saiz*, A. P. Tomsia, Lawrence Berkeley National Laboratory, USA

10:20 AM

Anisotropy of Interfacial Segregation (Invited)

P. Wynblatt*, Carnegie Mellon University, USA

11:00 AM

Advanced S/TEM for atomic-scale characterisation and analysis of interfaces and grain boundaries (Invited)

B. Freitag*, D. J. Stokes, FEI Company, Netherlands; J. Ringnalda, FEI Company, USA; D. H. Hubert, FEI Company, Netherlands

11:20 AM

3D Atomic-scale Measurements of Surface and Interface Chemistry in Metallic Systems (Invited)

A. Cerezo*, P. A. Bagot, E. A. Marquis, A. Morley, D. W. Saxey, G. Sha, C. Williams, G. D. Smith, University of Oxford, United Kingdom

Fundamentals & Characterization: Discovery and Optimization of Materials through Computational Design

Thermodynamic and Kinetic Processes for Materials Optimization I

Room: 303

Session Chairs: Anton Van der Ven, University of Michigan; Mark Asta, University of California at Davis

9:40 AM

Applications of First-Principles Thermodynamics and Kinetics in the Context of Materials Optimization (Invited)

M. Asta*, University of California at Davis, USA

10:20 AM

Design and Implementation of a Repository for Interatomic Potentials

C. A. Becker*, National Institute of Standards and Technology, USA

10:40 AM

Break

11:00 AM

Towards an Error-Controlled Multi-Scale Materials Modeling (Invited)

K. Reuter*, Fritz-Haber-Institut der MPG, Germany

11:40 AM

The apparent paradox of the Gibbs-Thompson phenomenon is the thermodynamic limit for the growth of single walled carbon nanotubes from Fe and Fe:Mo catalysts (Invited)

S. Curtarolo*, W. Setyawan, Duke University, USA; K. Bolton, Göteborg University, Sweden; A. Harutyunyan, Honda Research Institute, USA

Fundamentals & Characterization: Failure Analysis for Problem Solving

Joining, Welding and Brazing

Room: 304

Session Chairs: Erhan Ulvan, ACUREN Group Inc.; Ron Parrington, IMR Test Labs Inc.

9:40 AM

Are Standard Specifications for Weld Quality Enough? (Invited)

D. McGarry*, SEA Ltd, USA

10:20 AM

Corrosion-Fatigue of Friction Stir Welded Lap Joints with Sealants

K. T. Doering*, D. C. Van Aken, Missouri University of Science and Technology, USA; R. J. Lederich, Boeing - Phantom Works, USA

10:40 AM

Break

11:00 AM

Analysis of Weld Related Pipeline Failures

G. T. Quicke*, B. C. Rollins, J. A. Beavers, CC Technologies, Inc. (a DNV company), USA

11:20 AM

Four Red Herrings, Float Switch Failure and a Case of Multiple Failure Scenarios

P. H. DeVries*, The Boeing Company, USA

11:40 AM

Weldment Cracking of Center Baffle Wall Plate Attachments to Turbine End of a Power Plant

S. Nasrazadani*, University of North Texas, USA; D. Hopkins, Southwest Research Institute, USA

Fundamentals & Characterization: Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life

Crack Initiations and Variability I

Room: 305

Session Chairs: G. Cashman, University of Utah; K. Ravi Chandran, University of Utah

9:40 AM

Symposium Introduction

10:00 AM

Statistical Duplex S-N Characteristics of High Carbon Chromium Bearing Steel in Rotating Bending in Very High Cycle Regime (Invited)

T. Sakai*, Ritsumeikan University, Japan; M. Takeda, Toray Industries Inc., Japan; K. Shiozawa, University of Toyama, Japan; Y. Ochi, University of Electro-Communications, Tokyo, Japan; M. Nakajima, Toyota College of Technology, Japan; T. Nakamura, Hokkaido University, Japan; N. Oguma, University of Toyama, Japan

10:40 AM

Break

11:00 AM

Duality in Fatigue Variability in Probabilistic Life-Prediction of Turbine Engine Materials (Invited)

S. K. Jha*, Universal Technology Corporation, USA; M. J. Caton, J. M. Larsen, US Air Force Research Laboratory, USA

11:40 AM

Fatigue Life Variability Due to Crack Initiation at Soft Grains and Hard Particles (Invited)

K. S. Chan*, Southwest Research Institute, USA

Fundamentals & Characterization: International Symposium on Defects, Transport and Related Phenomena

Defects and Transport Related to Fuel Cells and Batteries I

Room: 307

Session Chair: Alastair Cormack, Alfred University

9:40 AM

Atomic-Scale Studies of Complex Oxide Materials for Fuel Cells and Lithium Batteries (Invited)

M. Islam*, University of Bath, United Kingdom

10:20 AM

Electrical Current Effect on Microstructural Changes in 8YSZ

S. Kim*, S. L. Kang, Korea Advanced Institute of Science and Technology, South Korea; S. Kim, I. Chen, University of Pennsylvania, USA

10:40 AM

Break

11:00 AM

Grain Core vs. Grain Boundary Electrical Properties in Undoped and Doped Ceria

T. C. Yeh*, N. H. Perry, T. O. Mason, Northwestern University, USA

11:20 AM

Development of a Defect Model for LiFePO₄ (Invited)

R. Amin, K. Weichert*, J. Maier, Max Planck Institute for Solid State Research, Germany

Fundamentals & Characterization: Modeling of Multi-Scale Phenomena in Materials Processing

Stress Analysis

Room: 306

Session Chairs: Fang Cao, Los Alamos National Lab; Adrian Catalina, Caterpillar Inc.

9:40 AM

Impact of boron isotope on the thermal properties of ZrB₂ – SiC ceramics

M. P. Teague, J. L. Watts*, G. E. Hilmas, W. G. Fahrenholtz, Missouri University of Science & Technology, USA

10:00 AM

Effect of Crystal Orientation on Stress Distribution Near the Triple Junction in a Tricrystal Gamma-TiAl Finite Element Analysis

A. Fallahi*, A. Ataee, F. Biglari, Amirkabir University of Technology, Iran

10:20 AM

Break

Microstructure Evolution I

Room: 306

Session Chair: Anthony Rollett, Carnegie Mellon University

11:00 AM

Origin of the Nano-Chessboard Structures: From Tweed to Two-phase Chessboard Architecture (Invited)

Y. Ni*, A. Khachatryan, Rutgers University, USA

11:20 AM

Modeling Dynamic Extrusion of Tantalum: Influence of Texture and Extrusion Velocity

E. Cerreta*, F. Cao, G. T. Gray III, C. P. Trujillo, M. Burkett, Los Alamos National Lab, USA

11:40 AM

Subgrain Structural Evolution in Hot-rolled AA5005 Aluminum Alloy

S. Wang*, A. D. Rollett, Carnegie Mellon University, USA

Fundamentals & Characterization: Phase Stability, Diffusion Kinetics and Their Applications (PSDK-III)

Microstructural Analysis, Control and Modeling I

Room: 302

Session Chairs: John Morral, The Ohio State University; Yongho Sohn, University of Central Florida

9:40 AM

Dynamic 3D Microstructures by Design (Invited)

G. B. Olson*, Northwestern University, USA

10:20 AM

Microstructure-Based Modeling of Controlled Drug Release Coatings

D. Saylor*, C. Kim, D. Patwardhan, U.S. Food and Drug Administration, USA; J. Warren, National Institute of Standards and Technology, USA

10:40 AM

Break

11:00 AM

Kinetics of first-order phase transformations as studied by atom-probe tomography and simulations (Invited)

D. N. Seidman*, C. Booth-Morrison, Y. Zhou, Northwestern University, USA

11:40 AM

On the Existence of Our Metals-Based Civilization

D. D. Macdonald*, Penn State University, USA

Fundamentals & Characterization: Recent Advances in Structural Characterization of Materials

X-Ray and Neutron Diffraction: Developments and Applications I

Room: 309

Session Chairs: Roumiana Petrova, New Jersey Institute of Technology; Jacob Jones, University of Florida

9:40 AM

High temperature atmosphere controlled X-ray diffraction (Invited)

S. Misture*, Alfred University, USA

10:00 AM

High-temperature processing of microwave dielectric ceramics: *in situ* studies using neutron and synchrotron X-ray powder diffraction

R. M. Ibberson*, Rutherford Appleton Laboratory, United Kingdom; M. J. Rosseinsky, University of Liverpool, United Kingdom

10:20 AM

Small-Angle X-ray Scattering Analysis of Nanoparticles and Nanofilms Using a General Purpose Diffractometer

J. Li*, A. Tripathi, L. Fields, A. Beitelman, T. McNulty, Rigaku Americas Corp., USA

10:40 AM

Break

11:00 AM

Negative Thermal Expansion Materials under Pressure (Invited)

A. P. Wilkinson*, Georgia Institute of Technology, USA

11:20 AM

Multi-component gradient microstructure characterization by anomalous ultrasmall-angle X-ray scattering (Invited)

A. J. Allen*, NIST, USA

11:40 AM

Single Crystal X-ray Diffraction in the Transmission Mode for Ferroelectric Materials

A. Sehirlioglu*, D. Payne, P. Han, S. Wilson, NASA Glenn Research Center, USA

Iron & Steel: New Developments in Processing and Properties of Zinc-Coated Sheet Steels

New Developments in Processing and Properties of Zinc-Coated Sheet Steels I

Room: 328

Session Chair: Frank Goodwin, ILZRO

9:40 AM

Controlling Surface Oxidation Prior to Coating High Strength Sheet Steels

G. M. Michal*, Case Western Reserve University, USA; Y. Jin, D. Paik, POSCO, South Korea

10:00 AM

Effect of TRIP Steel Surface Chemistry on Reactive Wetting during Hot Dip Galvanizing

E. M. Bellhouse*, J. R. McDermid, McMaster University, Canada

10:20 AM

Oxidation Behavior of TRIP Steels Containing Si, Mn, B

S. Lee*, R. Park, Y. Choi, POSCO Technical Research Laboratories, South Korea

10:40 AM

Break

11:00 AM

On the Galvanizability of Si-Bearing TRIP Steels

N. Gao*, D. Liu, N. Tang, Teck Cominco Metals Ltd., Canada; R. Park, POSCO, South Korea

11:20 AM

Effect of Galvanizing Heat Treatments on the Microstructure and Properties of Al-Si TRIP-assisted Steels during Plastic Deformation

Y. Bian*, H. S. Zurob, J. R. McDermid, McMaster University, Canada

Iron & Steel: Recent Developments in Steel Processing

Surface Treatment

Room: 329

Session Chair: Matthew Merwin, U.S. Steel Research & Technology Center

9:40 AM

Gas Carburization of Reduced Metal Oxide Strip

L. B. Cerully*, T. H. Sanders, Georgia Institute of Technology, USA

10:00 AM

Microstructure and Properties of Low-temperature-carburized A286 Fe-base Superalloy

R. Sharghi-Moshtaghin, G. M. Michal, F. Ernst, H. Kahn, A. H. Heuer*, Case Western Reserve University, USA; F. J. Martin, T. J. Lemieux, T. M. Newbauer, B. A. Bayles, P. M. Natishan, US Naval Research Laboratory, USA

10:20 AM

Microstructural and mechanical properties of nitrided Duplex stainless steel

R. Giri*, J. Solberg, NTNU, Norway; R. Hoel, MoTech Plasma a.s., Norway

10:40 AM

Effect of Thermal Cycling on Hardness of Plain Carbon Steels

A. Elmaryami*, The Higher Institute of Mechanical and Electrical Engineering, Libya

Iron & Steel: Steel Product Metallurgy and Applications

Press-Hardening of Steels

Room: 330

Session Chair: Roger Pradhan, ArcelorMittal Steel

9:40 AM

Hot stamping of ultra high strength steels as a key technology for lightweight construction (Invited)

J. G. Lechler, M. Merklein*, LFT, Germany

10:00 AM

Physical Metallurgy of Hot Press Forming Ultra High Strength Steel (Invited)

D. Fan, H. Kim, B. C. De Cooman*, Pohang University of Science and Technology, South Korea

10:20 AM

Evolution of Phases and Microstructure During Heat Treatment of Aluminized Low Carbon Steel (Invited)

F. Jenner*, M. E. Walter, The Ohio State University, USA; R. M. Iyengar, R. L. Hughes, Severstal, NA, USA

10:40 AM

Numerical Process Design of Hot Stamping Processes Based on Verified Thermo-mechanical Characteristics (Invited)

H. Karbasian*, A. Brosius, A. Tekkaya, University of Dortmund, Germany; J. Lechler, M. Merklein, M. Geiger, University Erlangen-Nuremberg, Germany

11:00 AM

Material and Design Considerations for Hot-Stamped Boron Steel Components in Automotive Structures

R. Mohan Iyengar*, R. L. Hughes, Severstal North America, USA

11:20 AM

Delayed Cracking in Ultra-high Strength Automotive Steels: Damage Mechanisms and Remedies by Micro-structural Engineering

H. Mohrbacher*, NiobelCon, Belgium

Materials & Systems: Advances in Biomedical and Biomimetic Materials

Biomimetic Materials

Room: 333

Session Chair: Prashant Kumta, University of Pittsburgh

9:40 AM

Toughening Concepts from Natural Rigid Composites (Invited)

G. Mayer*, University of Washington, USA

10:00 AM

Bioinspired Design of Dental Multilayers (Invited)

W. O. Soboyejo*, Princeton University, USA

10:20 AM

Crab Shell based Biomaterials

O. C. Wilson*, Catholic University, USA; A. Gugssa, Howard University, USA; P. Mehl, Catholic University, USA; W. Anderson, Howard University, USA

10:40 AM

Break

11:00 AM

Biomimetic synthesis of nanosized Hydroxyapatite and its polymorphs

S. K. Soni*, National chemical Laboratory, India

11:20 AM

Bio-inspired Synthesis of Mineralized Collagen Fibril, the Basic Building Block of Collagenous Mineralized Tissues (Invited)

E. Beniash*, A. S. Deshpande, University of Pittsburgh, USA

11:40 AM

Preparation of Magnetic Microspheres by Modified Cross-linking Technique

M. A. Elblbesy*, M. Ahmed, B. Hefne, Medical Research Institute, Egypt

Materials & Systems: Advances in Characterization and Modeling of Cementitious Materials

Advances in Modeling the Behavior of Cement-based Materials

Room: 331

Session Chair: Maria Juenger, University of Texas, Austin

9:40 AM

Modelling of Moisture and Ion Transport in Cementitious Materials: Assessment of Key Parameters (Invited)

V. Baroghel-Bouny*, T. Q. Nguyen, Laboratoire Central des Ponts et Chaussées, France; P. Dangla, Paris Est University, France; M. Thiery, Laboratoire Central des Ponts et Chaussées, France

10:00 AM

Characterization of Plastic Shrinkage Parameters for Fresh Alkali Resistant Glass Fiber Reinforced Concrete

M. Bakhshi, C. Soranakom, B. Mobasher*, Arizona State University, USA

10:20 AM

Multi-Scale Study of Alkali Silica Reaction in Cementitious Materials

A. Bonakdar, B. Mobasher*, S. K. Dey, Arizona State University, USA

10:40 AM

Break

11:00 AM

Insight into the mechanism by which SRA reduces drying shrinkage in cementitious materials

Z. C. Grasley*, C. Leung, Texas A&M Univ., USA

11:20 AM

Surface layer development of synthetic fly ash glass hydrating in alkali and alkaline solution

W. Bumrongjaroen*, R. A. Livingston, J. S. Schweitzer, I. S. Muller, Catholic University of America, USA

11:40 AM

Study on the Key Factors of Affecting Rheological Performance of Alkali Activated Carbonatite-slag Grouting Pastes

Q. Wu*, South China University of Technology, China

Materials & Systems: International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites

Films and Coatings

Room: 336

Session Chair: Shriram Ramanathan, Harvard University

9:40 AM

Synthesis of Thin Film Metal-Oxides under Photon Irradiation and Structure-Property Relationships (Invited)

S. Ramanathan*, Harvard University, USA

10:20 AM

Composite sol-gel coating on porous ceramic substrates

M. Touzin*, F. Béclin, Université des Sciences et Technologies de Lille, France

10:40 AM

Break

11:00 AM

Synthesis and characterization of $Ce_{1-x-y/2}La_{x-y/2}Ca_yNbO_4$ thin film membranes

F. Vullum*, T. Grande, M. Rotan, NTNU, Norway

11:20 AM

Novel Method to Spray WC-Co Using Portable Low Pressure Cold Spray Technology

J. Villafuerte*, CENTERLINE WINDSOR LTD, Canada

11:40 AM

Faradayic Process for Electrophoretic Deposition of Thermal Barrier Coatings for Use in Gas Turbine Engines

H. McCrabb*, J. W. Kell, Faraday Technology, USA; B. Kumar, University of Dayton Research Institute, USA

Materials & Systems: Glass and Optical Materials

Glass and Optical Materials I

Room: 334

Session Chair: Steve Feller, Coe College

11:00 AM

Lyon's Bluff Glass: Chemical Analysis and Laboratory Replication of an Archeological Sample (Invited)

R. A. Palmer*, Y. Xia, E. Kazal, E. Peacock, Mississippi State University, USA

11:40 AM

Density Functional Modeling of Disordered Layered Aluminosilicates

C. E. White*, J. L. Provis, D. P. Riley, G. J. Kearley, J. van Deventer, The University of Melbourne, Australia

Nanotechnology: Controlled Processing of Nanoparticle Structures and Composites

Nanoparticle Sintering I

Room: 408

Session Chair: Geoff Brennecka, Sandia National Laboratories

9:40 AM

Sintering of Nanograin Ceramics (Invited)

I. Chen*, University of Pennsylvania, USA

10:20 AM

Studies in Creep, Superplasticity, and Fracture Toughness in Bulk Ceramic Nanocomposites (Invited)

A. K. Mukherjee*, University of California, USA

11:00 AM

Densification and Properties of spark plasma sintered Y-TZP Nanoceramics and WC - ZrO₂ Nanocomposites (Invited)

B. Basu*, IIT Kanpur, India

11:40 AM

Activation of Material Transport in Spark-Plasma Sintering (Invited)

E. Olevisky*, San Diego State University, USA

Nanotechnology: Nanotube-Reinforced Metal Matrix Composites

Processing Techniques for Nanotube-Reinforced MMCs I

Room: 409

Session Chair: Indrajit Charit, University of Idaho

11:00 AM

Fabrication and Thermomechanical Properties of Carbon Nanotube/Metal Composites by Spark Plasma Sintering Method (Invited)

A. Kawasaki*, Tohoku University, Japan

11:40 AM

Multiwalled Carbon Nanotube Reinforced Aluminum Composite Coating via Cold Kinetic Spraying

S. R. Bakshi*, Florida International University, USA; G. D. McCartney, University of Nottingham, United Kingdom; S. Seal, University of Central Florida, USA; A. Agarwal, Florida International University, USA

Processing & Product Manufacturing: International Symposium on Ceramic Matrix Composites

Carbon Nanotube and Nano-composites

Room: 413

Session Chairs: Koichi Niihara, Nagaoka University of Technology; Richard Todd, University of Oxford

9:40 AM

Nanocomposite Ceramic Materials with Unique Multifunctionality (Invited)

K. Niihara*, T. Nakayama, Nagaoka University of Technology, Japan; T. Kusunose, Osaka University, Japan

10:20 AM

Fabrication of the Nanotube/Nanoparticle composites and its Thermal Properties

T. Nakayama*, H. Kim, M. Terauchi, Nagaoka University of Technology, Japan; T. Sekino, Tohoku University, Japan; T. Suzuki, H. Suematsu, K. Niihara, Nagaoka University of Technology, Japan

10:40 AM

Break

11:00 AM

Processing and properties of CNT/glass-ceramic and CNT/alumina composites (Invited)

R. I. Todd*, B. T. Chu, University of Oxford, United Kingdom; J. Zhang, Wuhan University of Technology, China; N. Grobert, M. L. Green, University of Oxford, United Kingdom; Z. Fu, Wuhan University of Technology, China

11:40 AM

Alignment Behavior of Carbon Nanotubes in CNTs/Oxide Ceramic System using Magnetic Field

B. Jang*, Y. Sakka, National Institute for Materials Science (NIMS), Japan; C. Lyszyk, L. Gendre, University of Rennes I, France

Processing & Product Manufacturing: Micro-Manufacturing: Material Behavior, Deformation Mechanics, Process Control and Applications

Micro-Manufacturing I

Room: 410

Session Chairs: Muammer Koc, Virginia Commonwealth University;
Omer Cora, Virginia Commonwealth University

9:40 AM

Spark plasma sintering and post-sinter annealing of alumina
L. Huang*, University of California, Davis, USA; F. Chen, Wuhan University of Technology,
China; A. K. Mukherjee, J. M. Schoenung, University of California, Davis, USA

10:00 AM

**A Simulation Based Approach for Investigating Solidification
Microstructure in Beam-Based Solid Freeform Fabrication**
S. Bontha*, Kennametal Inc, USA; N. W. Klingbeil, Wright State University, USA

10:20 AM

**The use of nano-sized Al₂O₃-powders in tape casting and its
effect on process and product quality**
P. Vozdecky*, A. Roosen, Institute of Glas and Ceramics, Germany

10:40 AM

Break

11:00 AM

**Effect of Feature Size on Formability of Thin Sheet Metals at
Micro/Meso-Scales**
S. Mahabunphachai*, M. Koc, Virginia Commonwealth University, USA

Processing & Product Manufacturing: Paradigm Shift in the Metals Industry

Paradigm Shift in the Metals Industry I

Room: 411

Session Chair: Y. Murty, Cellular Materials International

9:40 AM

**Globalization in the Metals Industries: General Considerations
(Invited)**
J. F. Grubb*, ATI Allegheny Ludlum, USA

10:20 AM

Future of Magnesium Developments in 21st Century (Invited)
R. E. Brown*, Magnesium Assistance Group, Inc., USA

10:40 AM

Break

11:00 AM

**Changes driving new product and process developments for the
Aluminum industry in Space, Aerospace, Automotive and
Environmental fields (Invited)**
R. J. Rioja*, J. Liu, R. Kamat, J. R. Smith, Alcoa Inc., USA

11:40 AM

Copper: New Paradigm for an Old Metal (Invited)
K. J. Kundig*, Metallurgical Consultant, USA

Processing & Product Manufacturing: Processing, Properties and Performance of Composite Materials

Modeling of Composite Materials

Room: 412

Session Chairs: Krishan Chawla, Univ. of Alabama at Birmingham;
Narendra Dahotre, University of Tennessee

9:40 AM

**Multi-Scalar Analysis of Area Fractions: Applications for
Characterizing Multi-Component Discontinuously-Reinforced
Composite Microstructures (Invited)**
J. E. Spowart*, United States Air Force, USA; G. B. Wilks, M. A. Tschopp, General Dynamics
Information Technology, USA

10:20 AM

**Three-Dimensional (3D) Microstructure Visualization and Finite
Element Modeling of Interfacial Decohesion in Particle
Reinforced Metal Matrix Composites**
J. Williams, N. Chawla*, Arizona State University, USA; J. Segurado, J. LLorca, IMDEA, Spain

10:40 AM

Break

11:00 AM

**Flow Simulation to Address Microvoids and Material Variability in
Liquid Composite Molding (Invited)**
S. G. Advani*, P. Simacek, University of Delaware, USA

11:40 AM

**A mixture theory framework for modeling Ionic Polymer Metal
Composites actuators**
M. Porfiri*, Polytechnic University, USA

Keynote & Lectures

ASM/TMS Distinguished Lecture

Room: 407

1:00 PM

**Engineering Material Systems for an Ever Demanding Society
(Invited)**
L. Christodoulou*, DARPA DSO, USA

2:00 PM

Thermal Barrier Coatings (Invited)
A. Evans*, University of California Santa Barbara, USA

2:30 PM

Super Alloys (Invited)
J. C. Williams*, The Ohio State University, USA

Special Topics: ACerS 110th Anniversary Symposium

Emerging Technologies

Room: 404/405

Session Chair: Brian Sundlof, IBM

2:00 PM

Introduction

2:10 PM

3D Silicon Integration (Invited)
J. U. Knickerbocker*, P. S. Andry, B. Dang, R. R. Horton, C. S. Patel, R. J. Polastre, IBM - T.J.
Watson Research Center, USA; K. Sakuma, IBM Tokyo Research Laboratory, Japan; E. S.
Sprogis, IBM Systems and Technology Group, USA; C. K. Tsang, B. C. Webb, S. L. Wright,
IBM - T.J. Watson Research Center, USA

2:40 PM

Materials Informatics: An Emerging Technology for Materials Development (Invited)

R. LeSar*, Iowa State University, USA

3:10 PM

Break

3:30 PM

Generations: The Evolving Landscape of Photovoltaics (Invited)

D. Ginley*, National Renewable Energy Laboratory, USA

4:00 PM

Beyond the Human Genome Sequence: Translating Genomic Knowledge into Health Benefits (Invited)

E. Green*, National Institutes of Health, USA

4:30 PM

Emerging Technologies Cafe Forum Introduction

B. Sundlof*, IBM Corporation, USA

4:35 PM

Emerging Technologies Cafe

5:15 PM

Cafe Review

Special Topics: Education and Professional Development

Professional Development/Industrial Perspective

Room: 403

Session Chair: William Fahrenholtz, Missouri University of Science and Technology

2:00 PM

Opportunities for Students to Develop Professional Skills Through Extracurricular Activity Participation (Invited)

R. W. Schwartz*, Missouri University of Science and Technology, USA

2:20 PM

New Employees: Beginning an Industrial Career – An Individual Perspective

K. E. Howard*, M. E. Buchmann, The Dow Chemical Company, USA

2:40 PM

Professional Registration of Materials Engineers

D. L. Bourell*, University of Texas, USA; J. W. Fergus, Auburn University, USA; D. A. Shiffler, Office of Naval Research, USA; S. Nayak, Intel Corporation, USA

3:00 PM

Practical Tips for Prosecuting Patent Applications and Recent Developments in U.S. Patent Law

D. M. Longo*, Finnegan Henderson LLP, USA

3:20 PM

Break

Undergraduate Research

Room: 403

Session Chair: William Fahrenholtz, Missouri University of Science and Technology

3:40 PM

Research Your Way to Success: Where To Go and Why You Should (Invited)

K. White*, Brookhaven National Laboratory, USA

4:20 PM

Safe and Educational Materials Science Demos

V. L. Knox*, L. M. Burka, PCSA, USA

4:40 PM

Undergraduate Research, at The Pennsylvania State University, on the Nature of Iron-Nickel Meteorites

P. R. Howell*, J. Shubilla, L. Tran, J. Nunez, R. DeFraim, The Pennsylvania State University, USA

5:00 PM

Tool Collaborative for Management Solid Waste and Environmental Sustainability

M. S. Borges*, UFPR, Brazil

Keynote & Lectures

Alpha Sigma Mu Lecture

Room: 406

3:00 PM

An Update on the Development of a Hydrogen Economy: Opportunities for Materials Research (Invited)

J. A. Spearot*, General Motors Research and Development Center, USA

Electronic & Magnetic Materials: Copper and Copper Based Alloys in the Electronics Industry

Copper and Copper Based Alloys in the Electronics Industry II

Room: 315

Session Chair: Larry Wojnicz, Molex Incorporated

2:00 PM

Understanding Stress Relaxation (Invited)

S. J. Gross*, M. Bohsmann, Wieland-Werke AG, Germany

2:20 PM

Fatigue Behavior of Thin Cu Foils and Cu/Kapton Flexible Circuits

D. F. Beck, D. F. Susan*, R. Sorensen, G. E. Thayer, Sandia National Laboratories, USA

2:40 PM

Thermal Conductivity of Copper/Silicon Carbide and Copper/Carbon Composites Derived from Wood Precursors

K. Pappacena*, K. T. Faber, Northwestern University, USA; H. Wang, W. Porter, Oak Ridge National Laboratory, USA

3:00 PM

Microstructure of a Cu-3%Ti alloy aged in a hydrogen atmosphere and its relation with electrical and mechanical properties

S. Semboshi*, T. Nishida, Osaka Prefecture University, Japan; T. Al-Kassab, University Goettingen, Germany; H. Numakura, Osaka Prefecture University, Japan; R. Kirchheim, University Goettingen, Germany

3:20 PM

Break

3:40 PM

Residual Stresses in Cu-Be Strip: Measurement, Process-Sensitivity and Correlation to Performance (Invited)

J. C. Harkness*, Brush Wellman Inc., USA

4:20 PM

Cantilever Beam Bending Strength Enhancement through the Application of Reverse Bending and Relief Annealing/Anneal Hardening Techniques (Invited)

J. Stainbrook*, L. Wojnicz, C. Manlapaz, A. Coughlin, Molex Incorporated, USA

Electronic & Magnetic Materials: Ferroelectrics and Multiferroics

Domain Switching, Phase Transition Behavior, Texturing, and Lead-free Piezoelectrics

Room: 318

Session Chairs: Paul Clem, Sandia National Laboratories; Dwight Viehland, Virginia Tech

2:00 PM

Domain Microstructures and Mechanisms for Enhanced Piezoelectricity in Morphotropic Phase Boundary Ferroelectrics (Invited)

W. Rao, Y. U. Wang*, Virginia Tech, USA

2:40 PM

Nanoscale Structural Instabilities in Morphotropic Ferroelectric Solid Solutions

G. A. Rossetti*, University of Connecticut, USA; A. G. Khachatryan, Rutgers, The State University of New Jersey, USA; D. D. Viehland, Virginia Polytechnic Institute and State University, USA

3:00 PM

Surface effect on domain wall broadening and threshold coercive field of LiNbO₃ and LiTaO₃ free-standing films

Y. Li*, L. Chen, V. Gopalan, Pennsylvania State University, USA; J. Shen, Purdue University, USA; Q. Jia, Los Alamos National Laboratory, USA; A. N. Morozovska, E. A. Eliseev, National Academy of Science of Ukraine, Ukraine; S. V. Kalinin, Oak Ridge National Laboratory, USA

3:20 PM

Break

3:40 PM

Development of novel piezoceramics through textured ceramic microstructures

C. DiAntonio*, M. Winter, M. Rodriguez, P. Yang, T. Chavez, G. Burns, Sandia National Laboratories, USA

4:00 PM

Orientation of KNLN-BT Ceramics by TGG Method

C. Ahn*, M. Karmakar, Virginia Tech, USA; S. Nahm, Korea University, South Korea; S. Priya, Virginia Tech, USA

4:20 PM

Patterned Microstructures in Polycrystalline BaTiO₃

M. Ugorek*, G. Messing, S. Trolier-McKinstry, Pennsylvania State University, USA

4:40 PM

Texturing to Realize Improved Properties in Lead-Free Materials Using Scalable Processing Techniques

M. R. Winter*, C. B. DiAntonio, T. Chavez, R. Mark, Sandia National Labs, USA

Electronic & Magnetic Materials: International Symposium on Advanced Dielectric Materials & Electronic Devices

Composition, Processing, Microstructure, and Property Relationships II

Room: 317

Session Chairs: Amar Bhalla, Pennsylvania State University; Neil Alford, Imperial College London

2:00 PM

Processing of High-K Dielectrics: Ball milling, contamination, microstructure and properties (Invited)

T. Brommer, S. Stuckenzholz, D. Payne*, University of Illinois at Urbana-Champaign, USA

2:40 PM

Low Temperature Sintering of BaTiO₃ without Grain Growth via the addition of Mn-Si-O Glass

C. Lin*, W. Wei, Ceramics processing and analysis Lab, Taiwan; A. Roosen, Glass and Ceramics institute, Germany

3:00 PM

Effects of acceptor impurities on capacitance aging behavior of BaTiO₃ under DC electric fields

D. Hahn*, Sungkyunkwan University, South Korea; S. Sohn, Samsung Electro-Mechanics, South Korea; Y. Han, Sungkyunkwan University, South Korea

3:20 PM

Break

3:40 PM

Effect of rare earth elements doping on the electric properties of (Ba,Sr)TiO₃ thin film capacitors (Invited)

N. Kamehara*, K. Kurihara, FUJITSU QUALITY LABORATORY LTD., Japan

4:00 PM

Structure-Property Relationships of Epitaxial Ferroelectric Thin Films (Invited)

X. Pan*, University of Michigan, USA

4:20 PM

Growth of Epitaxial Bi-Zn-Nb-O Pyrochlore Thin films on Epitaxial Pyrochlore Bottom Electrode and Their Electrical Properties (Invited)

H. Funakubo*, R. Ikariyama, S. Yausui, T. Yamada, Tokyo Institute of Technology, Japan; K. Saito, H. Morioka, Bruker AXS, Japan; T. Kaneko, Y. Kobayashi, K. Asai, The University of Electro-Communications, Japan

4:40 PM

The Effect of Microstructure on the Ferroelectric Switching of Polycrystalline Ferroelectric Films (Invited)

R. Garcia*, J. E. Blendell, K. Bowman, Purdue University, USA

5:00 PM

Composition, Cation ordering, Conductivity and Dielectric Loss Relationships in BaCo_{0.3}Nb_{2.3}O₃ Microwave Dielectric Ceramics

M. Li*, A. Feteira, D. C. Sinclair, The University of Sheffield, United Kingdom

Electronic & Magnetic Materials: Pb-Free, Pb-Bearing Joining and Packaging Materials and Processes for Microelectronics

Materials and Processes for Advanced Packages

Room: 319

Session Chairs: Eric Cotts, Binghamton University; Sinn-wen Chen, National Tsing Hua University

2:00 PM

Solidification of Sn-Bi-Ag and Sn-Bi-Ni alloys (Invited)

S. Chen*, Y. Chen, H. Wu, Y. Huang, National Tsing Hua University, Taiwan

2:40 PM

Low-Temperature Reduction of Ag₂O Particles Utilizing Long Chain Alcohol -Novel Bonding Process Using Ag₂O Particles(1st report)-

Y. Yasuda*, Hitachi, Ltd. Materials Research Laboratory, Japan; M. Tobita, Hitachi, Ltd. Advanced Research Laboratory, Japan; E. Ide, T. Morita, Hitachi, Ltd. Materials Research Laboratory, Japan

3:00 PM

In-situ Formation of Ag Nanoparticles and Bonding Mechanism on Au Substrate -Novel Bonding Process Using Ag₂O Particles (2nd Report)-

H. Tatsumi*, N. Takeda, Y. Akada, Graduate School of Engineering, Osaka University, Japan; T. Morita, E. Ide, Hitachi, Ltd., Japan; A. Hirose, Graduate School of Engineering, Osaka University, Japan

3:20 PM

Break

3:40 PM

Evaluation of Bonding Characteristics of Cu/Au-to-Cu/Au joints using Ag₂O Particles -Novel Bonding Process using Ag₂O Particles (3rd Report)-

N. Takeda*, H. Tsumi, Y. Akada, A. Hirose, Graduate School of Engineering, Osaka University, Japan; T. Morita, E. Ide, Materials Research Laboratory, Hitachi, Ltd., Japan

4:00 PM

Effects of Thermal Input on the Mechanical Properties of Composite Solder Joint via Morphological Changes in Reinforcement Particulates

L. Ma*, W. Zhang, J. Nie, F. Guo, Beijing University of Technology, China

4:20 PM

Wetting behavior between lead-free solders and bulk metallic glasses

H. Nishikawa*, K. Wongpiromsarn, H. Abe, T. Takemoto, Osaka University, Japan; M. Fukuhara, T. Wada, A. Inoue, Tohoku University, Japan

Electronic & Magnetic Materials: Perovskite Oxides: Films, Nanostructures, Properties, and Applications

Perovskite Oxide Films and Nanostructures II

Room: 316

Session Chairs: Carolina Adamo, Pennsylvania State University; Chong-Lin Chen, University of Texas, Austin

2:00 PM

Electrical and magnetic properties of epitaxial (SrMnO₃)₂/(LaMnO₃)₂ superlattices (Invited)

C. Adamo*, X. Ke, P. Schiffer, A. Soukiasian, M. Warusawithana, Penn State University, USA; L. Maritato, Dipartimento di Matematica, Italy; D. Schlom, Penn State University, USA

2:40 PM

A Transmission Electron Microscopy Investigation of the Structure Layered Perovskite Compounds in RE₂Ti₂O₇ (RE = Sm, Gd)

S. Wang*, S. Havelia, K. Balasubramaniam, M. De Graef, P. Salvador, Carnegie Mellon University, USA

3:00 PM

Microstructure Properties of Vertically-Aligned Nanocomposite (BiFeO₃)_x:(Sm₂O₃)_{1-x} Thin Films Deposited by Pulsed Laser Deposition

Z. Bi*, J. Lee, Texas A&M University, USA; J. L. MacManus-Driscoll, University of Cambridge, United Kingdom; Q. Jia, Los Alamos National Laboratory, USA; H. Wang, Texas A&M University, USA

3:20 PM

Break

3:40 PM

Epitaxial Piezoelectric Thin Films on Flexible Substrates (Invited)

C. Shelton, Oregon State University, USA; V. Matias, Los Alamos National Laboratory, USA; B. J. Gibbons*, Oregon State University, USA

4:20 PM

Epitaxial growth of perovskite-related stable and metastable compounds in the RE₂Ti₂O₇ family

S. Havelia*, S. Wang, B. Kavaipatti, P. Salvador, Carnegie Mellon University, USA

4:40 PM

Strain and interfacial effects in perovskite heterostructures (Invited)

H. M. Christen*, D. Kim, C. Callender, H. Lee, M. D. Biegalski, C. M. Rouleau, Oak Ridge National Laboratory, USA

Environmental & Energy Issues: Ceramics and Glass for Waste Minimization, Stabilization, and Disposition

Low Temperature Waste Form Development and Testing

Room: 326

Session Chair: Alex Cozzi, Savannah River National Lab

2:00 PM

Measuring permeability of cementitious materials (Invited)

Z. C. Grasley*, Texas A&M Univ., USA

2:40 PM

Development and Testing of Grouts for Stabilization of High-Level Waste Tank Cooling Coils

E. Hansen*, J. Harbour, Savannah River National Lab, USA; J. Harden, Clemson Environmental Technology Laboratory, USA

3:00 PM

Reactivity of crystalline and amorphous phases in fly ash

R. Chancey, Nelson Architectural Engineers, Inc., USA; M. Juenger*, The University of Texas at Austin, USA

3:20 PM

Break

3:40 PM

Formulation and Confirmation Testing for Saltstone for Streamlined Operations

A. Cozzi*, E. Hansen, Savannah River National Lab, USA; A. Staub, Washington Savannah River Company, USA

4:00 PM

Study of the sodalite phase for the conditioning of contaminated NaCl salt

I. Bardez*, D. Rigaud, M. Chartier, CEA, France

4:20 PM

Electromotive Force Series of Redox Couples in Model Fluidized Bed Steam Reforming Systems

H. D. Schreiber*, K. M. Mayhew, A. M. Swink, Virginia Military Institute, USA

Environmental & Energy Issues: Energy Materials

Characterization Techniques

Room: 327

Session Chairs: Dileep Singh, Argonne National Laboratory; Kevin Howard, The Dow Chemical Company

2:00 PM

Oxygen contamination in erbium dihydride

C. M. Parish*, C. S. Snow, L. N. Brewer, Sandia National Laboratories, USA

2:20 PM

Understanding Nanomaterials for Sustainable Energy Using Advanced Electron Microscopy

D. J. Stokes, B. Freitag*, FEI Company, Netherlands; J. Ringnalda, FEI Company, USA; D. H. Hubert, FEI Company, Netherlands

2:40 PM

Structural study and proton conductivity in Y-doped Barium Zirconate (BZY)

A. Ovalle*, A. Braun, S. Duval, P. Holtappels, T. Graule, EMPA, Swiss Federal Laboratories for Materials Testing and Research, Switzerland

3:00 PM

Thermal and Microstructure Analysis of a Cr-Hf-Si Eutectic

D. Lewis*, H. McGee, L. Jamison, Rensselaer Polytechnic Institute, USA

3:20 PM

Break

3:40 PM

Microstructural Analysis of Silicon Beads Grown Using Fluidized Bed Methods

M. M. Reynolds*, D. F. Bahr, M. G. Norton, A. Bellou, Washington State University, USA; E. W. Osborne, REC Silicon, USA

4:00 PM

The photovoltaic properties of acid treated dye sensitized solar cells (DSSCs)

J. Lee*, H. Jung, University of Pittsburgh, USA

4:20 PM

Visible Light Sensitization of Lanthanide Containing Aurivillius Phases Via Bi 3+ Substitution

E. J. Nichols*, S. T. Mixture, Alfred University, USA

Environmental & Energy Issues: Fuel Cells: Materials, Processing, Manufacturing, Balance of Plant and Systems Operation

Fundamental Electrochemical Processes: Electrode Chemistry, Kinetics, and Degradation

Room: 325

Session Chairs: Prabhakar Singh, Pacific Northwest National Lab; Colleen Legzdins, Ballard Power Systems

2:00 PM

Low Cost, Nanostructured Palladium-based Alloy Catalysts for Fuel Cells (Invited)

A. Manthiram*, A. Sarkar, H. Liu, University of Texas at Austin, USA

2:40 PM

Synthesis of epitaxial/textured cathode thin films on single crystal electrolyte substrates

B. Kavaipatti*, S. Wang, L. Yan, P. Salvador, Carnegie Mellon University, USA

3:00 PM

Modification of Solid Oxide Fuel Cell (SOFC) Anodes with Cerium Oxide Thin Films and its Effect on Sulfur Tolerance

L. Tang*, C. Wu, Y. Huang, Case Western Reserve Univ., USA; Z. Liu, Rolls Royce Fuel Cell Systems USA, USA; M. R. De Guire, Case Western Reserve Univ., USA

3:20 PM

Break

3:40 PM

Effect of Grain Size on the Ionic Conductivity of Lanthanum Silicate Apatite Fabricated by Conventional Sintering and Spark Plasma Sintering

M. Ng*, M. Lin, W. Sin, Y. Yao, University of California, Irvine, USA; A. Wieg, J. E. Garay, University of California, Riverside, USA; M. L. Mecartney, University of California, Irvine, USA

4:00 PM

Microstructure Design of Solid Oxide Fuel Cells

K. Yamamoto, R. Garcia*, Purdue University, USA

4:20 PM

Structure – Performance Correlation of SOFC Composite Cathodes

A. Duong*, D. R. Mumm, University of California, Irvine, USA

4:40 PM

Evaluating Sulfur Tolerance in Solid Oxide Fuel Cell Anodes

C. Wu*, Y. Huang, L. Tang, N. Kokkinos, Case Western Reserve University, USA; Z. Liu, Rolls Royce Fuel Cell Systems USA, USA; M. R. De Guire, Case Western Reserve University, USA

5:00 PM

Proton conducting Solid Oxide Fuel Cells with the novel LaNbO₄ as the electrolyte

H. L. Lein*, G. Syvertsen, Norwegian University of Science and Technology, Norway; M. Huse, T. Norby, University of Oslo, Norway; T. Grande, M. Einarsrud, Norwegian University of Science and Technology, Norway

Environmental & Energy Issues: Nanoscale Design of Materials for Extreme Radiation Environments

Fundamentals of Nanoscale Design for Radiation Damage Tolerance II

Room: 323

Session Chair: Ram Devanathan, Pacific Northwest National Laboratory

2:00 PM

Nano Bubbles Formation in Aluminum due to Neutron Radiation (Invited)

B. Glam, D. Moreno*, S. Eliezer, NRC-Soreq, Israel; D. Eliezer, Ben-Gurion University, Israel

2:40 PM

X-ray and Neutron Microbeam Methods For Studying Materials In Extreme Environments (Invited)

G. E. Ice*, E. D. Specht, Oak Ridge National Laboratory, USA

3:20 PM

Radiation Tolerance of Complex Ceramics (Invited)

R. Devanathan*, W. J. Weber, Pacific Northwest National Laboratory, USA

Environmental & Energy Issues: Thermoelectric Materials: Science, Technology and Applications

Thermoelectric Technology and Applications

Room: 324

Session Chairs: Qiang Li, Brookhaven National Lab; Winnie Wong-Ng, National Institute of Standards & Technology

2:00 PM

Materials for Automotive Thermoelectric Waste Heat Recovery (Invited)

J. Yang*, GM R&D Center, USA

2:30 PM

Development of some high-temperature thermoelectric materials for integration into advanced Radioisotope Thermoelectric Generators (Invited)

T. Caillat*, C. Huang, S. Chi, B. Cheng, V. Ravi, S. Firdosy, J. Fleurial, NASA Jet Propulsion Laboratory, USA

3:00 PM

Mechanical Characterization of Selected Thermoelectric Materials

V. Ravi*, S. Firdosy, T. Caillat, Jet Propulsion Laboratory, California Institute of Technology, USA; A. Pushko, A. Sechrist, S. Nutt, University of Southern California, USA; B. Lerch, A. Calamino, R. Pawlik, M. Nathal, NASA Glenn Research Center, USA

3:20 PM

Break

3:40 PM

Accelerating the Commercialization of Promising New Thermoelectric Materials (Invited)

L. Bell*, BSST LLC, USA

4:10 PM

Nanotechnological concepts for new thermoelectric (TE) materials (Invited)

H. Böttner*, Fraunhofer Institut Physikalische Messtechnik IPM, Germany

4:40 PM

Development of thermoelectric modules consisting of oxide materials and their application (Invited)

R. Funahashi*, National Institute of Advanced Industrial Science & Technology, Japan

Monday PM

Fundamentals & Characterization: Ceramic Surfaces, Grain Boundaries and Interfaces

Interface Thermodynamics and Segregation/Adsorption II

Room: 301

Session Chairs: Dominique Chatain, CNRS; Wayne Kaplan, Technion

2:00 PM

Stabilization of Quasi-Liquid Interfacial Films: Adsorption, Disordering and Wetting (Invited)

J. Luo*, H. Qian, X. Shi, Clemson University, USA

2:40 PM

Recent Advances in Grain Growth Theory and Simulation (Invited)

M. Lazar, R. D. MacPherson, D. J. Srolovitz*, Yeshiva University, USA

3:20 PM

Interfaces of copper crystals equilibrated on different sapphire planes (Invited)

S. Curiotto*, D. Chatain, CNRS, France

3:40 PM

Role of Interfacial Energy in the Stability of Grain Boundary Complexions (Invited)

S. J. Dillon*, Carnegie Mellon University, USA; M. P. Harmer, Lehigh University, USA; G. S. Rohrer, Carnegie Mellon University, USA

4:00 PM

Atomistic Characterization of Nanometric Films at Metal-Ceramic Interfaces (Invited)

M. Baram*, W. D. Kaplan, Technion-Israel Institute of Technology, Israel

4:20 PM

Atomic Resolution Study of the Interfacial Bonding at Si₃N₄/CeO_{2-δ} Grain Boundaries

W. Walkosz*, R. F. Klie, S. Ogut, University of Illinois at Chicago, USA; A. Borisevich, P. F. Becher, S. J. Pennycook, Oak Ridge National Laboratory, USA; J. C. Idrobo, Vanderbilt University, USA

4:40 PM

Atomic Structure and Pr Segregation of ZnO Grain Boundary

Y. Sato*, Japan Fine Ceramic Center, Japan; T. Mizoguchi, N. Shibata, T. Yamamoto, University of Tokyo, Japan; T. Hirayama, Japan Fine Ceramic Center, Japan; Y. Ikuhara, University of Tokyo, Japan

5:00 PM

Stability of HfO₂/SiO_x/Si surficial films at ultralow oxygen activity

E. Jud Sierra*, M. Tang, Y. Chiang, Massachusetts Institute of Technology, USA

5:20 PM

Quantitative Analysis of Interface Structures by High-Resolution TEM (Invited)

M. Ruehle*, MPI for Metals Research, Germany

Fundamentals & Characterization: Discovery and Optimization of Materials through Computational Design

Thermodynamic and Kinetic Processes for Materials Optimization II

Room: 303

Session Chairs: Stefano Curtarolo, Duke University; Dane Morgan, University of Wisconsin - Madison

2:00 PM

Ab Initio Modeling of Electrochemical Materials (Invited)

K. A. Persson*, MIT, USA

2:40 PM

Ab initio-based Diffusion Properties for Radiation-Induced Segregation Modeling in Ni-Fe-Cr Alloys (Invited)

D. Morgan*, J. Tucker, T. Allen, University of Wisconsin - Madison, USA

3:20 PM

Break

3:40 PM

Atomistic Insight into Defect Cluster Evolution in Irradiated Steels (Invited)

B. D. Wirth*, University of California, Berkeley, USA

4:20 PM

Understanding Structure-Property Relation in Thermoelectric Na_xCoO₂ by Combining First Principles with Experiments (Invited)

S. Meng*, University of Florida, USA

5:00 PM

Thermodynamic assessment of the Ti-ZrO₂ system

K. Wang, H. Y. Gao, Q. H. Dong, Y. L. Chen, G. X. Lu, H. C. Li*, Shang Hai university, China

Fundamentals & Characterization: Failure Analysis for Problem Solving

Litigation

Room: 304

Session Chairs: Alan Johnson, Metals Research Inc.; Roch Shipley, Professional Analysis and Consulting, Inc.

2:00 PM

Court and Counsel - Panel Discussion (Invited)

R. J. Shipley*, Professional Analysis and Consulting, Inc., USA

3:20 PM

Break

3:40 PM

The Admissibility of Expert Testimony (Invited)

A. A. Johnson*, Metals Research Inc., USA; R. Storey, University of Louisville, USA

4:00 PM

Alternative Approaches to Litigation Involving Technical Expert Testimony (Invited)

H. R. Piehler*, Carnegie Mellon University, USA

4:40 PM

At Least Two Sides To Every Story (Invited)

R. J. Shipley*, Professional Analysis and Consulting, Inc., USA

5:00 PM

Why Experts Disagree (Invited)

D. McGarry*, SEA Ltd, USA; M. E. Stevenson, Engineering Systems Inc., USA

Fundamentals & Characterization: Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life

Crack Initiations and Variability II

Room: 305

Session Chairs: C. Bathias, University Paris 10; K. Shiozawa, University of Toyama

2:20 PM

Overview of the Origin of Dual S-N Curves and Competing Failure Modes in Engineering Materials (Invited)

K. Chandran*, University of Utah, USA

3:00 PM

Orientation Imaging Microscopy of Fatigue Crack Nucleation and Growth in Waspaloy

M. Oja*, VEXTEC Corporation, USA; K. Chandran, University of Utah, USA; R. Tryon, VEXTEC Corporation, USA

3:20 PM

Break

3:40 PM

Measuring cyclic deformation-induced variations in micromechanical state using high energy x-rays

M. P. Miller*, J. S. Park, Cornell University, USA

4:00 PM

Role of Competing Failure Modes in the Elevated Temperature Fatigue Variability Response of Shot-Peened Ti-6Al-2Sn-4Zr-6Mo

S. K. Jha*, Universal Technology Corporation, USA; R. John, US Air Force Research Laboratory, USA; D. J. Buchanan, University of Dayton Research Institute, USA; J. M. Larsen, US Air Force Research Laboratory, USA

4:20 PM

Study on Very High Cycle Fatigue Behavior of High Strength Steel with CFB/M Complex Microstructure

B. Bai*, X. Xu, Y. Yu, J. Gu, Tsinghua University, China

4:40 PM

Crack Growth Properties of Sealing Glasses

J. A. Salem*, NASA GRC, USA; J. Glass, R. Tandon, C. Roth, Sandia National Labs, USA

Fundamentals & Characterization: International Symposium on Defects, Transport and Related Phenomena

Defects and Transport Related to Fuel Cells and Batteries II

Room: 307

Session Chairs: Sangtae Kim, University of California, Davis; Roger DeSouza, RWTH Aachen University

2:00 PM

Size effect on structure and transport in solid-oxide electrolytes: results from high-resolution multinuclear NMR spectroscopy (Invited)

S. Sen*, H. Avila-Paredes, S. Kim, University of California at Davis, USA

2:40 PM

Space Charge Effect on the Grain Boundary Conduction of $Ce_{1-x}Gd_xO_{2-\delta}$ as a Function of Dopant Concentration

H. J. Avila Paredes*, S. Kim, University of California, Davis, USA

3:00 PM

Local Electrical and Dielectric Properties of Nanocrystalline Solid Oxide Fuel Cell Electrolytes

N. H. Perry*, T. C. Yeh, T. O. Mason, Northwestern University, USA

3:20 PM

Break

3:40 PM

Novel proton conductivity in nano-grained fluorite oxides of doped zirconia and ceria (Invited)

S. Yamaguchi*, R. B. Cervera, University of Tokyo, Japan; T. Yagi, The University of Tokyo, Japan; T. Fukuda, Y. Akao, S. Miyoshi, University of Tokyo, Japan; Y. Iwai, N. Kuwata, Tohoku University, Japan; K. Kobayashi, NIMS, Japan; J. Kawamura, Tohoku University, Japan; Y. Oyama, University of Tokyo, Japan

4:20 PM

Determination of electronic and ionic space charge profiles in nanocrystalline ceria thin films via blocking electrodes

S. J. Litzelman*, H. L. Tuller, Massachusetts Institute of Technology, USA

4:40 PM

Structure and properties of thin films of SOFC cathode materials (Invited)

P. Salvador*, K. R. Balasubramaniam, S. Wang, L. Yan, Carnegie Mellon University, USA; J. Eastmann, P. Fuoss, D. Fong, P. Baldo, B. Ingram, M. Krumpelt, K. Chang, Argonne National Laboratory, USA; B. Misirlioglu, B. Yildiz, Massachusetts Institute of Technology, USA

Fundamentals & Characterization: Micro- and Nano- Mechanical Behavior of Low-Dimensional Structures and Materials

Micro- and Nano- Mechanical Behavior of Materials - Metallic Materials I

Room: 308

Session Chairs: Amit Misra, Los Alamos National Laboratory; K. Jimmy Hsia, University of Illinois at Urbana-Champaign

2:00 PM

Surface chemistry driven macroscopic strain effects in nanoporous gold (Invited)

J. Biener*, Lawrence Livermore National Laboratory, USA; A. Wittstock, Universitaet Bremen, Germany; L. Zepeda-Ruiz, M. M. Biener, Lawrence Livermore National Laboratory, USA; D. Kramer, R. N. Viswanath, J. Weissmueller, Forschungszentrum Karlsruhe GmbH, Germany; M. Baeumer, Universitaet Bremen, Germany; A. V. Hamza, Lawrence Livermore National Laboratory, USA

2:20 PM

Mechanics of Nanolayered and Nanoporous Metal Films (Invited)

A. Misra*, Los Alamos National Laboratory, USA

2:40 PM

Structural parameters and mechanical properties of nanostructured metals produced by plastic deformation (Invited)

X. Huang*, N. Kamikawa, N. Hansen, Risø National Laboratory, Denmark

3:00 PM

Strengthening Mechanism of Sub-micro Sized Single Crystal Ni Pillars

Z. Shan*, Hysitron Inc., USA; R. Mishra, General Motors Research and Development Center, USA; S. Asif, O. L. Warren, Hysitron Inc., USA; A. M. Minor, Lawrence Berkeley National Laboratory, USA

3:20 PM

Break

3:40 PM

Continuous electrical in-situ contact area measurement during instrumented indentation

L. Fang*, C. Muhlstein, J. Collins, A. Romasco, L. Friedman, Penn State University, USA

4:00 PM

A novel method to determine the effective zero point of contact for spherical nanoindentation

A. J. Moseson*, S. Basu, M. W. Barsoum, Drexel University, USA

4:20 PM

Macro/micro tensile deformation behavior of steel laminates

T. Tomimatsu*, Y. Kagawa, The University of Tokyo, Japan; Y. Tanaka, National Research Institute for Materials Science, Japan

4:40 PM

Cyclic Hardening and the Durability of Nanostructured Nickel Films

J. G. Collins*, C. L. Muhlstein, The Pennsylvania State University, USA

5:00 PM

Application of Nanoindentation to Characterization of Ti(C,N)-based Cermet Materials

H. Kim*, S. Kim, D. Kim, Korea Institute of Ceramic Engineering & Technology, South Korea; S. Kang, Seoul National Univ., South Korea

Fundamentals & Characterization: Modeling of Multi-Scale Phenomena in Materials Processing

Solution Algorithms

Room: 306

Session Chair: Adrian Sabau, Oak Ridge National Laboratory

2:00 PM

Fast, Physically Based Algorithms for On-line Calculations of Texture and Anisotropy (Invited)

A. Brahme*, W. Myrjam, D. Raabe, Max-Planck Institut für Eisenforschung, Germany

2:20 PM

An Exact Solution to The Jackson and Hunt Model of Eutectic Growth and Its Implications

A. V. Catalina*, Caterpillar Inc., USA

2:40 PM

A Mixed-Integer Nonlinear Programming (MINLP) Zone Model for the Conceptual Design of a Carbothermic Aluminium Reactor

D. I. Gerogiorgis*, Massachusetts Institute of Technology, USA

3:00 PM

The Modeling of Products Pressing in SHS-Systems

B. Sereda*, A. Jerebtsov, J. Belokon, K. Irina, ZSEA, Ukraine

3:20 PM

Break

Microstructure Evolution II

Room: 306

Session Chair: Mark Stoudt, National Institute of Standards and Technology

3:40 PM

Phase-field simulation of grain growth with inert and evolving second phase particles

K. Chang*, L. Chen, Pennsylvania State University, USA

4:00 PM

Numerical simulation of the static recrystallization on the micro shear bands

L. Madej*, Akademia Gornicza Hutnicza, Poland; N. Yazdipour, Deakin University, Australia; L. Rauch, Akademia Gornicza Hutnicza, Poland; P. D. Hodgson, Deakin University, Australia

4:20 PM

Mathematical Models of Special Grain Growth Cases (Low Yttrium doped α -Al₂O₃)

N. Popescu Pogrión*, I. Mercioniu, National Institute for Materials Physics, Romania; R. Bercia, M. Craiu, University Politehnica of Bucharest, Romania; S. Constantinescu, National Institute for Materials Physics, Romania

4:40 PM

Microstructural Evolution of Phase Decomposition Cu-Ni-Fe Alloys

D. V. Melo-Maximo*, E. O. Avila-Davila, O. Soriano-Vargas, M. L. Saucedo-Muñoz, V. M. Lopez-Hirata, H. J. Dorantes-Rosales, J. L. Gonzalez-Velazquez, Instituto Politecnico Nacional, Mexico

Fundamentals & Characterization: Phase Stability, Diffusion Kinetics and Their Applications (PSDK-III)

Diffusion Kinetics I

Room: 302

Session Chairs: Mysore Dayananda, Purdue University; Jeffrey LaCombe, University of Nevada, Reno

2:00 PM

First-principles prediction of diffusion coefficients in non-dilute alloys (Invited)

A. Van der Ven*, The University of Michigan, USA

2:40 PM

Validating Multicomponent Diffusivity Databases

J. Morral*, X. Pan, Y. Wang, Ohio State University, USA

3:00 PM

Kirkendall-Effect Enhanced Grain Boundary Diffusion and Migration

H. Yu*, X. Li, A. Van der Ven, K. Thornton, University of Michigan, USA

3:20 PM

Break

3:40 PM

Hollow nanoparticles: formation and shrinkage by diffusion (Invited)

A. V. Evteev, E. V. Levchenko, I. V. Belova, G. E. Murch*, The University of Newcastle, Australia

4:20 PM

Mechanisms of Self-Diffusion along Dislocation Cores in Aluminum

G. P. Purja Pun*, Y. Mishin, George Mason University, USA

4:40 PM

Effect of Yttrium on Oxygen Grain Boundary Diffusion in Polycrystalline Alumina

H. Cheng*, H. S. Caram, J. M. Rickman, H. M. Chan, M. P. Harmer, Lehigh University, USA

5:00 PM

Assessment of Diffusion Formalisms for Databases (Invited)

N. S. Kulkarni*, P. J. Todd, Oak Ridge National Laboratory, USA; Y. Sohn, University of Central Florida, USA

Fundamentals & Characterization: Recent Advances in Structural Characterization of Materials

X-Ray and Neutron Diffraction: Developments and Applications II

Room: 309

Session Chairs: Roumiana Petrova, New Jersey Institute of Technology; Zhonghou Cai, Argonne National Lab

2:00 PM

Recent Developments and Novel Applications in X-ray Diffraction (Invited)

K. Marchev*, P&G - The Gillette Company, USA; U. Preckwinkel, Bruker AXS, USA

2:40 PM

Domain dynamics, magnetism, and high electric fields in complex oxide thin films (Invited)

P. Evans*, R. Sichel, A. Grigoriev, University of Wisconsin-Madison, USA

3:00 PM

Emerging opportunities in structural characterization of engineering materials by neutrons (Invited)

X. Wang*, Oak Ridge National Laboratory, USA

3:20 PM

Break

3:40 PM

Nanotechnology with X-rays (Invited)

E. D. Isaacs*, Argonne National Laboratory, USA

4:00 PM

Nondestructive Characterization of Materials with Polychromatic X-ray and Neutron Microdiffraction (Invited)

G. E. Ice*, Oak Ridge National Laboratory, USA

4:20 PM

Studies of Fast Ferroelectric Domain Dynamics (Invited)

C. Thompson*, Northern Illinois University, USA; S. K. Streiffer, G. Stephenson, Argonne National Lab, USA

4:40 PM

Applications of Polychromatic X-ray Microdiffraction for Studies of Local Structures (Invited)

J. D. Budai*, B. Larson, G. Ice, Oak Ridge National Laboratory, USA; W. Liu, Argonne National Lab, USA; J. Tischler, Oak Ridge National Laboratory, USA

5:00 PM

Probing "Edge-Effect" of Epitaxial 1D Nanoline Using X-Ray Microdiffraction

T. Sun*, Northwestern University, USA; Z. Cai, J. Wang, Argonne National Laboratory, USA; V. P. Dravid, Northwestern University, USA

5:20 PM

Magnetic annealing aluminum alloy 6061 at 400C in different magnetic fields

S. Adedokun*, J. Schwartz, FAMU-FSU College of Engineering, USA; H. Garmestani, Georgia Institute of Technology, USA; B. Ogunmola, A. Fashanu, University of Lagos, Nigeria

5:40 PM

Three-dimensional characterization of fatigue crack propagation behavior in an aluminum alloy using high resolution X-ray microtomography

H. Zhang*, Y. Sakaguchi, P. C. Qu, H. Toda, M. Kobayashi, Toyohashi University of Technology, Japan; K. Uesugi, Y. Suzuki, Japan Synchrotron Radiation Research Institute, Japan

Iron & Steel: New Developments in Processing and Properties of Zinc-Coated Sheet Steels

New Developments in Processing and Properties of Zinc-Coated Sheet Steels II

Room: 328

Session Chair: Joseph McDermid, McMaster University

2:00 PM

Water Based Silanes – An Alternate Passivation Treatment For Galvanized Steel Surfaces

D. Harrison, Australian Tube Mills, Australia; R. Walker*, C. Sclosa, BP Australia, Australia

2:20 PM

Implementation of the PAL® Program on the Baosteel No. 2 CGL

H. Qian*, Teck Cominco Metals Ltd., Canada; X. Jin, Baoshan Iron & Steel Co., Ltd., China; D. Y. Liu, T. A. Cormode, N. Tang, Teck Cominco Metals Ltd., Canada

2:40 PM

Study of the Relative Quantity of zeta and delta on Galvannealed Steel (Invited)

X. Yu*, X. Jin, X. Mi, Baoshan Iron & Steel Co. LTD, China

3:00 PM

Zn-Fe Alloy Coating by Galvanneal Process

M. Koushyar*, Sharif University Of Technology, Iran

Iron & Steel: Recent Developments in Steel Processing

Heat Treatment

Room: 329

Session Chair: Riad Asfahani, U. S. Steel Research & Technology

2:00 PM

Improved Annealing Furnace Control for Fuel Efficiency and Cycle Time Reduction

T. C. Karnezos*, Pennsylvania State University, USA; G. Dispensa, Carpenter Technology Corp., USA; R. Voigt, Pennsylvania State University, USA

2:20 PM

Investigation into the Effects of Hydrogen introduced into AISI 8620 Steel Parts during Long Carburization Cycles in Endothermic Atmospheres

P. Ganef#*, Xtek, USA

2:40 PM

Use of Dual Stabilization Thermal Processing to Increase the Austenite Content of AHSS

G. M. Michal*, A. H. Heuer, Case Western Reserve University, USA

3:00 PM

Gas Carburized/Oil Quench or Low Pressure Carburized/High Pressure Gas Quench: A Model Comparison of Distortion and Residual Stresses

G. Wang, M. Maniruzzaman, Y. Rong, R. D. Sisson*, Worcester Polytechnic Institute, USA

3:20 PM

Break

3:40 PM

Analysis of Rolling Contact Fatigue Failures in High Temperature Gas Carburized Gear Steels

M. Bykowski*, J. G. Speer, G. Krauss, Colorado School of Mines, USA

4:00 PM

Effect of Alloying Elements and Austenitizing Temperature on Hardenability of Low-Carbon Boron-Added Steels

B. Hwang*, D. Suh, S. Kim, Korea Institute of Materials Science, South Korea; S. Lee, D. Lee, POSCO, South Korea

4:20 PM

Development of a 50Kg-grade Dual Phase Steel Using Orthogonal Design Method

S. Kim*, Y. Cho, Seoul National University, South Korea; C. Oh, Korea Institute of Materials Science, South Korea; D. Kim, M. Mun, HYSCO, South Korea; H. Han, S. Hong, Seoul National University, South Korea

4:40 PM

Mechanism Responsible for Enhancement in Wear Resistance of Tool Steels by Cryogenic treatment

D. Das*, A. K. Dutta, Bengal Engineering and Science University, Shibpur, India; K. K. Ray, Indian Institute of Technology - Kharagpur, India

Iron & Steel: Steel Product Metallurgy and Applications

Multiphase Microstructural Process Development

Room: 330

Session Chair: Abdelbaset Elwazri, McGill University

2:00 PM

Microstructure and Toughness of Martensitic Steel (Invited)

J. W. Morris*, University of California, Berkeley, USA

2:20 PM

Formation of Ultrafine Grained Structure by Dynamic Strain-Induced Transformation (Invited)

H. Beladi*, Deakin University, Australia; Y. Adachi, National Institute for Materials Science, Japan; P. D. Hodgson, Deakin University, Australia

2:40 PM

Microstructures and Mechanical Properties of Ultrafine-Grained Steel (Invited)

A. Elwazri*, P. Wanjara, R. Varano, G. R. Stewart, S. Yue, J. J. Jonas, McGill University, Canada

3:00 PM

Mechanical properties of ultrafine and fine grained dual phase steels (Invited)

D. Ponge*, M. Calcagnotto, D. Raabe, Max-Planck-Institut fuer Eisenforschung, Germany

3:20 PM

Break

3:40 PM

Dissolution and Precipitation kinetics of Nb(C,N) in austenite of a Nb-microalloyed steel

J. Park*, Y. Ha, YONSEI University, South Korea; S. Lee, Yonsei University, South Korea; Y. Lee, YONSEI University, South Korea

4:00 PM

Influence of Recrystallization Conditions on the Tensile Properties of a High Mn TWIP Steel

S. Kang*, Y. Jung, YONSEI University, South Korea; J. Jun, Korea Institute of Industrial Technology, South Korea; Y. Lee, YONSEI University, South Korea

4:20 PM

Effect of carbon contents on the microstructure and the transformation kinetics of super bainitic TRIP steel

K. Lee*, Y. Im, POSCO, South Korea; H. Bhadeshia, POSTECH, South Korea; K. Chin, POSCO, South Korea

4:40 PM

Influence of cooling process after hot rolling on mechanical properties of cold rolled TRIP steel

S. Kim*, Y. Jin, J. Kwak, K. Chin, POSCO, South Korea

5:00 PM

Atomic scale investigation by using Cs-corrected STEM and APT in TRIP steels

N. Lim*, J. Kang, G. Gu, C. Park, POSTECH, South Korea

Materials & Systems: Advances in Biomedical and Biomimetic Materials**Scaffolds for Tissue Engineering**

Room: 333

Session Chair: Roger Narayan, University of North Carolina

2:00 PM

Engineered Nanofibers with Stem Cells for Biomimetic Tissue Engineering (Invited)

S. Ramakrishna*, National University of Singapore, Singapore

2:40 PM

Engineering Living Cells: The Next Generation in Healthcare (Invited)

S. Jayasinghe*, University College London, United Kingdom

3:00 PM

ALD Surface Modified Porous Polymer for Tissue Engineering Applications

X. Liang*, D. M. King, A. D. Lynn, S. J. Bryant, A. W. Weimer, University of Colorado, USA

3:20 PM

Break

3:40 PM

Laser Processing of Advanced Biomaterials

R. J. Narayan*, A. Doraiswamy, University of North Carolina, USA; A. Ovsianikov, B. Chichkov, Laser Zentrum Hannover, Germany

4:00 PM

In vitro evaluation of bioinspired ceramic microstructures prepared by freezing of suspensions

Q. Fu*, M. N. Rahaman, University of Missouri-Rolla, USA; S. B. Bal, University of Missouri-Columbia, USA; R. F. Brown, University of Missouri-Rolla, USA

4:20 PM

Gum Arabic-Chitosan Composite Biopolymer Scaffolds for Bone Tissue Engineering

O. C. Wilson, R. Silva*, O. Ogubuzo, S. McClellan, Catholic University, USA; P. Mehl, Catholic University, USA

4:40 PM

Fracture Forces in Femurs Implanted with PMMA

D. Dragomir-Daescu*, H. E. Brown, N. Anguiano-Wehde, S. McEligot, J. T. Bronk, K. E. Bennet, M. E. Bolander, Mayo Clinic, USA

5:00 PM

Development, synthesis and characterisation of porous biomaterial scaffolds for bone tissue engineering

K. K. Mallick*, University of Warwick, United Kingdom

5:20 PM

Prospects of Complex Engineered Nanostructured Materials and Hybrid Delivery Systems for Bone Regeneration (Invited)

P. Kumta*, C. Sfeir, University of Pittsburgh, USA

Materials & Systems: Advances in Characterization and Modeling of Cementitious Materials**New Developments Regarding Experimental Techniques for Characterizing Cement-based Materials I**

Room: 331

Session Chair: Zachary Grasley, Texas A&M University

2:00 PM

Pore Solution Analysis in Ordinary Portland Cement Pastes Partially Replaced with Geothermal Waste

C. A. Ifigüez-Sánchez*, L. Y. Gómez-Zamorano, Universidad Autónoma de Nuevo León, Mexico

2:20 PM

Particle size modifications during cement hydration

F. A. Cardoso, M. A. Cincotto, V. M. John, R. G. Pileggi*, University of São Paulo, Brazil

2:40 PM

Micrometer-scale 3-D shape characterization of eight cements: Particle shape and cement chemistry and laser diffraction

E. J. Garboczi*, P. E. Stutzman, NIST, USA; S. T. Erdogan, Middle East Technical University, Turkey; X. Nie, Exa Corp., USA

3:00 PM

Shape comparison between 0.4 - 2.0 and 20 - 60 micrometer cement particles

E. J. Garboczi*, NIST, USA; S. T. Erdogan, Middle East Technical University, Turkey; L. Holzer, Empa, Switzerland; R. J. Flatt, Sika Technology AG, Switzerland; J. W. Bullard, NIST, USA

3:20 PM

Break

3:40 PM

Characterization of Ottawa sand: Optical and scanning electron microscopy, X-ray tomography and diffraction, and nanoindentation

E. J. Garboczi*, NIST, USA; S. T. Erdogan, Middle East Technical University, Turkey; G. Lespinasse, A. Forster, P. Stutzman, NIST, USA

4:00 PM

Using Hydrogen/Deuterium Exchange to Determine the C-S-H Composition and Density and the Nanoscale Calcium Hydroxide Distribution in Cement Pastes

A. J. Allen*, National Institute of Standards and Technology, USA; J. J. Thomas, H. M. Jennings, Northwestern University, USA

4:20 PM

Initiation of Alkali-Silica Reaction by Potassium Acetate Solution

L. Ai, MetaMateria Partners, USA; L. J. Struble*, University of Illinois, USA

4:40 PM

Alkali-silica reaction in asphalt mixtures exposed to potassium acetate deicing solution

A. Apeagyei, L. J. Struble*, W. Buttlar, University of Illinois, USA

5:00 PM

Microstructure and Performance of Fly Ash Sinking Beads in Cementitious System

H. Li*, D. Xu, S. Feng, N. Liu, B. Shang, College of Material Science and Engineering, Xi'an University of Architecture & Technology, China

Materials & Systems: Glass and Optical Materials**ACerS Alfred R. Cooper Session and Award: Performance Stability of Glass Products**

Room: 334

Session Chair: Prabhat K. Gupta, The Ohio State University

2:00 PM

Introduction

2:20 PM

Chemical Stability of Clean and Functionalized Glass Surfaces (Invited)

C. Pantano*, Pennsylvania State University, USA

3:00 PM

Nano-Architecture in Glasses with a Femtosecond Laser (Invited)

K. Hirao*, Kyoto University, Japan

3:40 PM

Break

4:00 PM

Cooper Scholars Award Presentation

4:20 PM

Sub-Tg Surface Relaxation in Glasses (Invited)

M. Tomozawa*, Rensselaer Polytechnic Institute, USA

5:00 PM

Dimensional Stability of Glass Display Panels (Invited)

D. C. Allan*, Corning Incorporated, USA

Materials & Systems: International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites

Mechanism/Kinetics of Processes

Room: 336

Session Chair: Tomoko Sano, US Army Research Laboratory

2:00 PM

Mechanically Driven Amorphization and Bulk Nanocrystalline Synthesis of Ultra-High Temperature Ceramics

H. Kimura*, National Defense Academy, Japan

2:20 PM

Templated Grain Growth for Tailoring Novel Microstructure Composites

R. J. Pavlacka*, G. Messing, Pennsylvania State University, USA

2:40 PM

Ti₃SnC₂ ternary nanolaminate carbide synthesis by hot isostatic pressing

N. Ouabadi, V. Gauthier-Brunet, T. Cabioc'h, M. Jaouen, S. Dubois*, Laboratoire PHYMAT, France

3:00 PM

Comparison of Slip Cast to Hot Pressed Boron Carbide

T. Sano*, E. S. Chin, US Army Research Laboratory, USA

3:20 PM

Break

3:40 PM

Sintering and Cristobalite Transformation in Fused Silica Compacts

C. Bae*, D. Kim, J. W. Halloran, University of Michigan, USA

4:00 PM

Role of Green Body Strength on the Development of Rapid Heating Cycles for Thermal Binder Removal

S. J. Lombardo*, R. Sachanandani, University of Missouri, USA

4:20 PM

Supercritical Extraction of Binder from Green Multilayer Ceramic Capacitors

S. J. Lombardo*, K. Krishnamurthy, University of Missouri, USA

4:40 PM

Photonic Machining of Ceramics

A. N. Samant*, N. B. Dahotre, University of Tennessee, USA

5:00 PM

Thermodynamic Modeling of Nd:YAG Sintering

J. E. Saal*, A. J. Stevenson, G. L. Messing, Z. Liu, Penn State University, USA

Nanotechnology: Controlled Processing of Nanoparticle Structures and Composites

Nano-enabled Structure-Property Relationships

Room: 408

Session Chair: Tom Hinklin, Ceramatec

2:00 PM

Comparison of Different Processing Methods and Impact of MWNT Dispersion in Polymer Nanocomposite

R. Thillaiyan, C. Brinson*, S. Pujari, K. Kasimatis, W. Burghardt, J. Torkelson, Northwestern University, USA

2:20 PM

Tailored Dispersion and Organization Through Brush Modification of Nanoparticles (Invited)

L. Schadler*, D. M. Dukes, B. C. Benicewicz, Y. Li, Rensselaer Polytechnic Institute, USA; S. K. Kumar, P. Akcora, Columbia University, USA

3:00 PM

Seeding Effects on the Microstructure of SiC Synthesized from Mesoporous C-SiO₂ Nanocomposites

K. Wang*, H. Wang, Y. Cheng, Monash University, Australia

3:20 PM

Break

3:40 PM

Nanoparticle / polymer composite fluid for reversible colloidal joining (Invited)

H. Abe*, J. Noma, M. Naito, Osaka University, Japan

4:20 PM

Modification of ceramic fabric with carbon nanotubes for toughened composites

A. Rider*, Defence Science and Technology Organisation, Australia; N. Brack, La Trobe University, Australia; E. Yeo, Defence Science and Technology Organisation, Australia

4:40 PM

Effects of a Bio-inspired Interfacial Modification on the Properties of Polymer Matrix Nanocomposites

L. M. Hamming, P. B. Messersmith, C. Brinson, S. Watcharotone*, Northwestern University, USA

5:00 PM

Effect of Particle Surface Area on the Properties of Hydroxyapatite Nanocomposites (Invited)

J. Kaur*, M. L. Shofner, Georgia Institute of Technology, USA

Nanotechnology: Nanotube-Reinforced Metal Matrix Composites

Processing Techniques for Nanotube-Reinforced MMCs II

Room: 409

Session Chair: Indrajit Charit, University of Idaho

2:10 PM

Carbon Nanotube Reinforced Aluminum Composites via Thermal Spray (Invited)

A. Agarwal*, Florida International University, USA

2:50 PM

Multiwall Carbon NanoTube Reinforced Chromium Carbide Composite Coating for Wear Resistance

V. Singh*, R. Diaz, University of Central Florida, USA; K. Balani, A. Agarwal, Florida international university, USA; S. Seal, University of Central Florida, USA

3:10 PM

Break

3:40 PM

Application and Potential of Adding Nanotubes to Aluminum Using Friction Stir Processing (Invited)

L. Johannes*, NASA - Johnson Space Center, USA

4:20 PM

Multi-Walled Carbon Nanotube Reinforced Metal Matrix Composites via Ball Milling Technique

T. Shrestha*, I. Charit, University of Idaho, USA

Processing & Product Manufacturing: International Symposium on Ceramic Matrix Composites

Composite Processing and Characterization I

Room: 413

Session Chair: Kwang Bo Shim, Hanyang University

2:00 PM

Characteristics of Graphene Layers transformed from Carbon Nanotubes by the pulsed electric current assisted sintering process (Invited)

K. Shim*, Hanyang University, South Korea

2:40 PM

Thin Coatings of ZrB₂-SiC Composites for Oxidation Protection of C-C Composites

E. L. Corral*, R. E. Loehman, Sandia National Laboratories, USA

3:00 PM

Graphite Formation in Carbon from Wood Precursors

M. T. Johnson*, K. T. Faber, Northwestern University, USA

3:20 PM

Thermal and mechanical properties of carbon char formed by pyrolysis of polymer composites

M. A. Makeev*, J. Lawson, D. Srivastava, NASA Ames Research Center, USA

3:40 PM

Break

4:00 PM

Investigation on A/W -phologopite glass-ceramic composite by powder sintering method

A. Faeghi-Nia*, tabriz university, Iran

4:20 PM

Preparation and Electrical Properties of Lanthanum-Nickel Oxides Ceramic Matrix Composites

C. Kao*, H. Cheng, National Cheng Kung University, Taiwan

Processing & Product Manufacturing: Micro-Manufacturing: Material Behavior, Deformation Mechanics, Process Control and Applications

Micro-Manufacturing II

Room: 410

Session Chairs: Marwan Khraisheh, University of Kentucky; Sasawat Mahabunphachai, Virginia Commonwealth University

2:00 PM

Surface modification and nanostructuring of metals using femtosecond laser pulses

T. Nakashima*, T. Sano, A. Hirose, Graduate School of Engineering, Osaka University, Japan

2:20 PM

Femtosecond laser-driven shock deformation of single crystal silicon

M. Tsujino*, T. Sano, N. Ozaki, Graduate School of Engineering, Osaka University, Japan, Japan; O. Sakata, M. Okoshi, Japan Synchrotron Radiation Research Institute / SPring-8, Japan; N. Inoue, National Defense Academy of Japan, Japan; R. Kodama, A. Hirose, Graduate School of Engineering, Osaka University, Japan, Japan

2:40 PM

Residual Gradient Stress Evolution in Bimaterial Microcantilever Structures during Thermal Cycling (Invited)

I. Lin, K. Fan, S. Huang, A. Gonzalez, K. Zhang, X. Zhang*, Boston University, USA

3:00 PM

Shock deformation synthesis of hexagonal diamond from highly oriented pyrolytic graphite

T. Sano*, K. Takahashi, Osaka University, Japan; O. Sakata, Japan Synchrotron Radiation Research Institute / SPring-8, Japan; M. Okoshi, N. Inoue, National Defense Academy of Japan, Japan; K. F. Kobayashi, Fukui University of Technology, Japan; A. Hirose, Osaka University, Japan

Processing & Product Manufacturing: Paradigm Shift in the Metals Industry

Paradigm Shift in the Metals Industry II

Room: 411

Session Chair: Charles Parker, Honeywell Aerospace

2:00 PM

Challenges and Opportunities in the Iron and Steel Industry (Invited)

R. Sussman*, Arcelor Mittal Steel, USA

2:40 PM

Recent Trends in Flat-Rolled Stainless Alloys (Invited)

J. F. Grubb*, ATI Allegheny Ludlum, USA

3:20 PM

Break

3:40 PM

Lowering Material Cost With High Performance Stainless Steels (Invited)

P. Ray*, Carpenter Technology Corporation, USA

4:00 PM

Chromium and Hexavalent Chromium (Invited)

E. Torsner*, Outokumpu Stainless, USA

4:40 PM

Aerospace Superalloys-The Response to Global Influences (Invited)

R. L. Kennedy*, R. A. Jeniski, ATI Allvac, USA

Processing & Product Manufacturing: Processing, Properties and Performance of Composite Materials

Metal Matrix Composites - Laminates

Room: 412

Session Chairs: Nikhilesh Chawla, Arizona State University; Jonathan Spowart, United States Air Force

2:00 PM

Laminates, anyone? (Invited)

K. Chawla*, Univ. of Alabama at Birmingham, USA

2:40 PM

Microstructural evolution of the interface in laminated AISI304/high-strength steels during thermomechanical treatment

M. Michiuchi*, S. Nambu, J. Inoue, T. Koseki, The University of Tokyo, Japan

3:00 PM

Laser In-Situ Synthesis of TiB₂-TiC Reinforced Composite Coating on Steel

B. Du*, S. R. Paital, N. B. Dahotre, The University of Tennessee, USA

3:20 PM

Break

3:40 PM

Plastic Flow Stability of Ultra-high Strength Nanolaminate Composites (Invited)

A. Misra*, Los Alamos National Laboratory, USA

4:20 PM

Interfacial Bonding Strength and Mechanical Properties of High Strength Steel and Austenite Stainless Steel Laminated Plates

S. Nambu*, M. Michiuchi, J. Inoue, T. Koseki, The University of Tokyo, Japan

4:40 PM

Engineering and Processing for Multi-Layer Clad Metals

L. Chen*, P. R. Goldstein, R. P. Willis, Technical Materials, Inc., USA; K. He, National High Magnetic Field Laboratory, USA

Tuesday, October 7, 2008

Keynote & Lectures

Richard M. Fulrath Award Lectures

Room: 403

Session Chair: Martin Harmer, Lehigh University

8:00 AM

Metal-Organic Chemical Vapor Deposition and Property of High Quality Dielectric Thin Films (Invited)

H. Funakubo*, Tokyo Institute of Technology, Japan

8:40 AM

Piezoelectric Properties in Textured Ceramics of Bismuth Layer Structured Ferroelectrics (Invited)

M. Kimura*, Murata Manufacturing Co., Ltd., Japan

9:00 AM

Teaching "Old" Ceramics "New" Tricks: Nanopatterning of Multifunctional Ceramics (Invited)

V. David*, Northwestern University, USA

9:40 AM

Break

10:00 AM

Microstructural Design of Dielectrics for Ni-MLCC with Ultra-Thin Active Layers (Invited)

Y. Mizuno*, Taiyo Yuden Co., Ltd., Japan

10:20 AM

C-Sphere Flexure Strength of Bearing-Grade Silicon Nitride Balls (Invited)

A. Wereszczak*, Oak Ridge National Laboratory, USA

Arthur L. Friedberg Memorial Lecture

Room: 402

10:00 AM

Hunting the Perovskite Range (Invited)

H. U. Anderson*, Missouri University of Science & Technology, USA

TMS Young Leaders Tutorial Luncheon and Lecture

Room: 405

12:00 PM

Lunch

12:00 - 1:00 PM

1:00 PM

TMS Young Leader's Lecture (Invited)

W. A. Baeslack*, The Ohio State University, USA

Edward DeMille Campbell Memorial Lecture

Room: 407

12:45 PM

Cyclic Slip Irreversibilities and the Evolution of Fatigue Damage (Invited)

H. Mughrabi*, University of Erlangen-Nürnberg, Germany

Edward Orton Jr. Memorial Lecture

Room: 406

1:00 PM

Sol-Gel Processing: A Retrospective and Perspective (Invited)

C. Brinker*, Sandia National Laboratories, USA

Electronic & Magnetic Materials: Electroceramics Technologies: The Past and Future - A Celebration of the 50th Anniversary of the ACerS Electronics Division

Electroceramic Technologies: Processing Advances

Room: 315

Session Chair: Geoff Brenneka, Sandia National Laboratories

8:00 AM

Sol-gel Processing of Electroceramics (Invited)

D. A. Payne*, University of Illinois at Urbana-Champaign, USA

8:40 AM

Nanoengineering the Defect Structure in Y₁Ba₂Cu₃O_y Superconducting Films for Tunable, High-Current Wires (Invited)

T. G. Holesinger*, B. Maiorov, D. M. Feldmann, L. Civala, Los Alamos National Laboratory, USA; D. Miller, V. Maroni, Argonne National Laboratory, USA; D. Larbalestier, Florida State University, USA; X. Li, M. W. Rupich, American Superconductor, USA

9:20 AM

Gas Permeability in Nanoporous Substrates

S. J. Lombardo*, S. Patel, University of Missouri, USA

9:40 AM

Break

Electroceramic Technologies: Advances in Ferroelectrics

Room: 315

Session Chair: Robert Schwartz, Missouri University of Science and Technology

10:00 AM

A Brief History of Ferroelectric Phenomenologies (Invited)

L. Cross*, Penn State University, USA

10:40 AM

Ferroelectric Solid Solutions: Morphotropism, Microstructure and Electromechanical Properties (Invited)

G. A. Rossetti*, University of Connecticut, USA; A. G. Khachatryan, Rutgers, The State University of New Jersey, USA

11:20 AM

Time-resolved diffraction measurements in ferroelectrics (Invited)

J. L. Jones*, A. Pramanick, University of Florida, USA; J. E. Daniels, European Synchrotron Radiation Facility (ESRF), France

Electronic & Magnetic Materials: Perovskite Oxides: Films, Nanostructures, Properties, and Applications

Oxide Films and Nanostructures

Room: 316

Session Chairs: Qi Li, Pennsylvania State University; Hans Christen, Oak Ridge National Laboratory

8:00 AM

Chemical Solution Deposition Method for Epitaxial, Thin Films (Invited)

F. F. Lange*, UCSB, USA

8:40 AM

A Review of Thermodynamic and Kinetics Factors in Solution-Derived Thin Film Crystallization (Invited)

R. W. Schwartz*, Missouri University of Science and Technology, USA

9:20 AM

Stoichiometry issues in pulsed laser deposition (Invited)

T. Ohnishi*, The University of Tokyo, Japan

10:00 AM

Combinatorial Study of the HfO₂-TiO₂-Y₂O₃ System using Pulsed Laser Deposition Library Films

P. K. Schenck*, J. L. Ruglovsky, P. G. Burke, N. D. Bassim, M. L. Green, NIST, USA

10:20 AM

Magnetoepitaxial thin layer two phase composites (Invited)

D. Viehland, J. Li, L. Yan*, Virginia Tech, USA

11:00 AM

Magnetic, Ferroelectric, and Sensor Materials Prepared by Extraction-Pyrolysis Technique

T. N. Patrusheva*, A. I. Kholkin, Siberian Federal University, Russian Federation

Electronic & Magnetic Materials: Ferroelectrics and Multiferroics

Epitaxial and Oriented Films, Materials Integration, Strain-induced Phenomena

Room: 318

Session Chair: John Prater, Army Research Laboratory

8:00 AM

Domain Stability for Ferroelectric Thin Films under Anisotropic In-plane Substrate Strains: A Phase-field Simulation

G. Sheng*, J. Zhang, Y. Li, S. Choudhury, Z. Liu, The Pennsylvania State University, USA; Q. Jia, Los Alamos National Laboratory, USA; L. Chen, The Pennsylvania State University, USA

8:20 AM

Domain stability and morphology of BaTiO₃ thin films under anisotropic strains

G. Sheng*, J. Zhang, Y. Li, S. Choudhury, Z. Liu, The Pennsylvania State University, USA; Q. Jia, Los Alamos National Laboratory, USA; L. Chen, The Pennsylvania State University, USA

8:40 AM

Surface and thickness effect on ferroelectric transition temperature in ultrathin BaTiO₃ films

Y. Li*, L. Chen, D. G. Schlom, S. Trolier-McKinstry, X. Xi, Penn State University, USA; J. Shen, Purdue University, USA; Q. Jia, Los Alamos National Laboratory, USA; P. Turner, D. A. Tenne, Boise State University, USA; M. Biegalski, Oak Ridge National Laboratory, USA; D. Fong, Argonne National Laboratory, USA

9:00 AM

Domain Structure and its Effect on the Properties of Epitaxial BiFeO₃ Thin Films Grown on Exact and Miscut (001) SrTiO₃ Substrates (Invited)

X. Pan*, Y. Chen, University of Michigan, USA; R. R. Das, D. M. Kim, S. H. Baek, C. Eom, University of Wisconsin-Madison, USA

9:40 AM

Break

10:00 AM

Phase-field model of the relationship of domain size with grain size in thin films

B. Winchester*, S. Choudhury, L. Chen, Pennsylvania State University, USA

10:20 AM

Microstructures and dielectric properties of (Pb,Sr)TiO₃ thin films with large dielectric tunability (Invited)

Y. Lin*, University of Electronic Science and Technology of China, China

11:00 AM

Comparison of the Material Properties of Ba_{0.60}Sr_{0.40}TiO₃ (BST) Thin Films Fabricated via UV-Assist and Conventional Thermal Process Science Protocols (Invited)

M. W. Cole*, U.S. Army Research Laboratory, USA; A. Podpirka, S. Ramanathan, Harvard University, USA

11:40 AM

Piezoelectric Microgenerator: Challenges and Applications

H. Kim*, C. Park, W. Lee, B. Gnade, S. Priya, University of Texas, Arlington, USA

Electronic & Magnetic Materials: International Symposium on Advanced Dielectric Materials & Electronic Devices

Composition, Processing, Microstructure, and Property Relationships III

Room: 317

Session Chairs: Sharmila Mukhopadhyay, Wright State University; Toshio Ogawa, Shizuoka Inst. of Science & Technology

8:00 AM

Scanning Electron Acoustic Microscopy Studies of Ferroic Domains (Invited)

R. Guo*, Y. Lee, J. H. Wang, University of Texas at San Antonio, USA; A. S. Bhalla, Pennsylvania State University, USA

8:40 AM

Functionalization of Na_{0.5}Bi_{0.5}TiO₃ for applications in electronic devices (Invited)

D. Suvorov*, M. Spreitzer, J. König, M. Znidarsic, S. D. Skapin, B. Jancar, Jozef Stefan Institute, Slovenia

9:00 AM

Fabrication of piezoelectric ceramics with oriented structure using a strong magnetic field

S. Tanaka*, K. Uematsu, Nagaoka University of Technology, Japan

9:20 AM

Influence of the processing methods in the formation of the perovskite phase in PZN-10PT ceramic system

C. F. Villaquiran Raigoza, D. Garcia*, J. A. Eiras, R. H. Kiminami, Universidade Federal de Sao Carlos, Brazil

9:40 AM

Break

10:00 AM

Ferroelectric Domains in Lead Free Piezoelectric Ceramics (Invited)

T. Ogawa*, Shizuoka Institute of Science and Technology, Japan; M. Furukawa, TDK Corporation, Japan

10:20 AM

Neodymium solubility in the PLZT Ceramics

E. R. Botero, D. Garcia*, J. A. Eiras, Federal University of Sao Carlos, Brazil

10:40 AM

Texturing of PMN-PT Ceramics via Templated Grain Growth (TGG): Issues and Perspectives

M. E. Ebrahimi*, SorenTec, Canada

11:00 AM

High Temperature Piezoelectric Properties of Some Bismuth Layer-Structured Ferroelectric Ceramics (Invited)

T. Takenaka*, T. Tokutsu, H. Miyabayashi, Y. Hiruma, H. Nagata, Tokyo University of Science, Japan

11:20 AM

Nanosized Barrier Layer Capacitor Phenomenon for the Origin of the Huge Dielectric Constant and Semiconducting Coexistent Features in Perovskite-type Structures (Invited)

P.R. Bueno*, R. Tararan, J. Varela, Sao Paulo State University, Brazil

11:40 AM

All-ceramic Percolative Composites with a Colossal Dielectric Response

V. Bobnar*, M. Hrovat, J. Holc, M. Kosec, Jozef Stefan Institute, Slovenia

Electronic & Magnetic Materials: Pb-Free, Pb-Bearing Joining and Packaging Materials and Processes for Microelectronics

Microstructural Characterization

Room: 319

Session Chairs: C. Robert Kao, National Taiwan University; Iver Anderson, Ames Laboratory

8:00 AM

Minimal Alloy Additions for Both Nucleation Control and Thermal Aging Resistance of Near-Eutectic Sn-Ag-Cu Solder Joints (Invited)

I. E. Anderson*, Ames Laboratory, USA; J. Walleiser, Iowa State University, USA; J. Harringa, A. Kracher, F. Laabs, Ames Laboratory, USA

8:40 AM

TEM Characterization of Directionally Solidified Ag-Cu-Sn Alloys

B. Hamilton*, H. McGee, D. Lewis, Rensselaer Polytechnic Institute, USA

9:00 AM

Effect of Al addition on microstructure and wettability on Sn-Zn Lead-free Solders

X. Wang*, C. Li, J. Ma, Y. Zhang, University of Science and Technology Beijing, China

9:20 AM

Spalling and Voiding in the Liquid State: Eutectic Sn-Ag-Cu Solders on Au/Ni Substrates

M. Gao*, E. J. Cotts, Binghamton University, USA

9:40 AM

Break

10:00 AM

Kirkendall Void Formation in the Reaction Between Cu Substrate and Lead-free Solders (Invited)

Y. W. Wang, C. Kao*, National Taiwan University, Taiwan

10:40 AM

2-D and 3-D Characterization of Sn Crystal Orientations and Microstructural Evolution in Lead-free Solder Joints

T. R. Bieler*, Michigan State University, USA; T. Lee, Cisco Systems Inc., USA; D. S. Robinson, Argonne National Laboratory, USA

11:00 AM

Investigation of Various Properties of Lead Free Solders

S. Knott*, M. Hindler, Z. Li, C. Schmetterer, P. Terzieff, A. Mikula, University of Vienna, Austria

Environmental & Energy Issues: Ceramics and Glass for Waste Minimization, Stabilization, and Disposition

Waste Glass Leach Testing and Modeling

Room: 326

Session Chairs: James Marra, Savannah River National Lab; George Wicks, Savannah River National Lab

8:00 AM

SKC.CEN R&D on the interaction between nuclear waste glass and clay near-field materials (Invited)

P. Van Iseghem*, K. Lemmens, E. Valcke, M. Aertsens, K. Ferrand, SKC.CEN, Belgium; M. Aertsens,

8:20 AM

GLAMOR - or how we achieved a common understanding on the decrease of glass dissolution kinetics (Invited)

P. Van Iseghem*, M. Aertsens, SKC.CEN, Belgium; S. Gin, D. Deneele, CEA, France; B. Grambow, SUBATECH, France; D. Strachan, P. McGrail, PNNL, USA; G. Wicks, SRNL, USA

8:40 AM

The Product Consistency Test (PCT): How and Why It Was Developed (Invited)

C. M. Jantzen*, N. E. Bibler, Savannah River National Laboratory, USA

9:00 AM

Using Glass Dissolution Test Results in Performance Models (Invited)

W. Ebert*, Argonne National Laboratory, USA

9:20 AM

Application of Leaching Tests in the Investigation of Long Term Behaviour of HLW Waste Glass: The French Experience (Invited)

S. Gin*, CEA, France

9:40 AM

Break

10:00 AM

Accelerated Weathering of Waste Glass at 90°C with the Pressurized Unsaturated Flow (PUF) Apparatus: Implications for Predicting Glass Corrosion with a Reactive Transport Model (Invited)

E. M. Pierce*, D. H. Bacon, Pacific Northwest National Laboratory, USA

10:20 AM

Round Table Discussion

Environmental & Energy Issues: Energy Materials

Energy Storage

Room: 327

Session Chair: Wayne Huebner, Missouri University of Science and Technology

8:00 AM

Nanostructured Dielectric Ceramics for High Energy Density Capacitors (Invited)

F. Dogan*, S. Chao, Missouri University of Science and Technology, USA

8:20 AM

Crack-free Antiferroelectric PLZT Thin Films on Base Metal Nickel Foil for Embedded High-Energy-Density Capacitors

D. Kwon*, Korea Aerospace University, South Korea; M. Narayanan, B. Ma, U. Balachandran, Argonne National Laboratory, USA

8:40 AM

Thermodynamic Calculations of Metal-Hydrogen Systems

U. R. Kattner*, NIST, USA

9:00 AM

Sorption/desorption properties of MgH₂-oxide composite prepared by ultra high-energy planetary ball milling

Y. Kodera*, N. Yamasaki, J. Miki, M. Ohyanagi, Ryukoku University, Japan; S. Shiozaki, S. Fukui, Kurimoto, LTD, Japan; J. Yin, T. Fukui, Hosokawa Powder Technology Research Institute, Japan

9:20 AM

Destabilization of LiBH₄/LiNH₂ with MgH₂/Nb₂O₅ for Hydrogen Storage Applications

M. U. Jurczyk*, S. Srinivasan, A. Kumar, E. Stefanakos, Y. Goswami, University of South Florida, USA

9:40 AM

Break

Other Energy Materials I

Room: 327

Session Chair: Fatih Dogan, Missouri University of Science and Technology

10:00 AM

Structure of Water: The World's Most Important and Plentiful Two Phases (Invited)

R. Roy*, Pennsylvania State University, USA

10:40 AM

Conversion of Soderberg into Prepacked Anode Cells at Egyptalum: Less Energy and Cleaner Environment

S. El-Raghy*, Cairo University, Egypt; S. Abd-Elwahab, Aluminum Company of Egypt, Egypt

11:00 AM

Microstructure-property relationships in diesel particulate filter (DPF) substrates

A. Shyam*, E. Lara-Curzio, T. R. Watkins, Oak Ridge National Laboratory, USA

11:20 AM

Frequency Tunable Piezoelectric Vibration Harvester for Structural Health Monitoring

J. Youngsman*, D. J. Morris, Washington State University, USA; M. J. Anderson, University of Idaho, USA; P. F. Fleig, C. D. Lakeman, TPL, Inc., USA; D. F. Bahr, Washington State University, USA

11:40 AM

Flexible Piezoelectric Fiber-Based Composite for Energy Harvesting

R. B. Cass*, F. Mohammadi, H. Kim, Advanced Cerametrics, Inc., USA

Environmental & Energy Issues: Fuel Cells: Materials, Processing, Manufacturing, Balance of Plant and Systems Operation

Novel Fuel Cell Systems: Materials, Operation and Applications

Room: 325

Session Chairs: Arumugam Manthiram, University of Texas at Austin; Z. Gary Yang, Pacific Northwest National Lab

8:00 AM

Simulations of Solid Oxide Fuel Cell Electrodes with Complex Microstructures (Invited)

H. Chen*, University of Michigan, USA; J. R. Wilson, S. A. Barnett, Northwestern University, USA; S. B. Adler, University of Washington, USA; P. W. Voorhees, Northwestern University, USA; K. Thornton, University of Michigan, USA

8:40 AM

Thermal stresses in planar Solid Oxide Fuel Cell (SOFC) as a function of thermo-mechanical properties of component materials

T. Manisha*, M. Radovic, Texas A & M University, USA; N. Orlovskaya, University of Central Florida, USA

9:00 AM

Gadolinia-Doped Ceria Thin Films Deposited by RF Reactive Magnetron Sputtering

Y. Kuo*, Tatung University, Taiwan; C. Lee, H. Liang, National Taiwan University of Science and Technology, Taiwan

9:20 AM

Microstructurally Engineered Composite Materials for SOFC Electrolyte Applications

A. G. Willsey*, NYS College of Ceramics, USA; V. W. Amarakoon, G. E. DelRegno, Center for Advanced Ceramic Technology, USA

9:40 AM

Break

10:00 AM

Mechanical and Electrochemical Performance of Micro-Tubular SOFCs for APU-Applications (Invited)

N. M. Sammes*, J. Song, K. Galloway, B. Roy, Colorado School of Mines, USA; M. F. Serincan, University of Connecticut, USA; M. Awano, T. Suzuki, AIST, Japan

10:40 AM

High Performance Interleaved Electrolyte Supported Solid Oxide Fuel Cell

P. S. Gentile*, S. W. Sofie, Montana State University, USA

11:00 AM

Development of Passive Air-breathing DMFC with Low Catalysts Loading

Y. Lu*, R. G. Reddy, The University of Alabama, USA

11:20 AM

Achievements in Solid Oxide Fuel Cell (SOFC) Materials and Challenges

M. E. Ebrahimi*, SorenTec, Canada

11:40 AM

Use of Fourier Transformation to Analyse Impedance Responses from Inert Substrate Supported SOFCs

G. Reade*, Rolls Royce Fuel Cell Systems Ltd., United Kingdom; Z. Liu, Rolls Royce Fuel Cell Systems (US), Inc., USA; M. Jorger, G. Agnew, Rolls Royce Fuel Cell Systems Ltd., United Kingdom

Environmental & Energy Issues: Nanoscale Design of Materials for Extreme Radiation Environments

Irradiation Studies in Nanomaterials

Room: 323

Session Chairs: Xinghang Zhang, Texas A&M University; K. Murty, North Carolina State University

8:00 AM

Ion irradiation damage in nanostructured metallic multilayers (Invited)

X. Zhang*, E. Fu, N. Li, Texas A&M University, USA; A. Misra, Los Alamos National Laboratory, USA

8:40 AM

Experimental atomic scale investigation of irradiation effect in CW 316SS and UFG-CW 316SS (Invited)

P. Pareige*, France; E. Auriane, R. Bertrand, Université de Rouen - CNRS, France

9:20 AM

Influence of Fast Neutron Irradiation on the Mechanical Properties and Microstructure of Nanocrystalline Metals/Alloys (Invited)

W. M. Mohamed*, K. L. Murty, North Carolina State University, USA

10:00 AM

Small-Scale Specimen Testing of Irradiated MA 754 and MA 957 Alloys (Invited)

R. Prabhakaran, University of Idaho, USA; J. I. Cole, D. E. Burkes, J. Gan, Idaho National Laboratory, USA; I. Charit*, University of Idaho, USA

Environmental & Energy Issues: Thermoelectric Materials: Science, Technology and Applications

Nanoengineered and Oxide Thermoelectric Materials

Room: 324

Session Chairs: Terry Tritt, Clemson University; Anke Weidenkaff, EMPA

8:00 AM

Nanoengineered Materials for Enhanced Thermoelectric Performance (Invited)

D. Johnson*, University of Oregon, USA

8:30 AM

Metal-Semiconductor Nanocomposites for Thermoelectric Energy Conversion (Invited)

A. Shakouri*, University of California, Santa Cruz, USA

9:00 AM

Nanocomposites of Bismuth Telluride and C₆₀

N. Gothard*, Clemson University, USA; J. E. Spowart, Air Force Research Laboratory, USA; T. M. Tritt, Clemson University, USA

9:20 AM

Transmission Electron Microscopy Studies of Nanostructure in β -Zn₄Sb₃

Ø. Prytz*, University of Oslo, Norway; G. J. Snyder, E. S. Toberer, California Institute of Technology, USA; J. Taftø, University of Oslo, Norway

9:40 AM

Break

10:00 AM

SrTiO₃-Based Superlattices for Thermoelectric Energy Conversion (Invited)

K. Koumoto, H. Ohta*, Nagoya University, Japan

10:30 AM

Atomic Layer Thermopile and Its Application (Invited)

H. Habermeyer*, MPI-FKF, Germany; P. Zhang, Kunming University of Science and Technology, China

11:00 AM

High-throughput combinatorial mapping of LaMO₃ (M = Ti, Mn, Co, Ni) thin film thermoelectric property diagrams

E. L. Thomas*, M. Otani, G. Liu, W. Wong-Ng, National Institute of Standards and Technology, USA

11:20 AM

Thermoelectric Properties of Reduced Rutile TiO₂

J. Tang*, W. Wang, University of Wyoming, USA; G. Zhao, Southern University, USA

11:40 AM

Roles of Na vacancy on Lowering Lattice Thermal Conductivity in Na_xCoO₂

M. Yoshiya*, T. Okabayashi, M. Tada, T. Nagira, H. Yasuda, Osaka University, Japan

Fundamentals & Characterization: Ceramic Surfaces, Grain Boundaries and Interfaces

Interface Structure and Properties I

Room: 301

Session Chairs: Paul Wynblatt, Carnegie Mellon University; Christina Scheu, University of Munich

8:00 AM

Measuring the Five Parameter Grain Boundary Character Distribution From Three-Dimensional Orientation Maps (Invited)

S. Dillon, G. Rohrer*, CMU, USA

8:40 AM

Interface Structure/Property Relations through Aberration-Corrected STEM and First-Principles Theory (Invited)

S. Pennycook*, M. Varela, K. van Benthem, G. S. Painter, P. Becher, Oak Ridge National Laboratory, USA; S. T. Pantelides, Vanderbilt University, USA

9:20 AM

Influence of the grain boundaries on the properties of silica doped zirconia and alumina ceramics (Invited)

L. Gremillard*, N. Louet, T. Epicier, J. Chevalier, G. Fantozzi, INSA-lyon, France

9:40 AM

Break

10:00 AM

Atomistic Study of Thermodynamical and Mechanical Stabilities of Thin Copper Films on Tantalum (Invited)

A. Hashibon*, C. Elsaesser, Y. Mishin, P. Gumbsch, Fraunhofer-Institut fuer Werkstoffmechanik IWM, Germany

10:40 AM

Epitaxial Conversion of Surface Coatings on c-plane Sapphire and Magnesium Aluminate Spinel (Invited)

S. Dutta, D. Browne, H. Li, J. Biser, R. Vinci, H. M. Chan*, Lehigh University, USA

11:00 AM

Direct Observation of Strong Interaction between Nanosized Metal Particles and Oxide Surface (Invited)

X. Pan*, H. Sun, G. W. Graham, University of Michigan, USA

11:40 AM

Space charge in iron doped alumina, grain boundary region iron enrichment, related diffusivity

A. Bataille*, A. Mussi, J. Crampon, University of Lille, France

Fundamentals & Characterization: Discovery and Optimization of Materials through Computational Design

Ab Initio Approaches for Hydrogen Storage Materials

Room: 303

Session Chairs: Vidvuds Ozolins, University of California, Los Angeles; Chris Van de Walle, University of California

8:00 AM

First-Principles Engineering of Materials for Hydrogen Storage (Invited)

V. Ozolins*, UCLA, USA; H. Gunaydin, Northwestern University, USA; A. Akbarzadeh, UCLA, USA; E. H. Majzoub, UMSL, USA; C. Wolverton, Northwestern University, USA; K. N. Houk, UCLA, USA

8:40 AM

Linking first-principles simulations and experiments to accelerate the discovery of novel hydrogen storage materials (Invited)

D. Siegel*, Ford Motor Company, USA

9:20 AM

Break

9:40 AM

Dehydrogenation Kinetics of NaAlH₄ from First-principles Molecular Dynamics (Invited)

B. Wood*, JNCASR, India; N. Marzari, MIT, USA

10:20 AM

First-Principles Prediction of a Ground State Crystal Structure and Hydrogen Storage Properties of Magnesium Borohydride (Invited)

C. Wolverton*, Northwestern University, USA; V. Ozolins, UCLA, USA; E. Majzoub, Univ. of Missouri, USA

11:00 AM

Role of Defects in Kinetics of Hydrogen Storage Materials (Invited)

C. G. Van de Walle*, University of California, USA

11:40 AM

First-Principles Energetics of Solute-Vacancy Binding in Magnesium

D. Shin*, C. Wolverton, Northwestern University, USA

Fundamentals & Characterization: Failure Analysis for Problem Solving

Fatigue and Fracture I

Room: 304

Session Chairs: Mike Stevenson, Engineering Systems Inc.; Aaron Tanzer, Lehigh Testing Laboratories, Inc.; Dustin Turnquist, Engineering Systems Inc.

8:00 AM

Failure Analysis of Torsion Bar in Automotive Suspension Application

Y. Huang*, Key Safety Systems, Inc., USA

8:20 AM

Small-Scale Integrated Validation Experiments: Bridging the Experimental-Modeling Gap (Invited)

G. T. Gray*, P. Maudlin, L. Hull, S. Chen, Los Alamos National Laboratory, USA

9:00 AM

Failure Analysis of Recliner Plates (Invited)

E. Ulvan*, Acuren Group, Inc., Canada

9:20 AM

A Fatal Accident Involving a Glass-Topped Cocktail Table (Invited)

A. A. Johnson*, Metals Research Inc., USA; R. J. Storey, University of Louisville, USA

9:40 AM

Break

10:00 AM

An Introduction to Fracture Mechanics in Failure Analysis (Invited)

J. D. Landes*, University of Tennessee, USA

10:40 AM

Large Press Failures (Invited)

R. J. Parrington*, IMR Test Labs Inc., USA; C. Hales, Hales & Gooch Ltd., USA

11:00 AM

Root Cause Analysis for a Flexhose Failure (Invited)

D. P. Dennies*, The Boeing Company, USA

Fundamentals & Characterization: Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life

Very/Ultra High Cycle Fatigue

Room: 305

Session Chairs: K. Chan, Southwest Research Institute; J. Larsen, Air Force Research Lab

8:00 AM

Influence of the Metallurgical Instability on the VHCF (Invited)

C. Bathias*, University Paris10, France

8:40 AM

Damage accumulation and fatigue crack initiation in an $\alpha + \beta$ titanium alloy (Invited)

C. J. Szczepanski*, University of Michigan, USA; S. K. Jha, Universal Technology Corporation, USA; J. W. Jones, University of Michigan, USA; J. M. Larsen, AFRL/RXLMN, USA

9:20 AM

Effect of Alumite Treatment on Long-life Fatigue Behavior of Aluminum Alloy in Rotating Bending

Y. Nakamura*, T. Sakai, Ritsumeikan University, Japan; H. Hirano, Matsushita Electric Industrial Co., Ltd, Japan

9:40 AM

Break

10:00 AM

Transition of Fatigue Failure Mode of High-Strength Steel in Very High Cycle Regime (Invited)

K. Shiozawa*, M. Murai, University of Toyama, Japan

10:40 AM

Effects of vacuum-like environment around interior crack on gigacycle fatigue properties of Ti-6Al-4V (Invited)

T. Nakamura*, H. Oguma, Hokkaido University, Japan

11:20 AM

Effects of Laser Peening Treatment on High Cycle Fatigue Property of Aluminum Alloy (Invited)

Y. Ochi*, University of Electro-Communications, Japan; K. Masaki, Okinawa National College of Technology, Japan; T. Matsumura, T. Kakiuchi, University of Electro-Communications, Japan; Y. Suzuki, University of Electro-Communications, Japan; Y. Sano, Toshiba Corporation, Japan; T. Adachi, Fuji Heavy Industries LTD., Japan

12:00 PM

EBSD Investigation of the Crack Initiation and TEM/FIB Analyses of the Microstructural Changes around the Cracks formed under Rolling Contact Fatigue

A. Grabulov*, R. Petrov, Materials Innovation Institute, Netherlands; H. W. Zandbergen, Delft University of Technology, Netherlands

Fundamentals & Characterization: International Symposium on Defects, Transport and Related Phenomena

Defects and Transport Related to Fuel Cells and Batteries III

Room: 307

Session Chairs: Harry Tuller, Massachusetts Institute of Technology; Tatsuya Kawada, Tohoku University

8:00 AM

Cation Diffusion in Perovskite Materials (Invited)

T. Grande*, NTNU, Norway

8:40 AM

Transference Number Measurements of Al₂O₃/Gd-CeO₂ Nano Composites for SOFC Applications

R. Chockalingam*, S. Chockalingam, E. Doreen, V. Amarakoon, Alfred University, USA

9:00 AM

Crystal Structure and Conductivity of Doped Ceria Electrolytes at Intermediate Temperatures (Invited)

S. Omar, E. D. Wachsman, J. C. Nino*, University of Florida, USA

9:40 AM

Break

10:00 AM

From fundamentals to working devices: examination of nano-ionic materials for next generation solid oxide fuel cells (Invited)

H. L. Tuller*, S. J. Litzelman, Massachusetts Institute of Technology, USA

10:40 AM

Impedance Study of SrTi_{1-x}Fe_xO_{3-δ} MIEC Model Cathodes

W. Jung*, H. L. Tuller, MIT, USA

11:00 AM

Effect of Surface Modification on the Properties of (La,Sr)CoO₃ Electrode (Invited)

T. Kawada*, M. Sase, K. Amezawa, H. Watanabe, A. Unemoto, Tohoku University, Japan; Y. Uchimoto, Kyoto University, Japan

11:40 AM

Electrochemical Characterization of Highly Oriented Ceria Thin Film

W. C. Chueh*, S. M. Haile, California Institute of Technology, USA

Fundamentals & Characterization: Micro- and Nano- Mechanical Behavior of Low-Dimensional Structures and Materials

Micro- and Nano- Mechanical Behavior of Materials - Metallic Materials II

Room: 308

Session Chairs: Juergen Biener, Lawrence Livermore National Laboratory; Qiuming Wei, University of North Carolina at Charlotte

8:00 AM

Dislocations nucleation and starvation in metallic nanowires (Invited)

S. X. Mao*, U. Pittsburgh, USA

8:20 AM

Mechanical Properties of High-Pressure Torsion Processed Nanocrystalline Tantalum by Micro-compression and Nanoindentation (Invited)

B. E. Schuster, US Army Research Lab, USA; Q. Wei*, UNC-Charlotte, USA; L. J. Kecskes, US Army Research Lab, USA; R. Z. Valiev, Ufa State Aviation Technical University, Russian Federation

8:40 AM

Mechanical deformation of arrays of carbon nanotubes for contact switches

D. F. Bahr*, R. Johnson, S. Mesorovic, Washington State University, USA; J. Jiao, Portland State University, USA

9:00 AM

Quantitative Correlation between Nanoindentation Hardness near Grain Boundaries with PFZ and Macroscopic Mechanical Properties in Al-Zn-Mg (-Ag) Alloys

T. Ogura*, A. Hirose, Osaka University, Japan; T. Sato, Tokoy Institute of Technology, Japan

9:20 AM

Sputter-deposited single-crystal like Cu films with nanoscale growth twins

O. Anderoglu, X. Zhang*, Texas A&M University, USA; A. Misra, Los Alamos National Laboratory, USA

9:40 AM

Break

10:00 AM

Nanomechanical Characterization of Nanoscale Al/SiC Multilayered Composites

D. Singh*, N. Chawla, Arizona State University, USA; G. Tang, Y. Shen, University of New Mexico, USA

10:20 AM

In-situ Observation of Uniform Tensile Deformation of As-quenched Martensitic Steel in SEM

Y. Ishimoto*, S. Nambu, M. Michiuchi, J. Inoue, T. Koseki, The University of Tokyo, Japan

10:40 AM

Correlation of the Roping Defect with Texture Evolution in Aluminum Sheets

S. Tiwari*, R. K. Mishra, General Motors R&D Center, USA; S. Hartfield-Wunsch, GM Manufacturing Engineering, USA

11:00 AM

Influence of Cooling Rates Imposed by Rapid Solidification Techniques on the Characteristics of NiTi Shape Memory Alloys

A. C. Kneissl*, K. Mehrabi, University of Leoben, Austria; M. Bruncko, University of Maribor, Slovenia; D. Uhlenthat, ETH Zurich, Switzerland

11:20 AM

Influence of different testing parameters on Scratch Test results of a coating-substrate system

G. A. Marques*, J. A. Araujo, S. A. Pereira, MAHLE, Brazil

11:40 AM

Micromechanisms of Deformation Behavior in LiNbO₃ Single Crystal Studied by Spherical Nanoindentation

S. Basu*, A. Zhou, M. W. Barsoum, Drexel University, USA

Fundamentals & Characterization: Modeling of Multi-Scale Phenomena in Materials Processing

Microstructure Evolution III

Room: 306

Session Chair: Nicoletta Popescu Pogrión, National Institute for Materials Physics

8:00 AM

Microstructural Evolution of Two Phase Al-Li Alloys

B. Pletcher*, University of Florida, USA; K. Wang, Florida Institute of Technology, USA; M. Glicksman, University of Florida, USA; J. Lebeau, University of California, Santa Barbara, USA

8:20 AM

Amplitude-Equation Formulation for Phase Field Crystal Modeling in the Two-Phase Coexistence Region

D. Yeon*, University of Michigan, USA; Z. Huang, Wayne State University, USA; K. Elder, Oakland University, USA; K. Thornton, University of Michigan, USA

8:40 AM

Can Deformation-Induced Surface Roughness Reliably Predict Strain Localization? (Invited)

M. R. Stoudt*, J. B. Hubbard, National Institute of Standards and Technology, USA

9:00 AM

Self-Assembly of Egg-Type Microstructure during Phase Separation in Liquid Droplet (Invited)

R. Shi, Xiamen University, China; C. Shen, The Ohio State University, USA; C. Wang, X. Liu, Xiamen University, China; Y. Wang*, The Ohio State University, USA

9:20 AM

Computational Approach to Microstructure Evolution in Rapid Solidification of Laser Dressed Alumina Ceramic

A. N. Samant*, University of Tennessee, USA; A. S. Sabau, C. A. Blue, Oak Ridge National Laboratory, USA; N. B. Dahotre, University of Tennessee, USA

9:40 AM

Break

Multiple Length-scale Coupling

Room: 306

Session Chair: Lukasz Madej, Akademia Gornicza Hutnicza

10:00 AM

Application of the Strain Localization CAFE Model to Investigate Extrusion with Various Die Shapes

L. Madej*, Akademia Gornicza Hutnicza, Poland; P. D. Hodgson, Deakin University, Australia; M. Pietrzyk, Akademia Gornicza Hutnicza, Poland

10:20 AM

Representative volume element sizes for the determination of effective properties in porous ceramic-metal composites

J. Johnson*, J. Qu, Georgia Institute of Technology, USA

10:40 AM

Multi-Scale Characterization of Orthotropic Microstructures

M. Tschopp*, G. Wilks, J. Spowart, Air Force Research Laboratory, USA

11:00 AM

Directional Multi-Scale Analysis of Area Fractions

G. B. Wilks*, Air Force Research Laboratory (GD Inc.), USA; M. A. Tschopp, Air Force Research Laboratory (UTC Inc.), USA; J. E. Spowart, Air Force Research Laboratory, USA

11:20 AM

Numerical Simulation of Annealing of CdSe Quantum Dots for White Light LEDs

A. S. Sabau*, C. E. Duty, R. D. Ott, G. E. Jellison, Oak Ridge National Laboratory, USA

Fundamentals & Characterization: Phase Stability, Diffusion Kinetics and Their Applications (PSDK-III)

Microstructural Analysis, Control and Modeling II

Room: 302

Session Chairs: Mark Asta, University of California at Davis; David Seidman, Northwestern University

8:00 AM

A Theoretical and Atomistic Simulation Study of Solute Trapping (Invited)

J. J. Hoyt*, McMaster University, Canada; Y. Yang, East China Normal University, China; M. Asta, D. Buta, University of California, USA; D. Sun, East China Normal University, China

8:40 AM

Diffuse-interface Simulations of Reactive Wetting

W. Villanueva*, W. J. Boettinger, J. A. Warren, NIST, USA

9:00 AM

General Treatment of Precipitation in Multicomponent Systems

Q. Chen*, X. Lu, H. Strandlund, A. Engström, Thermo-Calc Software AB, Sweden

9:20 AM

Diffusion-limited phase growth around crystal defects

A. R. Massih*, Quantum Technologies, Sweden

9:40 AM

Break

10:00 AM

Entropy in Phase Stability and Diffusion Kinetics (Invited)

Z. Liu*, The Pennsylvania State University, USA

10:40 AM

Cellular Microstructures in Directional Solidification

E. Sunseri*, L. Zhang, R. Trivedi, Iowa State University, USA

11:00 AM

Kinetic Effect on Multicomponent Phase Coarsening

K. Wang*, Florida Institute of Technology, USA

11:20 AM

Computational modeling of internal oxidation

X. Pan*, J. E. Morral, Y. Wang, Ohio state University, USA

11:40 AM

Modelling Precipitation Kinetics in a Complex 9-12% Cr Steel

B. Sonderegger*, F. Méndez Martín, Graz University of Technology, Austria

Fundamentals & Characterization: Phase Transformations and Microstructural Changes during Sustained Mechanical Forcing

Modeling and Simulation Approaches for Driven Transformations

Room: 310

Session Chair: Rainer Hebert, University of Connecticut

8:00 AM

Molecular dynamics simulation of mechanically driven systems (Invited)

M. L. Falk*, Johns Hopkins University, USA

8:40 AM

Molecular Dynamics Simulations of Microstructural Evolution during Sliding (Invited)

K. Subramanian*, Indian Institute of Science, India; A. Agrawal, The Ohio State University, USA

9:20 AM

Break

9:40 AM

Crossover from superdiffusive to diffusive mixing in solids forced by plastic deformation (Invited)

P. M. Bellon*, N. Q. Vo, R. S. Averback, University of Illinois, USA; A. Caro, Lawrence Livermore National Lab, USA

10:20 AM

Stress-oriented precipitation of second-phase in alloys

L. O. Jernkvist, A. R. Massih*, Quantum Technologies, Sweden

10:40 AM

Significance and Development of a Next-Generation Level 2 Model as a Metallurgical System

B. Li*, J. Nauman, Metal Pass LLC, USA

Fundamentals & Characterization: Recent Advances in Structural Characterization of Materials

X-Ray and Neutron Diffraction: Developments and Applications III

Room: 309

Session Chairs: Dean Haeffner, Argonne National Lab; Zhonghou Cai, Argonne National Lab

8:00 AM

Use of High-Energy X-rays for Phase and Strain Mapping (Invited)

J. Almer*, D. Liu, Argonne National Laboratory, USA; S. Stock, Northwestern University, USA

8:20 AM

Determination of grain scale deformation in a single phase titanium alloy (Invited)

M. P. Miller*, Cornell University, USA; U. Lienert, J. V. Bernier, Argonne National Laboratory, USA; M. Mills, M. Brandes, The Ohio State University, USA

8:40 AM

High-energy x-ray diffraction at ID15 of the European Synchrotron Radiation Facility : Advances in materials characterization techniques (Invited)

J. Daniels*, V. Honkimaki, European Synchrotron Radiation Facility, France

9:00 AM

In Situ Synchrotron X-Ray Studies of ZrO₂ – In₂O₃ Heterostructures (Invited)

D. D. Fong*, J. A. Eastman, P. H. Fuoss, P. M. Baldo, T. T. Fister, M. J. Highland, H. Iddir, P. Zapol, Argonne National Laboratory, USA

9:20 AM

Determining lattice site occupancies and chemical segregation in a nickel based super alloy using x-ray and neutron diffraction

J. Tiley*, USAF, USA; R. Banerjee, University of North Texas, USA; G. B. Viswanathan, R. Srinivasan, H. L. Fraser, The Ohio State University, USA

9:40 AM

Break

Spectroscopic Techniques: Developments and Applications

Room: 309

Session Chair: Juan Nino, University of Florida

10:00 AM

Microwave, THz and FTIR characterization of ultrathin ferroelectric and magnetoelectric films (Invited)

S. Kamba*, D. Nuzhnyy, V. Goian, V. Bovtun, M. Kempa, P. Kuzel, C. Kadlec, Institute of Physics, Czech Republic; C. M. Brooks, J. H. Lee, D. G. Schlom, Pennsylvania State University, USA; J. Schubert, Forschungszentrum Julich, Germany; M. Orlita, Grenoble High Magnetic Field Laboratory, France

10:20 AM

Ultrafast Dynamics of Carrier Localization (Invited)

S. L. Dexheimer*, Washington State University, USA

10:40 AM

Atomic-resolution studies of Ca₃Co₄O₉ using in-situ scanning transmission electron microscopy

G. Yang*, Y. Zhao, R. F. Klie, University of Illinois at Chicago, USA

11:00 AM

Development and Applications of in situ Electrochemical-NMR Spectroscopy

X. Zhang*, J. W. Zwanziger, Dalhousie University, Canada

11:20 AM

Scratch-Induced Microplasticity, Microcracking and Residual Stresses in ZrB₂-SiC

G. Subhash*, D. Ghosh, University of Florida, USA; N. Orlovskaya, University of Central Florida, USA

Iron & Steel: International Symposium on Materials Engineering for Structural Applications

Thermo-Mechanical Control Processing

Room: 328

Session Chairs: Matthew Merwin, U.S. Steel Research & Technology Center; C. Issac Garcia, University of Pittsburgh

8:00 AM

Cost Effective Microalloy Structural Steel Balance of Process Metallurgy and Materials Engineering

S. G. Jansto*, CBMM-Reference Metals Company, USA

8:20 AM

Microstructural and Processing Factors Affecting the Formation of Pro-eutectoid Cementite in SAE 1092 Wire Rod Steel

F. Borchardt, ArcelorMittal Monlevade, Brazil; C. Garcia*, M. Hua, A. J. DeArdo, University of Pittsburgh, USA

8:40 AM

Development of High Performance Steels for Bridge Applications at IPSCO

D. Bai, T. Nelson, R. Bodnar, IPSCO Inc., USA; S. Scumpu*, IPSCO Inc., Canada; M. Cooke, IPSCO Inc., USA

9:00 AM

Effect of Alloying Additions in the Final Microstructure of Nb-Mo Steels Processed by Thin Slab Direct Rolling Technologies

J. Ganzarain, D. Jorge-Badiola, P. Uranga*, J. M. Rodriguez-Ibabe, CEIT and TECNUN (University of Navarra), Spain

9:20 AM

Transformation Characteristics of M-A Constituents in Nb-Ti Microalloyed, Low-Mn Steel and Their Effect on Mechanical Properties

Q. Sha, Anshan Iron and steel Group, China; C. Garcia, M. Hua*, A. J. DeArdo, University of Pittsburgh, USA

9:40 AM

Break

10:00 AM

Quantitative evaluation of hydrogen embrittlement on fatigue toughness of galvanized high strength steel

E. J. Petit*, Université de Metz, France; M. Gilles, Umicore, Belgium; S. Aden-Ali, A. Chamat, J. Gilgert, Z. Azari, University of Metz, France

10:20 AM

Role of Vacancy and Dislocation on Hydrogen Degradation

H. Shoda*, K. Takai, H. Suzuki, Y. Hagihara, Sophia University, Japan

10:40 AM

Characterization of TRIP - Assisted Steel and Applied Methods

J. Kliber*, O. Zacek, S. Nemecek, B. Masek, VSB-Technical University, Czech Republic

11:00 AM

Microstructural Influence on Hydrogen Delayed Fracture Resistance of High Strength Steels

J. Kim*, K. So, Pohang University of Science and Technology, South Korea; Y. Lee, POSCO, South Korea; C. Lee, Pohang University of Science and Technology, South Korea

Iron & Steel: Recent Developments in Steel Processing

Processing

Room: 329

Session Chair: Maciej Pietrzyk, Akademia Gorniczco Hutnicza

8:00 AM

The Effect of Cool Deformation Processing on the Structure and Properties of a Pipeline Steel

A. Elwazri*, J. Calvo, S. Yue, McGill University, Canada

8:20 AM

Analysis of copper precipitates in ferrite matrix in pipeline steels

A. Fatehi*, A. Elwazri, J. Calvo, S. Yue, McGill University, Canada

8:40 AM

Ferrite Substructure as an Elevated Temperature Strengthening Mechanism for Fire-Resistant (FR) Structural Steel

R. Regier*, J. G. Speer, D. K. Matlock, Colorado School of Mines, USA; S. Jansto, Reference Metals Company, USA

9:00 AM

Alloy and Process Development for Thin-wall Honeycomb Structure

T. H. Sanders*, J. K. Cochran, Georgia Institute of Technology, USA

9:20 AM

Austenite Formation in Plain Low Carbon Steels

H. Azizi-Alizamini*, M. Militzer, W. J. Poole, The University of British Columbia, Canada

9:40 AM

Break

10:00 AM

Design of Rolling Schedules Using an Optimization Tool

B. Peña, M. Arribas, A. Carrillo, J. I. Barbero*, LABEIN, Spain; J. Calvo, S. Yue, McGill University, Canada

10:20 AM

Development of the Online Stelmor Quality Prediction System

W. Yu*, University of Science and Technology Beijing, China; S. Chen, Y. Kuang, K. Cao, Jiangsu Shagang Group Co., Ltd., China

10:40 AM

Effect of Thermomechanical Processing Parameters on the Mechanical Properties of API X80 Steels

K. Al Hajeri*, W. Al Shalfan, SABIC Technology Center, Saudi Arabia; S. Al Shammery, Saudi Iron and Steel Company (HADEED), Saudi Arabia

11:00 AM

Power for Slitting of Metal Strip

L. Yan*, B. Snider, SMS Demag Ltd., Canada

11:20 AM

Cold Forming Process for Net Shaped Automotive Ring Gears

R. Whitbeck*, T. Tonello, Ford Motor Company, USA

Iron & Steel: Steel Product Metallurgy and Applications

Microstructure - Property Correlations I

Room: 330

Session Chair: James Warren, ArcelorMittal USA

8:00 AM

Effect of Microscopic Deformation Characteristics of MnS Inclusions in Free Cutting Steels on Development of Built-up Edge

N. Matsui*, Sumitomo Metal Industries, Ltd, Japan; J. Fujiwara, Osaka University, Japan

8:20 AM

Effect of MnS Distribution on Machinability in Low C Lead-free Free-cutting Steel

M. Hashimura*, K. Miyayoshi, A. Mizuno, NIPPON STEEL CORPORATION, Japan

8:40 AM

Development of MnS and IGF Control in Microalloyed Steels

Y. Jiang*, BaoShan Iron and Steel Co., Ltd., China

9:00 AM

The Effect of Inclusion Type on the Toughness of 4340 Steel

P. Choudhary*, W. Garrison, Carnegie Mellon University, USA

9:20 AM

The Effects of Silicon and Rare Earth additions on the Strength and Toughness of High Nickel Medium Carbon Low Alloy Steels

P. Choudhary*, W. Garrison, Carnegie Mellon University, USA

9:40 AM

Break

10:00 AM

New Heat Treatment for Heavy Maraging Steel Forgings

M. Chatterjee, S. Krishnan*, Mishra Dhatu Nigam Limited, India

10:20 AM

New Filler Wire for Welding 250 Grade Maraging Steels

M. Chatterjee*, S. Krishnan, Mishra Dhatu Nigam Limited, India

10:40 AM

Ferrite Transformation and Carbide Precipitation in a High Magnetic Field in an Fe-C-Mo Alloy

Z. Zhou, T. Hou, J. Zhang, K. Wu*, Wuhan University of Science and Technology, China

Materials & Systems: Advances in Biomedical and Biomimetic Materials

Metallic Implant Materials

Room: 333

Session Chair: William Wagner, University of Pittsburgh

8:00 AM

Titanium with Aligned, Elongated Pores for Bone Replacement (Invited)

D. Dunand*, Northwestern University, USA

8:40 AM

Laser Deposited Functionally Graded Orthopedic Implants (Invited) (Invited)

R. Banerjee*, University of North Texas, USA; S. Nag, S. Rajagopalan, Ohio State University, USA; T. W. Scharf, University of North Texas, USA; H. L. Fraser, Ohio State University, USA

9:00 AM

Characterization of the Au-Ti Interface in Brazed Feedthroughs for Medical Device Applications

A. J. Thom*, M. Reiterer, J. Popp, J. Heffelfinger, P. Yurek, G. Munns, S. Knowles, Medtronic, Inc., USA

9:20 AM

Microstructure and Mechanical Behavior of Ti-6Al-4V for Biomedical Applications Produced by Rapid-Layer-Based Manufacturing (Invited)

L. E. Murr*, University of Texas at El Paso, USA; S. A. Quinones, University of Texas at El Paso, USA; S. M. Gaytan, M. I. Lopez, A. Rodela, E. Y. Martinez, D. H. Hernandez, E. Martinez, University of Texas at El Paso, USA; F. Medina, R. B. Wicker, University of Texas at El Paso, USA

10:00 AM

Low Modulus Porous NiTi Shape Memory Alloy for Load Bearing Implants

V. K. Balla*, S. Bose, A. Bandyopadhyay, Washington State University, USA

10:20 AM

Characterization of New Nickel-Titanium Wire for Rotary Endodontic Instruments

W. Brantley*, W. Clark, The Ohio State University, USA; M. Iijima, Health Sciences University of Hokkaido, Japan; S. Alapati, Medical University of South Carolina, USA; C. Buie, J. Liu, The Ohio State University, USA; B. Johnson, SportsWire LLC, USA

10:40 AM

Mechanical properties of implant rods made of Ti-29Nb-13Ta-4.6Zr for spinal fixture

K. Narita*, M. Niinomi, M. Nakai, T. Akahori, Tohoku University, Japan; K. Oribe, T. Tamura, S. Kozuka, S. Sato, Showa Ika Kogyo Co., Ltd., Japan

11:00 AM

In Situ Synchrotron X-ray Diffraction Study of Ti-Nb-Sn Alloys during Aging Processes

G. T. Aleixo, A. Cremasco, E. S. Lopes, State University of Campinas, Brazil; C. R. Afonso, Brazilian Synchrotron Light Laboratory, Brazil; R. Caram*, State University of Campinas, Brazil

11:20 AM

Effect of cold work on the behavior of NiTi shape memory alloy

M. M. Farag, M. E. Mitwally*, American University in Cairo, Egypt

11:40 AM

Thermoplastic Elastomer Synthesis and Processing for Soft Tissue Repair and Augmentation (Invited)

W. Wagner*, J. Guan, Y. Hong, K. Fujimoto, J. J. Stankus, University of Pittsburgh, USA

Materials & Systems: Advances in Characterization and Modeling of Cementitious Materials

New Developments Regarding Experimental Techniques for Characterizing Cement-based Materials II

Room: 331

Session Chair: Florence Sanchez, Vanderbilt University

8:00 AM

Early Age Particle-Stimulated Hydration Kinetics

J. J. Biernacki*, T. Xie, Tennessee Technological University, USA; W. Hansen, University of Michigan, USA

8:20 AM

Ultrasonic wave reflection of aqueous solutions with various concentrations

C. Chung*, J. S. Popovics, L. J. Struble, University of Illinois, USA

8:40 AM

Application of semi-adiabatic calorimetry to characterize hydration of cement paste

C. Chung*, L. J. Struble, University of Illinois, USA

9:00 AM

Identifying Cement-Admixture Incompatibilities through the Measurement of Cement Paste Rheology

A. Mukhopadhyay*, S. Jang, Texas Transportation Institute, USA

9:20 AM

New Insights into the Behavior of Air-Entrained Concrete

T. Ley*, Oklahoma State University, USA

9:40 AM

Break

Modified Fresh or Hardened Properties and Nontraditional Applications of Cement-based Materials I

Room: 331

Session Chair: Florence Sanchez, Vanderbilt University

10:00 AM

New Developments in Cement Nanoscience (Invited)

L. Raki*, J. Beaudoin, R. Alizadeh, National Research Council Canada, Canada

10:20 AM

Effects of Liquid Nitrogen Cooling on Fresh Properties of Cement-Based Materials

M. Juenger*, The University of Texas at Austin, USA; J. Hema, Haag Engineering Co., USA

10:40 AM

The Effect of Heat Treatment on the Tensile Creep of Ultra-High Performance Concrete

V. Y. Garas*, K. E. Kurtis, L. F. Kahn, Georgia Institute of Technology, USA

11:00 AM

Effects of Calcium Sulfoaluminate-Belite Cement Composition on Hydration and Properties

I. A. Chen*, M. Juenger, University of Texas at Austin, USA

11:20 AM

How and why do geopolymers form?

J. L. Provis*, P. Duxson, J. van Deventer, University of Melbourne, Australia

11:40 AM

Effect of binder proportion on compressive strength of geopolymer mortar

G. Babu*, M. Santhanam, S. Munish, IIT Madras, India

Materials & Systems: Amorphous Materials: Common Issues within Science and Technology

Polymers and Related Materials

Room: 334

Session Chair: Mario Affatigato, Coe College

8:00 AM

MD Simulation of Highly Crosslinked DCPD Polymers: Heuristic Creation Paradigms and Mechanical Properties

C. Shankar*, J. Kieffer, University of Michigan, USA

8:20 AM

Physical Aging in Polymer Films subjected to Nonlinear Stress Levels

Y. Guo*, R. Bradshaw, University of Louisville, USA

8:40 AM

Lamination of Differentially Densified Glass-Ceramics

J. Dorsey*, I. E. Reimanis, Colorado School of Mines, USA; L. R. Pinckney, Corning Inc, USA

9:00 AM

Effects of Changes in Viscosity on Fracture Surface Appearance

L. Deibler*, J. Lewandowski, Case Western Reserve University, USA

9:20 AM

Break

Materials & Systems: Enabling Surface Coating Systems: Science and Technology

Thermal Barrier Coatings I

Room: 335

Session Chairs: Dongming Zhu, NASA-Glenn Research Center; Rodney Trice, Purdue University

8:00 AM

Factors Affecting Thermal Barrier Coating Failure Across Multiple Bond Coating/Superalloy Systems (Invited)

E. Jordan*, M. Gell, University of Connecticut, USA; F. Wu, Sichuan University, China

8:40 AM

Behavior of Thermal Barrier Coatings in Thermal Gradient Conditions

J. C. Day*, D. R. Clarke, University of California, Santa Barbara, USA

9:00 AM

Modulated TBCs for FOD resistance

M. W. Crowell*, R. M. McMeeking, A. G. Evans, UCSB, USA

9:20 AM

Computational, Experimental and Data Mining Approach for Lifetime Assessment of Thermal Barrier Coatings

A. Luz*, D. Balint, K. Nikbin, Imperial College London, United Kingdom

9:40 AM

Break

10:00 AM

Small Angle X-ray Scattering Characterization of Suspension Plasma Sprayed Yttria-stabilized Zirconia Coatings (Invited)

K. Van Every, M. Krane, R. Trice*, Purdue University, USA

10:40 AM

Development of Hafnia and Zirconia double-layered TBCs produced by EB-PVD

K. Wada*, T. Fuse, Y. Ishiwata, Toshiba Corporation, Japan

11:00 AM

Defining Optimal Roughness of the Bond Coat – Top Coat Interface in Air-Plasma Sprayed Thermal Barrier Coating Systems

M. D. Weeks*, D. R. Mumm, University of California, USA

11:20 AM

The Effect of Solid Calcium Oxide Deposits on Degradation of Air Plasma Sprayed Thermal Barrier Coatings

K. Jung*, G. H. Meier, F. S. Pettit, University of Pittsburgh, USA

11:40 AM

A Numerical Study of Microstructural Development in Plasma Sprayed Coatings

J. M. Yanke*, R. Trice, M. Krane, Purdue University, USA

Materials & Systems: Glass and Optical Materials

Glass and Optical Materials II

Room: 334

Session Chair: Mario Affatigato, Coe College

10:00 AM

Glasses with Fictive Temperature Independent Properties: Minimum of Indentation Size Effect and Maximum in Indentation Crack Resistance

T. M. Gross*, M. Tomozawa, A. Koike, Rensselaer Polytechnic Institute, USA

10:20 AM

Relationship between dissolution amounts of B₂O₃ and R₂O (R = Na, K) and phase separated compositions of SiO₂-rich borosilicate glass (SiO₂-B₂O₃-R₂O)

M. Okamoto*, Hitachi Ltd., Japan; H. Tanei, Industrial Property Cooperation Center, Japan; M. Nakamura, S. Iwanaga, E. Takane, S. Ishihara, Hitachi Ltd., Japan

10:40 AM

Hazardous Sulfate Ion Removal from a Solution by Borosilicate Glasses

J. Nam*, C. Kim, Inha university, South Korea

11:00 AM

A Comparison of Atomic Packing in Alkali and Alkaline-Earth Glass Systems

S. Feller*, M. Burgess, D. McClarnon, M. Affatigato, Coe College, USA

11:20 AM

Quaternary NLO Materials

N. B. Singh*, D. Knuteson, K. Green, G. Kanner, S. Kelley, A. Berghmans, D. Kahler, B. Wagner, S. McLaughlin, Northrop Grumman Corporation, ES, USA

Materials & Systems: International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites

Microwave and Plasma Processing

Room: 336

Session Chair: Dinesh Agrawal, Pennsylvania State University

8:00 AM

Application of Microwave Energy for High-Temperature Materials Processing (Invited)

D. Agrawal*, Pennsylvania State University, USA

8:40 AM

Science Behind Novel Energy Saving Ceramic Microwave Ware (Invited)

S. Komarneni*, The Pennsylvania State University, USA; H. Katsuki, Saga Ceramic Research Laboratory, Japan

9:20 AM

Microwave Technology for Enhanced Binder Removal

M. L. Fall*, H. S. Shulman, S. M. Allan, Ceralink Inc, USA

9:40 AM

Break

10:00 AM

Microwave Assist Technology for Ceramic Production

M. L. Fall, S. M. Allan, H. S. Shulman*, Ceralink Inc, USA

10:20 AM

Continuous microwave-driven polyol process for synthesizing ytterbium-doped yttria powder

M. Imam*, A. W. Fillet, K. L. Siebach, A. David, R. W. Bruce, S. B. Qadri, C. R. Feng, S. H. Gold, Naval Research Laboratory, USA

10:40 AM

Microwave Irradiation-assisted Method for the Rapid Synthesis of Fine Particles of α -Al₂O₃ and α -(Cr_{1-x}Al_x)₂O₃ and their Coatings on Si

A. Gairola*, A. M. Umarji, S. A. Shivashankar, Indian Institute of Science, India

11:00 AM

Mechanical Properties and Corrosion Behavior of Microwave - Vacuum Sintered Aluminum Alloys

P. Chandran*, D. Agrawal, A. Upadhyaya, Indian Institute of Technology, Kanpur, India

11:20 AM

Large scale synthesis of nanoscale hydroxyapatite powders using induction plasma spray

M. Roy*, A. Bandyopadhyay, S. Bose, Washington State University, USA

Nanotechnology: Controlled Processing of Nanoparticle Structures and Composites

Nanoparticle Sintering II

Room: 408

Session Chair: Nikhilesh Chawla, Arizona State University

8:00 AM

Liquid-Feed Flame Spray Pyrolysis (LF-FSP): Production and Processing of Novel Nano-oxide Materials (Invited)

R. M. Laine*, J. C. Marchal, J. Azurdia, M. Kim, University of Michigan, USA

8:40 AM

Design of the Electroceramics for Solid Oxide Fuel Cell Applications: Playing with Ceria (Invited)

V. Esposito*, E. Traversa, Università di Roma "Tor Vergata", Italy

9:20 AM

Ni-B Nanolayer Evolution on Boron Carbide Particle Surfaces at High Temperatures

K. Lu*, X. Zhu, Virginia Polytechnic Institute and State University, USA

9:40 AM

Break

10:00 AM

Dense Nanocrystalline Hydroxyapatite Fabricated via Morphology-Enhanced Low Temperature Sintering (Invited)

J. Wang, L. Shaw*, University of Connecticut, USA

10:40 AM

Link between Microstructure Evolution and Sintering Kinetics for Aggregated Nanocrystalline Powders (Invited)

I. Nettleship*, University of Pittsburgh, USA

11:20 AM

Controlled Fabrication of Novel Nanocomposites via 3D Self-Assembly (Invited)

A. Goyal*, Oak Ridge National Laboratory, USA

Nanotechnology: Nanotube-Reinforced Metal Matrix Composites

Properties of Nanotube MMCs

Room: 409

Session Chair: Sudipta Seal, University of Central Florida

8:00 AM

Using Carbon Nanotubes to Enhance the Thermal and Mechanical Properties of Metallic Materials (Invited)

M. Gupta, M. Nai*, C. Goh, J. Wei, National University of Singapore, Singapore

8:40 AM

Strengthening behaviors in aluminum based nanocomposites containing homogeneously aligned carbon nanotubes (Invited)

D. Bae*, H. Choi, Yonsei University, South Korea

9:20 AM

Carbon Nanotube Reinforced Nickel Matrix Composites

J. Hwang*, A. Singh, T. W. Scharf, University of North Texas, USA; J. Tiley, Air Force Research Laboratory, USA; R. Banerjee, University of North Texas, USA

9:40 AM

Break

10:00 AM

Effect of addition of Ni and Ag on Cu-CNT composite's electrical conductivity (Invited)

N. Munroe, S. Amruthaluri*, P. K. Gill, W. Haider, Florida International University, USA

10:40 AM

Highly Conductive Nanostructure Cu-Cr-MWCNT Composite

N. D. Munroe, P. S. Gill*, S. Amruthaluri, W. Haider, Florida International University, USA

11:00 AM

Synthesis and characterization of plasma spray formed carbon nanotube reinforced aluminum composite

E. p. Yedidi*, osmania university college of technology, India

11:20 AM

Functionalization of Single Walled Carbon Nanotubes with 2-methyl Aziridine Compound

A. Hussain, K. Nawaz*, T. Noor, National University of Science and Technology, Pakistan; S. Niazi, I. Akhtar, Qaid-e-Azam University, Pakistan

Processing & Product Manufacturing: International Symposium on Ceramic Matrix Composites

Ultra High Temperature Ceramics and Composites

Room: 413

Session Chairs: Sylvia Johnson, NASA Ames Research Center; Gregory Hilmans, Missouri University of Science & Technology

8:00 AM

Advances in Processing of Ultra High Temperature Ceramics at NASA ARC (Invited)

S. M. Johnson*, NASA Ames Research Center, USA; M. Stackpoole, ELORET Corp. / NASA Ames Research Center, USA; M. Gasch, NASA Ames Research Center, USA; M. Gusman, J. Thornton, ELORET Corp. / NASA Ames Research Center, USA; E. Irby, NASA Ames Research Center, USA

8:40 AM

Effect of Oxygen Impurity Content on the Microstructure and Properties of Zirconium Diboride

M. J. Thompson*, B. Fahrenholtz, G. Hilmans, Missouri University of Science and Technology, USA

9:00 AM

Mechanical properties of zirconium diboride ceramics at elevated temperatures

S. Zhu*, W. G. Fahrenholtz, G. E. Hilmas, Missouri University of Science and Technology, USA

9:20 AM

Effect of SiC Particle Size on Mechanical Properties of Pressureless Sintered ZrB₂-SiC Ceramics

S. Zhang*, G. Hilmas, W. Fahrenholtz, Missouri University of Science and Technology, USA

9:40 AM

Break

10:00 AM

Microstructure, phase development, and mechanical behavior of reaction sintered and reaction hot pressed ZrB₂-SiC particle composites

H. J. Brown-Shaklee*, W. G. Fahrenholtz, G. E. Hilmas, Missouri University of Science and Technology, USA

10:20 AM

Micro Raman stress measurements in ZrB₂/SiC composites having particulate and engineered SiC additions

J. Watts*, M. Teague, G. Hilmas, B. Fahrenholtz, Missouri University of Science and Technology, USA

10:40 AM

Mechanical Properties of TaC Based Ceramics

X. Zhang*, G. Hilmas, B. Fahrenholtz, Missouri University of Science and Technology, USA

11:00 AM

Reaction Processing of W-Ta₂C Composites

M. Teague, G. E. Hilmas*, W. G. Fahrenholtz, Missouri University of Science and Technology, USA

11:20 AM

In Situ Optical Microscopy of the Formation of Oxide Scales on ZrB₂-SiC during High Temperature Oxidation

S. Gangireddy*, S. Karlsdottir, J. W. Halloran, University of Michigan, USA

11:40 AM

Novel optical microscopy for imaging beneath the surface of oxide scales on ZrB₂-SiC

S. Gangireddy, J. Tucker*, J. W. Halloran, University of Michigan, USA

Processing & Product Manufacturing: Joining of Advanced and Specialty Materials X

Friction Stir and Solid-State Joining

Room: 410

Session Chair: Leijun Li, Utah State University

8:00 AM

Friction Stir Spot Welding of Advanced High Strength Steels

Y. Hovanski*, G. J. Grant, Pacific Northwest National Laboratory, USA; M. L. Santella, Oak Ridge National Laboratory, USA

8:20 AM

Prediction of Tool Temperature in Friction Stir Welding of 6061 Aluminum

M. Miles*, T. Nelson, Brigham Young University, USA; L. Fourment, Ecole des Mines de Paris - CEMEF, France

8:40 AM

Microstructural Evolution in Friction Stir Welding of Titanium 6/4

H. Rubisoff*, J. Querin, J. Schneider, Mississippi State University, USA

9:00 AM

Friction Stir Processing of Ti-5111

M. J. Rubal*, J. C. Lippold, M. C. Juhas, The Ohio State University, USA

9:20 AM

Pin Tool Geometry Effects in Friction Stir Welding Ti 6-4

J. Querin*, H. Rubisoff, J. Schneider, Mississippi State University, USA

9:40 AM

Break

10:00 AM

Sucking-Extruding Theory for the Material Flowing along the Thickness of the Plate during Friction Stir Welding

L. Xing*, L. Ke, S. Wang, F. Wang, Nanchang Hongkong University, China

10:20 AM

Diffusion Bonding of 316L Stainless Steel for ITER Applications

J. Puskar*, S. H. Goods, Sandia National Laboratories, USA

10:40 AM

A New Method for Bond Strength Evaluation for Laminated Structures Made by Ultrasonic Bonding

C. Zhang, A. Deceuster, L. Li*, Utah State University, USA

11:00 AM

Diffusion Bonding of Steel and Magnesium Alloy Using Zinc Insert

T. Tachibana*, S. Hojo, S. Iwatani, Graduate school of Engineering Osaka University, Japan; S. Nakagawa, K. Miyamoto, NISSAN MOTOR CO.,LTD., Japan; A. Hirose, Graduate school of Engineering Osaka University, Japan

11:20 AM

FricRiveting: A New Joining Technique for Thermoplastic-Lightweight Alloy Structures

S. Amancio*, J. F. dos Santos, GKSS Research Centre, Germany

11:40 AM

Electromagnetic Pulse Bonding of Al/Cu Joints

H. Bahmanpour*, Wayne State University, USA; J. Shang, Hirotec America, USA; X. Wu, Wayne State University, USA

Processing & Product Manufacturing: Paradigm Shift in the Metals Industry

Paradigm Shift in the Metals Industry III

Room: 411

Session Chair: John Grubb, ATI Allegheny Ludlum

8:00 AM

New High Temperature and Corrosion Resisting Wrought Alloys for Advanced Technologies of the 21st Century (Invited)

D. Klarstrom, L. Flower*, Haynes International, Inc., USA

8:40 AM

Recent Changes in the Titanium Industry (Invited)

C. Moulton*, Uniti Titanium LLP, USA

9:20 AM

Reactive Metals React to Global Changes (Invited)

R. D. Goin*, ATI Wah Chang, USA

9:40 AM

Break

10:00 AM

Recent Advances in Refractory Metals (Invited)

P. Kumar*, H.C. Starck Inc., USA

10:40 AM

Utilizing Glass Forming Iron Based Overlays For Replacement of Hardmetals in High Wear Applications

D. J. Branagan*, A. R. Patete, B. E. Meacham, B. D. Merkle, W. D. Kiilunen, The Nanosteel Company, USA

11:00 AM

Blow forming characteristics of AZ31 alloy sheets

Y. Kwon*, Y. Lee, J. Lee, Korea Institute of Materials Science, South Korea

11:20 AM

Microwave and Conventional Sintering of Premixed and Prealloyed Tungsten Heavy Alloys

A. Mondal*, Indian Institute of Technology Kanpur, India; D. Agrawal, The Pennsylvania State University, USA; A. Upadhyaya, Indian Institute of Technology Kanpur, India

11:40 AM

Thermal Transfer Across Steel Copper Interface in RSP Bimetallic Tooling
J. Knirsch*, RSP Tooling, LLC, USA

Processing & Product Manufacturing: Processing, Properties and Performance of Composite Materials

Aluminum Matrix Composites

Room: 412

Session Chairs: Benjamin Schultz, University of Wisconsin-Milwaukee; Darrell Herling, Pacific Northwest National Lab

8:00 AM

Cryomilled Aluminum Alloy and Boron Carbide Composite Plates
R. Vogt*, Z. Zhang, T. D. Topping, E. J. Lavernia, J. M. Schoenung, UC Davis, USA

8:20 AM

Thermal Stability in Ultrafine-Grained Al 5083 after Cryomilling and Consolidation

T. D. Topping*, Y. Li, R. G. Vogt, Z. Zhang, J. M. Schoenung, E. J. Lavernia, University of California, Davis, USA

8:40 AM

Development of an Alternative Aluminum Matrix Composite for Bearing Applications

R. Carrasquillo*, T. K. Adelakin, O. M. Suárez, University of Puerto Rico, USA

9:00 AM

Mechanical Properties of Hybrid Composite Extrusions of an Aluminium-Alumina wire reinforced Aluminium Alloy

M. J. Merzkirch*, University Karlsruhe, Germany; D. Pietzka, Technical University Dortmund, Germany; K. Weidenmann, E. Kerscher, D. Löhle, University Karlsruhe, Germany

9:20 AM

Ultrasonic Consolidation of Pure Al and Composite Al-Ni Powder Compacts

D. Colanto*, D. Erdeniz, G. Gulsoy, Northeastern University, USA; I. E. Gunduz, University of Cyprus, Cyprus; T. Ando, Northeastern University, USA; P. Y. Wong, Tufts University, USA; H. Doumanidis, University of Cyprus, Cyprus

9:40 AM

Break

10:00 AM

Chemical composition effects on the microstructure of functionally-graded aluminum matrix composites

L. Olaya-Luengas*, O. Suárez, University of Puerto Rico, USA

10:20 AM

Development of Particulate Reinforced Aluminium Metal Matrix Composite

D. E. Esezobor, S. A. Balogun, S. O. Adeosun*, A. M. Oladoye, L. O. Osoba, C. U. Kuforiji, University of Lagos, Nigeria

10:40 AM

Carbon Fibre Reinforced Aluminum Matrix Composite: Development & Evaluation of Mechanical Behaviors

A. Edacherian, J. M. Antony*, National Institute of Technology Calicut, India

11:00 AM

Compression Tests on Powder Sintering Fabricated Al Matrix Syntactic Foams

X. Tao*, Y. Zhao, L. Zhang, University of Liverpool, United Kingdom

11:20 AM

Mechanical properties of Al/Al-Cu-Fe composites

S. Dubois*, G. Laplanche, T. El-Kabir, V. Gauthier-Brunet, A. Joulain, J. Bonneville, Laboratoire PHYMAT, France

Special Topics: Industry Track 2008

Industry Track 2008, Tuesday PM

Room: Hall A

2:00 PM

Manufacturing at the Right Size for the Emerging SOFC Market (Invited)

J. Foreman*, Fuelcellmaterials, USA

2:30 PM

Industry Track talk 2 (Invited)

J. Dorr*, Nanocomp Technologies, Inc., USA

3:00 PM

Corning Incorporated - DuraTrap® AT Diesel Particulate Filter (Invited)

D. Tennent*, Corning Incorporated, USA

3:30 PM

Submicron Grinding with a Vertical Bead Mill (Invited)

H. Way*, NETZSCH Fine Particle Technology, USA

Special Topics: SBIR Program: Development of Innovative Materials Technologies for Military Systems

Development of Innovative Materials Technologies for Military Systems

Room: 402

Session Chair: Barry Cole, Barry Cole Training and Technologies, LLC

2:00 PM

Defense Logistics Agency (DLA) Small Business Innovation Research Program (SBIR)

D. Gearing*, Defense Logistics Agency, USA

2:20 PM

Graphite Composite Tooling made from INVAR Using the RSP Technology

J. Knirsch*, RSP Tooling, LLC, USA

2:40 PM

Development of IR Transparent Polycrystalline Ceramics for DoD Applications

M. R. Pascucci*, CeraNova Corporation, USA

3:00 PM

Developing a Multi-Use Manufacturing Manipulator System (MUMMS) under NAVSEA SBIR Phase I and Phase II

J. D. Wentz*, Temple Allen Industries, USA

3:20 PM

Discussion

3:50 PM

Closing Remarks

Electronic & Magnetic Materials: Electroceramics Technologies: The Past and Future - A Celebration of the 50th Anniversary of the ACerS Electronics Division

Electroceramic Technologies: Advances in Dielectric and Magnetoelectric Materials

Room: 315

Session Chair: Paul Clem, Sandia National Laboratories

2:00 PM

An overview of ME laminates and devices (Invited)

J. Zhai*, Z. Xing, Virginia Tech, USA; S. Dong, Peking University, China; J. Li, D. Viehland, Virginia Tech, USA

2:40 PM

A Review of the Multilayer Ceramic Capacitor: Past, Present, and Future (Invited)

C. Randall*, The Pennsylvania State University, USA

3:20 PM

Dielectric Properties of BaTiO₃ Doped with Er₂O₃, Yb₂O₃ Based on Intergranular Contacts Model

V. V. Mitic*, Faculty of Electronic Engineering, University of Nis, Serbia; V. B. Pavlovic, Faculty of Agriculture, University of Belgrade, Serbia; V. Paunovic, M. Dragan, P. Petkovic, Z. Ljiljana, Faculty of Electronic Engineering, University of Nis, Serbia

Electroceramic Technologies: Microwave Dielectrics and Sensor Materials

Room: 315

Session Chair: Robert Schwartz, Missouri University of Science and Technology

3:40 PM

Preparation of low-loss titanium dioxide for microwave applications

L. Zhang*, K. Shqau, G. Mumcu, K. Sertel, J. L. Volakis, H. Verweij, The Ohio State University, USA

4:00 PM

Nanoparticle and Nanostructured Metal Oxide Arrays for Gas Sensor Applications

P. A. Morris*, E. Beach, A. Mark, Ohio State University, USA

Electronic & Magnetic Materials: Ferroelectrics and Multiferroics

Multiferroics and Magnetoelectric Composites

Room: 318

Session Chairs: Shashank Priya, Virginia Tech; Chong-Lin Chen, University of Texas, Austin

2:00 PM

Multiferroic Behavior of Bi_{0.9-x}La_{0.1}Er_xFeO₃ Ceramics

P. Pandit*, S. Satpathy, P. K. Gupta, RRCAT, India

2:20 PM

Phase field modeling of multiferroic composites

Y. Ni*, A. Khachatryan, Rutgers University, USA

2:40 PM

The Effect of Particle Size on Magnetic Properties in Multiferroic YMn₂O₅ Powders

C. Ma*, J. Yan, R. McCallum, X. Tan, Ames Laboratory, U.S. DOE, USA

3:00 PM

New Aspects of Magnetic and Dielectric Behavior of Multiferroic RMn₂O₅ (Invited)

Y. Noda*, Tohoku University, Japan

3:40 PM

Multilayer Magnetoelectric Nanostructures of CoFe₂O₄ – BaTiO₃

C. Park*, Virginia Tech, USA; H. Kim, University of Texas at Arlington, USA; R. Mahajan, S. Priya, Virginia Tech, USA

4:00 PM

Synthesis of Layered Magnetoelectric Composites through “Bottom-Up” Approach

R. Islam*, N. Podual, J. P. Liu, C. Kim, University of Texas at Arlington, USA; S. Priya, Virginia Tech, USA

Electronic & Magnetic Materials: Interfaces and Defects in Functional Oxides

Characterization of Functional Oxides

Room: 319

Session Chairs: Judith Yang, University of Pittsburgh; Guangwen Zhou, State University of New York, Binghamton

2:00 PM

Nanometer-Scale Structural Order in Amorphous Oxides Measured with Fluctuation Electron Microscopy (Invited)

P. Voyles*, W. Stratton, University of Wisconsin, Madison, USA; M. Kisa, J. Yang, University of Pittsburgh, USA

2:40 PM

Structural Characterization of Functional Oxides (Invited)

Y. Zhu*, BNL, USA

3:20 PM

HRTEM and Diffraction Analysis of Surface Phases in Nanostructured LiMn_{1.5}Ni_{0.5}O₄ Spinel

F. Cosandey*, N. Marandian-Hagh, G. G. Amatucci, Rutgers University, USA

3:40 PM

Strain Relaxation Mechanisms of (Ba,Sr)TiO₃ Films Grown on [001]- and [111]-Oriented Perovskite Substrates

H. Du*, S. Wang, T. N. Nuhfer, P. A. Salvador, M. Skowronski, Carnegie Mellon University, USA

4:00 PM

Enhancing Insulation for BaTiO₃-Based Sub-micron Capacitor Layers

R. D. Levi*, S. Trolier-McKinstry, C. A. Randall, Penn State, USA

Electronic & Magnetic Materials: International Symposium on Advanced Dielectric Materials & Electronic Devices

Synthesis and Properties I

Room: 317

Session Chairs: Ruyan Guo, University of Texas at San Antonio; X.M. Chen, Zhejiang University

2:00 PM

Microwave Processing of Dielectrics for High Power Microwave Applications (Invited)

I. K. Lloyd*, Y. Carmel, University of Maryland, USA; O. C. Wilson, Catholic University of American, USA

2:20 PM

Combined Dilatometry and Mass Spectrometry in the Sintering of Perovskite Ceramic Materials

S. J. Lombardo, M. Schurwanz*, University of Missouri, USA

2:40 PM

Complex impedance analysis of fine grain and coarse grain TiO₂ ceramics

S. Chao*, V. Petrovsky, F. Dogan, Missouri University of Science and Technology, USA

3:00 PM

Growth of Ferroelectric Fluoride Single Crystals and UV QPM-SHG Emission (Invited)

K. Shimamura*, E. Villora, National Institute for Materials Science, Japan; N. Senguttuvan, M. Aoshima, K. Sumiya, Hitachi Chemical Co., Ltd., Japan; N. Ichinose, Waseda University, Japan

3:20 PM

Ceramic-Polymer Dielectric Composites Produced via Directional Freezing

E. P. Gorzkowski*, M. Pan, Naval Research Laboratory, USA

3:40 PM

Ceramic-polymer composite with equal permittivity-permeability for antenna

T. B. Do*, J. W. Halloran, University of Michigan, USA; J. L. Volakis, Ohio State University, USA

4:00 PM

Polarization Measurements of Molded Liquid Crystal Polymer/Titania Composites

B. R. Dantal*, A. Saigal, M. Zimmerman, M. Afsar, K. Korolev, U. Khan, Tufts University, USA

Electronic & Magnetic Materials: Perovskite Oxides: Films, Nanostructures, Properties, and Applications

Physical Properties of Perovskite Oxides I

Room: 316

Session Chairs: Qi Li, Pennsylvania State University; Hans Christen, Oak Ridge National Laboratory

2:00 PM

Mixed Ionic-electronic Conducting Perovskite-based Oxides (Invited)

A. Manthiram*, University of Texas at Austin, USA

2:40 PM

The study of Morphotropic Phase Boundary in PZT-PZN systems

G. Srivastava*, A. M. Umarji, Indian Institute of Science, India

3:00 PM

Complex Perovskites: Chemical order, crystallographic distortions and physical properties (Invited)

P. M. Woodward*, Ohio State University, USA

3:40 PM

Phase Transitions and Dielectric Properties in Bi(Zn_{1/2}Ti_{1/2})O₃-ABO₃ Perovskite Solid Solutions (Invited)

D. Cann*, C. Huang, Oregon State University, USA; N. Vittayakorn, King Mongkut Institute of Technology Ladkrabang, Thailand; A. Prasatkhetragarn, P. Ketsuwan, Chiang Mai University, Thailand

Environmental & Energy Issues: Ceramics and Glass for Waste Minimization, Stabilization, and Disposition

Vitrification Technology Development and Testing

Room: 326

Session Chairs: Josef Matyas, Pacific Northwest National Lab; Amanda Youchak, Savannah River National Lab

2:00 PM

Full-Scale Cold Crucible Test on Vitrification of Savannah River Site SB4 HLW Surrogate

S. Stefanovsky*, A. Kobelev, V. Lebedev, M. Polkanov, V. Gorbunov, A. Ptashkin, O. Knyazev, SIA Radon, Russian Federation; J. C. Marra, SRNL, USA; K. D. Gerdes, US DOE, USA

2:20 PM

NETEC Cold Crucible Induction Melter Demonstration for SRNL with Simulated Sludge Batch 4 DWPF Waste

M. E. Smith*, A. B. Barnes, A. S. Choi, J. C. Marra, WSRC-SRNL, USA; T. Hwang, C. Kim, NETEC/KHNP, USA

2:40 PM

Microwave and radiofrequency ultra fast melting of hazardous and radioactive wastes

C. Leonelli*, I. Lancellotti, L. Barbieri, P. Veronesi, University of Modena and Reggio Emilia, Italy; M. La Robina, ANSTO, Australia

3:00 PM

International Studies of Enhanced Waste Loading and Improved Melt Rate for High Al₂O₃ Concentration Nuclear Waste Glasses

K. M. Fox*, D. K. Peeler, J. C. Marra, Savannah River National Lab, USA; A. Aloy, A. V. Trofimenko, R. Soshnikov, V. G. Khlopin Radium Institute, Russian Federation

3:20 PM

Long-Term Molten Glass/Vapor Space Corrosion Testing for the Savannah River Site Defense Waste Processing Facility

K. Imrich*, Savannah River National Lab, USA

3:40 PM

U.S. DOE Initiated Performance Enhancements to the Hanford WTP LAW Vitrification System

I. M. Muller, K. S. Matlack, I. L. Pegg, Catholic University of America, USA; I. Joseph*, B. W. Bowan, EnergySolutions, Inc., USA; A. A. Kruger, United States Department of Energy, USA; L. Holton, Pacific Northwest National Laboratory, USA; K. Gerdes, United States Department of Energy, USA

4:00 PM

U.S. DOE Initiated Performance Enhancements to the Hanford WTP HLW Vitrification System

H. Gan, W. K. Kot, K. S. Matlack, I. L. Pegg, Catholic University of America, USA; I. Joseph, B. W. Bowan*, EnergySolutions, Inc., USA; A. A. Kruger, United States Department of Energy, USA; L. Holton, Pacific Northwest National Laboratory, USA; K. Gerdes, United States Department of Energy, USA

Environmental & Energy Issues: Energy Materials

Other Energy Materials II

Room: 327

Session Chairs: Kevin Howard, The Dow Chemical Company; Dileep Singh, Argonne National Laboratory

2:00 PM

Corrosion of Superalloys in Gaseous Atmospheres with High Contents of H₂O and CO₂

E. J. Magee*, F. S. Pettit, G. H. Meier, University of Pittsburgh, USA

2:20 PM

Volume of Activation for the Corrosion of Type 304 SS in High subcritical and Supercritical Aqueous Systems

D. D. Macdonald*, Penn State University, USA; X. Guan, Shell International Exploration & Production, USA

2:40 PM

Preparation of electrocatalytically active RuO₂/Ti electrodes by Pechini method

O. Kahvecioglu*, S. Timur, Institute of Science and Technology, Turkey

3:00 PM

Type I Hot Corrosion of MCrAlX-Type Overlay Coatings

M. N. Task*, N. M. Yanar, B. Gleeson, G. H. Meier, F. S. Pettit, University of Pittsburgh, USA

Nuclear Materials

Room: 327

Session Chair: Ronald Ballinger, Massachusetts Institute of Technology

3:20 PM

Effect of Oxygen Potential on Crack Growth in Alloys for Advanced Energy Systems

R. G. Ballinger*, J. K. Benz, J. Kim, MIT, USA

3:40 PM

FEM study of delayed hydride cracking in zirconium alloy fuel cladding

M. Uno*, M. Ito, H. Muta, K. Kurosaki, S. Yamanaka, Osaka University, Japan; K. Ogata, Japan Nuclear Energy Safety Organization, Japan

4:00 PM

Ab initio Study of the Influence of Pressure on the Hydrogen Diffusion Behavior in Zirconium Hydrogen Solid Solution

Y. Endo*, M. Ito, H. Muta, K. Kurosaki, M. Uno, S. Yamanaka, Osaka University, Japan

Environmental & Energy Issues: Fuel Cells: Materials, Processing, Manufacturing, Balance of Plant and Systems Operation

Cell and Stack Component Materials I

Room: 325

Session Chairs: Prashant Kumta, University of Pittsburgh; Donald Collins, National Energy Technology Lab

2:00 PM

Carbonate Fuel Cell Materials and Products (Invited)

C. Yuh*, A. Hilmi, G. Xu, J. Colpetzer, J. Nikhil, D. Kelley, M. Farooque, FuelCell Energy, Inc., USA

2:40 PM

SOFC materials evaluation in a standard "stack" test fixture

Y. Chou*, J. Stevenson, G. Xia, J. Templeton, G. Maupin, J. Templeton, P. Singh, X. Zhou, Pacific Northwest National Laboratory, USA

3:00 PM

Finite element analysis of nonlinear deformations of Ni-YSZ using stochastic reconstructions

J. Johnson*, J. Qu, Georgia Institute of Technology, USA

3:20 PM

The General Principles of the Materials Selection and Qualification for the PEM Fuel Cell

S. Loif*, Ballard Power Systems, Canada

3:40 PM

Oxidation Kinetics of Manganese Cobaltite Spinel Protection Layers Performance on Sanergy HT for SOFC Interconnect Applications

E. Alvarez*, A. M. Meier, Alfred University, USA; K. Weil, Z. Yang, Pacific Northwest National Lab, USA

Environmental & Energy Issues: Thermoelectric Materials: Science, Technology and Applications

Oxide Thermoelectric Materials

Room: 324

Session Chairs: Ryoji Funahashi, National Institute of Advanced Industrial Science & Technology; Hiromichi Ohta, Nagoya University

2:00 PM

Materials Development for Perovskite-type Thermoelectric Oxide Modules (Invited)

A. Weidenkaff*, R. Robert, L. Bocher, P. Tomes, M. H. Aguirre, Empa, Switzerland

2:30 PM

First Full Perovskite Type Oxide Thermoelectric Module

P. Tomes*, M. Trottmann, L. Bocher, R. Robert, E. Hack, S. Toggweiler, Empa - Swiss Federal Laboratories for Materials Testing and Research, Switzerland; A. Bitschi, ETH, Switzerland; J. Hejtmanek, ASCR, v.v.i, Czech Republic; A. Weidenkaff, Empa - Swiss Federal Laboratories for Materials Testing and Research, Switzerland

2:50 PM

Structure and Thermoelectric Properties of Compounds in the Ca-Sr-Co-O System

W. Wong-Ng*, G. Liu, E. Thomas, M. Otani, Q. Huang, N. Lowhorn, National Institute of Standards and Technology, USA; J. A. Kaduk, INEOS Technologies, USA

3:10 PM

The Origin of Thermoelectricity in Ca₃Co₄O₉

T. A. Tyson*, Z. Chen, New Jersey Institute of Technology, USA; Q. Jie, Q. Li, Brookhaven National Laboratory, USA; J. Tu, The City College of New York, USA

3:30 PM

Far-infrared Magneto-Spectroscopic Studies of Ca₃Co₄O₉ Thin Films and Single Crystals

J. J. Tu*, D. Dimitrov, The City College of New York, USA; W. Si, Q. Li, Brookhaven National Lab., USA

3:50 PM

Jonker Analysis of Oxides for Thermoelectric Applications

D. Proffit*, E. Hopper, K. Muangnapoh, N. Mansourian-Hadavi, T. O. Mason, Northwestern University, USA

Fundamentals & Characterization: Discovery and Optimization of Materials through Computational Design

Multiscale Materials Design I

Room: 303

Session Chair: Edwin Garcia, Purdue University

2:00 PM

Simulation-based Design of Materials Building Blocks for Energy Applications (Invited)

J. Kieffer*, University of Michigan, USA

2:40 PM

From Schrödinger's Equation to the Rolling Mill: Quantitative Prediction of Mechanical Properties in Metals (Invited)

D. D. Johnson*, J. Liu, H. Sehitoglu, University of Illinois Urbana-Champaign, USA

3:20 PM

Coupling Density Functional Theory with Continuum Mechanics for Alloy Design (Invited)

D. Ma*, M. Friák, W. Counts, F. Roters, D. Raabe, J. Neugebauer, Max-Planck Institute for Iron Research, Germany

4:00 PM

Shape memory in nanoscale metallic alloys (Invited)

A. Strachan*, A. Thompson, K. Guda Vishnu, Purdue University, USA

Fundamentals & Characterization: Failure Analysis for Problem Solving

Fatigue and Fracture II

Room: 304

Session Chairs: Mike Stevenson, Engineering Systems Inc.; Michael Burns, Stork Metallurgical Consultants, Inc.; Aaron Tanzer, Lehigh Testing Laboratories, Inc.; Dustin Turnquist, Engineering Systems Inc.

2:00 PM

Classical Fatigue Design Techniques as a Fracture Analytical Tool

R. D. Harris*, T. A. Jur, Engineering Design & Testing Corp., USA

2:20 PM

Review of Typical Corrosion Related Pipeline Failures

B. C. Rollins*, G. T. Quickel, J. A. Beavers, CC Technologies, Inc. (a DNV company), USA

2:40 PM

Failure analysis of HP-40 (mod Nb) furnace radiant tube

V. Palaniyandi*, R. B. Allsup, D. Mosher, Aptech Engineering Services, USA

3:00 PM

Hydrogen Stress Cracking Failures in Subsea Equipment (Invited)

M. G. Burns*, Stork Metallurgical Consultants, Inc., USA

3:40 PM

Failure Investigation of a Pin Carrier Plate of an Anti-Rotation Device in a Motor

S. Nasrazadani*, University of North Texas, USA; D. Hopkins, Southwest Research Institute, USA

Fundamentals & Characterization: Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life

Fatigue Variability/Statistical Aspects

Room: 305

Session Chairs: M. Caton, Air Force Research Lab; Y. Ochi, University of Electro-Communications, Tokyo

2:00 PM

Microstructural Origins of Variability in the Fatigue Properties of Cast Light Alloys (Invited)

A. M. Gokhale*, G. R. Patel, Georgia Institute of Technology, USA

2:40 PM

The Effect of Constituent Particles in Aluminum Alloys on Fatigue Damage Evolution: Statistical Observations (Invited)

G. Harlow*, Lehigh University, USA

3:20 PM

Using Digital Microstructures to Model Micro-Crack Growth and Coalescence in AA7075

S. D. Sintay*, Carnegie Mellon University, USA; J. Brockenbrough, J. Fridy, ALCOA Technical Center, USA; A. D. Rollett, Carnegie Mellon University, USA

3:40 PM

New Data Analysis of P-S-N Curve and Its Application for Structural Materials (Invited)

S. Shimizu*, K. Tsuchiya, K. Toshi, Meiji University, Japan

4:00 PM

Experimental Analysis and Finite Element Modeling of Cyclic Thermo-Mechanical Shock

K. G. Janssens*, M. Niffenegger, K. Reichlin, Paul Scherrer Institute, Switzerland

Fundamentals & Characterization: International Symposium on Defects, Transport and Related Phenomena

Defects and Transport in Ceramics I

Room: 307

Session Chairs: Juergen Fleig, Vienna University of Technology; Hans Wiemhöfer, University of Münster

2:00 PM

Dopant-Vacancy Clustering in Zirconia and Ceria (Invited)

A. N. Cormack*, B. Wang, Alfred University, USA

2:40 PM

Thermopower Measurements and Defect Chemistry of $Ba_{0.5}Sr_{0.5}Co_xFe_{1-x}O_{3-\delta}$ ($x=0,0.2,0.4,0.6,0.8$ and 1.0)

J. Jung*, S. T. Misture, D. D. Edwards, Alfred University, USA

3:00 PM

Defect mobilities, electronic properties and their impact on oxygen permeation in ceria based mixed conductors (Invited)

H. D. Wiemhöfer*, L. M. Kogel, V. Rührup, N. Liu, University of Münster, Germany

3:40 PM

Synthesis and Characterization of Nanocrystalline Niobium-Doped Anatase TiO_2

E. Hopper*, F. Sauvage, K. R. Poeppelmeier, T. O. Mason, Northwestern University, USA

4:00 PM

Effect of Acceptor (Mg) Concentration on the Degradation Behavior of the Electrical Resistance in Acceptor (Mg)-Doped $BaTiO_3$ Ceramics

S. Yoon*, C. Randall, The Pennsylvania State University, USA; K. Hur, Samsung Electro-Mechanics Co. Ltd., South Korea

Fundamentals & Characterization: Micro- and Nano- Mechanical Behavior of Low-Dimensional Structures and Materials

Micro- and Nano- Mechanical Behavior of Materials - Simulation

Room: 308

Session Chairs: Ya-Pu Zhao, Chinese Academy of Sciences; Susan Sinnott, University of Florida

2:00 PM

Nano- to Micro-scale Deformation During Selectin-Mediated Leukocyte Rolling (Invited)

M. R. King*, University of Rochester, USA

2:20 PM

Influence of Filling Carbon Nanotubes on their Mechanical Properties (Invited)

S. B. Sinnott*, University of Florida, USA

2:40 PM

Growth mechanism and joint structure of ZnO tetrapods: Experiments and DFT simulation (Invited)

Y. Zhao*, B. Wang, J. Xie, Q. Yuan, Institute of Mechanics, Chinese Academy of Sciences, China

3:00 PM

Intrinsic Size-Dependent Properties of Nanowires (Invited)

T. Zhang*, M. Luo, W. Chan, Hong Kong University of Science and Technology, China

3:20 PM

Indentation deformation of an elastic half space: Effect of the subsurface crack

S. N. Kurapati*, F. Yang, Y. Lu, University of Kentucky, USA

3:40 PM

Identification of elasto-plastic properties of metals using plural sharp indenters

S. Miyazaki*, IHI Corporation, Japan

Fundamentals & Characterization: Modeling of Multi-Scale Phenomena in Materials Processing

Microstructure Evolution IV

Room: 306

Session Chair: Adrian Catalina, Caterpillar Inc.

2:00 PM

Phase-field Model of Phase Transformations and Precipitate Microstructure Evolution in Polycrystals (Invited)

T. Heo*, L. Chen, The Pennsylvania State University, USA

2:20 PM

Characterization of interactions between slip-systems and grain boundaries that lead to heterogeneous deformation in CPTI

T. R. Bieler*, M. A. Crimp, Y. Yang, L. Wang, Michigan State University, USA; P. Eisenlohr, F. Roters, D. Raabe, Max-Planck-Institut für Eisenforschung, Germany; W. Liu, Argonne National Laboratory, USA; G. E. Ice, Oak Ridge National Laboratory, USA; D. E. Mason, Albion College, USA

2:40 PM

Phase Separation in Anisotropic Systems

W. Feng*, Z. Liu, L. Chen, Penn State Univ., USA

3:00 PM

Multiphase Flow Model of Porosity Formation for Casting Process of Aluminum Alloy

G. Wang, Y. Rong*, Worcester Polytechnic Institute, USA; S. Xiong, Tsinghua University, China

Fundamentals & Characterization: Phase Stability, Diffusion Kinetics and Their Applications (PSDK-III)

Diffusion Kinetics II

Room: 302

Session Chair: Graeme Murch, The University of Newcastle

2:00 PM

Single-Phase Layer Formation in Two-Phase Diffusion Couples (Invited)

X. Pan, N. Zhou, J. E. Morral, Y. Wang*, The Ohio State University, USA

2:40 PM

The Proeutectoid Cementite Transformation

G. Spanos*, Naval Research Laboratory, USA; M. V. Kral, University of Canterbury, New Zealand

3:00 PM

Phase-Field Simulation of Phase Transformations Under a Temperature Gradient

R. Mohanty*, Y. Sohn, University of Central Florida, USA

3:20 PM

Diffusion Mobility Descriptions for the CIGS Photovoltaic Systems (Invited)

C. Campbell*, National Institute of Standards and Technology, USA

Fundamentals & Characterization: Phase Transformations and Microstructural Changes during Sustained Mechanical Forcing

Deformation-induced Microstructural Changes and Phase Transformations I

Room: 310

Session Chair: Rainer Hebert, University of Connecticut

2:00 PM

Nanocrystalline Microstructures by Severe Plastic Deformation, Dynamic Recrystallization, or Recrystallization (Invited)

C. C. Koch*, R. O. Scattergood, K. A. Darling, J. E. Semones, North Carolina State University, USA

2:40 PM

Deformation Processing of Nanocrystalline Materials (Invited)

G. Wilde*, University of Muenster, Germany

3:20 PM

Deformation induced dislocation storage and microstructure evolution in nanocrystalline metals

S. X. Mao*, U. Pittsburgh, USA

Fundamentals & Characterization: Recent Advances in Structural Characterization of Materials

Structural Characterization of Materials: Panel Discussion

Room: 309

Session Chairs: Juan Nino, University of Florida; Jacob Jones, University of Florida; Roumiana Petrova, New Jersey Institute of Technology

2:00 PM

Structural Characterization of Materials - Panel Discussion Panel

Moderators: Juan C. Nino, Jacob L. Jones and Roumiana Petrova

J. C. Nino*, University of Florida, USA

2:10 PM

Invited Panelists:

Matt Miller (Cornell), Eric Issacs (ANL), John Budai and Segei Kalinin (ORNL), Sanislav Kamba (Academy of Sciences, Czech Republic), Susan Dexheimer (Washington State Univ.), Geoff Campbell (LLNL)

Iron & Steel: International Symposium on Materials Engineering for Structural Applications

Thermal Treatment

Room: 328

Session Chair: David Milbourn, Vanitec Ltd.

2:00 PM

Influence of Step Down Austempering on the Microstructure and Mechanical Properties of Austempered Ductile Cast Iron

S. K. Putatunda*, Wayne State University, USA

2:20 PM

Influence of Carbonitriding and Nitriding Atmosphere Compositions on the Corrosion Resistance of 38HMJ and 30HN2MFA Constructional Steel Grades

T. Zolciak, A. Ciski*, Institute of Precision Mechanics, Poland

2:40 PM

Laser Heat Treatment and Properties of Surface Hardened Steel

C. F. Jenkins* W. R. Hinz, K. J. Imrich, Savannah River National Laboratory, USA; J. M. Haake, Titanova Inc, USA

3:00 PM

Low Temperature Plasma Nitriding of Steel with Additional Carburising Gas: Corgon and Propane - Butane

A. P. Zumbilev, I. Zumbilev* K. Kostov, Technical University of Sofia, Plovdiv Branch, Bulgaria

3:20 PM

Characterization of Laser-Consolidated 420 Stainless Steel

J. Chen*, L. Xue, S. Wang, National Research Council Canada, Canada

Iron & Steel: Steel Product Metallurgy and Applications

Microstructure - Property Correlations II

Room: 330

Session Chair: Robert Glodowski, Stratroc

2:00 PM

Effects of Heat treatment on the Mechanical Properties of Two Ultra-high Strength Stainless Steels

P. Komolwit*, W. Garrison, Carnegie Mellon University, USA

2:20 PM

Efforts Towards Improving Mechanical Characteristics of Martensitic Stainless Steels

B. L. Choudki*, S. Nair, K. R. Srinivasan, A. Ganguly, Mukand Ltd., India

2:40 PM

Development of High Strength Formable Grade Steels at SAIL

A. Deva*, S. Mukhopadhyay, S. Mallik, B. K. Jha, S. K. Chaudhuri, RDCIS SAIL, India

3:00 PM

Correlation between Deformation Behavior and Microstructures of a Fe-28Mn-9Al-0.8C Steel

J. Yoo, K. Park*, Hanbat National University, South Korea

3:20 PM

Edge Fracture of Dual Phase Steel in Hole Expansion

X. Wu*, H. Hamed Bahmanpour, Wayne State University, USA; M. F. Shi, United States Steel, USA

Materials & Systems: Advances in Biomedical and Biomimetic Materials

Advanced Biomaterials

Room: 333

Session Chair: Devesh Misra, University of Louisiana

2:00 PM

Improvement in Mechanical Functionality of Porous Titanium by Biopolymer Filling (Invited)

M. Niinomi*, M. Nakai, T. Akahori, H. Yamanoi, IMR, Tohoku University, Japan; S. Itsuno, N. Haraguchi, Toyohashi University of Technology, Japan; Y. Itoh, Hamamatsu Industrial Research Institute of Shizuoka Prefecture, Japan; T. Ogasawara, T. Onishi, Osaka Titanium Technologies Co., Ltd., Japan; T. Shindoh, ECRI, Tohoku University, Japan

2:20 PM

Porous NiTi with Superelastic or Shape-Memory Properties

A. Bansiddhi, D. Dunand*, Northwestern University, USA

2:40 PM

Tunable Nanoparticles: Drug Delivery and Cellular Uptake (Invited)

D. K. Misra*, University of Louisiana at Lafayette, USA

3:00 PM

Self-assembled Lipid-nanocrystal Vesicle Hybrids as Theranostic Devices for Cancer

W. T. Al-Jamal*, K. T. Al-Jamal, K. Kostarelos, School of Pharmacy, United Kingdom

3:20 PM

Nanotechnology in Drug Delivery

E. p. Yedidi*, Osmania University College of Technology, India

3:40 PM

Nanotechnology in Medicine

C. Uzomah*, Institute of Management and Technology, Nigeria

4:00 PM

Superparamagnetic, Flame Synthesized Iron Oxide Nanoparticles for Biomedical Applications

K. Buyukhatipoglu*, A. Morss Clyne, T. A. Miller, Drexel University, USA

Materials & Systems: Advances in Characterization and Modeling of Cementitious Materials

Modified Fresh or Hardened Properties and Nontraditional Applications of Cement-based Materials II

Room: 331

Session Chair: Joe Biernacki, Tennessee Technological University

2:00 PM

Changes in the dynamic mechanical response of C-S-H on the removal of water

R. Alizadeh*, J. J. Beaudoin, L. Raki, National Research Council Canada, Canada

2:20 PM

Novel Chemical-Thermal Treatment of Rice Husk Ash To Enhance Properties of High Performance Concrete

A. Salas*, S. Delvasto, R. Mejía de Gutierrez, Universidad del Valle, Colombia; D. Lange, University of Illinois, USA

2:40 PM

Effect of Chemical-Thermal Treatment of Rice Husk Ash on hydration Characteristics of ordinary Portland Cement

A. Salas*, S. Delvasto, R. Mejía de Gutierrez, Universidad del Valle, Colombia; L. J. Struble, University of Illinois, USA

3:00 PM

The Effect of Humidity on the Mechanical Properties of Gypsum

Z. Chen*, K. T. Faber, Northwestern University, USA

3:20 PM

Break

ACerS Cements Division Della Roy Lecture

Room: 301

Session Chair: Zachary Grasley, Texas A&M University

4:00 PM

Understanding Frost Damage (Invited)

G. W. Scherer*, Princeton University, USA

Materials & Systems: Amorphous Materials: Common Issues within Science and Technology

Metallic Glasses

Room: 334

Session Chair: Steve Feller, Coe College

2:00 PM

Effects of Test Temperature and Composition on Mechanical Properties of Al-Based Amorphous alloys

C. Huang*, J. J. Lewandowski, Case Western Reserve University, USA

2:20 PM

Effects of Thermal Exposure & Test Temperature on Structure Evolution & Viscosity of an Fe-Based Metallic Glass

A. Shamimi Nouri*, Case Western Reserve University, USA; Y. Liu, Wayne State University, USA; J. J. Lewandowski, Case Western Reserve University, USA

2:40 PM

Effects of Superimposed Pressure on Flow of Metallic Glasses

J. Caris*, J. J. Lewandowski, Case Western Reserve University, USA

3:00 PM

Experiments on High Strain-Rate Loading of a Zr-based Bulk Metallic Glass

G. Sunny*, V. Prakash, J. Lewandowski, Case Western Reserve University, USA

3:20 PM

Observation of Dislocation-Type Defects in Amorphous Alloys

M. Finkel*, DAATH-Scientific Center, USA; L. B. Zuev, V. I. Danilov, Institute of Strength Physics and Materials Science, Russian Federation

3:40 PM

Shear Band Evolution under Dynamic Loading in Bulk Metallic Glasses

G. Subhash*, University of Florida, USA; H. Zhang, REL Inc., USA; S. Maiti, Michigan Technological University, USA

4:00 PM

Crystallization Kinetics and Thermal Stability of Cu-Zr amorphous alloys

I. Kalay*, M. J. Kramer, R. E. Napolitano, Ames Laboratory/Iowa State University, USA

4:20 PM

Study on Preparation and Properties of Glass Ceramic on Metallic Supports

W. Han*, X. Niu, J. Wang, G. Liu, Jilin University, China

Materials & Systems: Enabling Surface Coating Systems: Science and Technology

Thermal Barrier Coatings II

Room: 335

Session Chairs: Yutaka Kagawa, University of Tokyo; Daniel Mumm, University of California, Irvine

2:00 PM

Microstructural Change of TGO in EB-PVD TBC System: Effect of Thermal and Mechanical Loading History (Invited)

M. Hasegawa*, Yokohama National University, Japan

2:40 PM

Hf Effects on the Oxidation Behavior of Pt-Modified γ -Ni+ γ' -Ni₃Al-Based Alloys and Coatings

N. Mu*, B. M. Gleeson, University of Pittsburgh, USA

3:00 PM

Oxidation of single phase NiCrAl(Y) bond coat alloys: stress, microstructure and the oxide/ alloy interface

L. Hu*, D. Hovis, CWRU, USA; B. Veal, A. Paulikas, Argonne National Laboratory, USA; A. Heuer, CWRU, USA

3:20 PM

Microstructural Evolution and Failure Characteristics of a NiCoCrAlY Bond Coat in "hot spot" Cyclic Oxidation

F. Cao*, Los Alamos National Lab, USA; B. Tryon, Pratt and Whitney, USA; C. J. Torbet, T. M. Pollock, University of Michigan, USA

3:40 PM

Effect of Yttrium on the Microstructure and Phase Transformation in Cryomilled HVOF NiCrAlY Bond Coat

K. Ma*, J. M. Schoenung, University of California - Davis, USA

4:00 PM

Pt-modified Aluminide Coatings Developed with an Industrial Vapor Phase Coating Process

Y. Wang*, SIFCO Minneapolis, USA

Materials & Systems: International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites

Combustion Synthesis/Reaction Forming

Room: 336

Session Chair: Holly Shulman, Ceralink Inc.

2:00 PM

Self-Propagating High Temperature Synthesis (SHS) Reactions Utilizing Lunar Regolith Simulant

E. J. Faierson*, K. V. Logan, M. P. Hunt, Virginia Polytechnic Institute and State University-National Institute of Aerospace, USA; B. K. Stewart, Virginia Polytechnic Institute and State University-NASA Langley Research Center, USA

2:20 PM

Preparation of $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ by Self-Propagating High Temperature Synthesis

S. Lin*, J. Selig, Lamar University, USA

2:40 PM

Determining the effect of composition on the melting of Al_2O_3 - TiB_2 composites

S. Holt*, K. V. Logan, Virginia Tech, USA

3:00 PM

Synthesis of Uranium Nitride at Low Temperatures via Reactive Ball-Milling

B. J. Jaques*, B. M. Marx, D. D. Osterberg, M. F. Hurley, D. P. Butt, Boise State University, USA

3:20 PM

Bulk Nanostructured Titanium Boride (TiB) Ceramic: Synthesis and Properties

S. Madtha, K. Chandran*, University of Utah, USA

3:40 PM

Nanoporous Glass-Ceramic Membranes

M. E. Miller, S. T. Mixture*, NYSCC @ Alfred University, USA

Nanotechnology: Controlled Processing of Nanoparticle Structures and Composites

Suspension Control and Nanoparticle Assembly

Room: 408

Session Chair: Erica Corral, University of Arizona

2:00 PM

Hierarchical Assembly of Hybrid Nanoparticles: Implications for Oral Drug Delivery and Implant-biological Interfaces

R. K. Kasinath*, A. Brazier, Montana Tech of the University of Montana, USA; K. H. Prakash, The University of Queensland, Australia; L. Gower, University of Florida, USA

2:20 PM

The structure of nanoparticulate aggregates of titania as a function of shear

M. Jitianu*, Rutgers University, USA; C. Rohn, Malvern Instruments, Inc., USA; R. A. Haber, Rutgers University, USA

2:40 PM

Molecular Engineering of Inorganic Nanoparticles and Superstructured Nanomaterials (Invited)

M. Z. Hu*, Oak Ridge National Laboratory, USA

3:20 PM

Nanoparticle-based Bulk Material Templating

K. Lu*, C. Hammond, Virginia Polytechnic Institute and State University, USA

3:40 PM

Synthesis and characterization of mesoporous nanostructured TiO_2 - Al_2O_3 photocatalytic system

M. Garcia-Benjume, Universidad Michoacana de San Nicolás de Hidalgo, Mexico; I. I. Espitia-Cabrera, Universidad Michoacana de San Nicolás de Hidalgo, Mexico; M. Contreras-García*, Universidad Michoacana de San Nicolás de Hidalgo, Mexico

4:00 PM

The Relationship between Microstructure and Sintering Kinetics for Aggregated Nanocrystalline Powders

T. Chen*, I. Nettlehip, University of Pittsburgh, USA; T. R. Hinklin, K. G. Ewsuk, Sandia National Laboratory, USA

Nanotechnology: Nano-Materials for Electronic & Multifunctional Applications

Nanoscale Synthesis and Assembly

Room: 409

Session Chairs: Sharmila Mukhopadhyay, Wright State University; Raj Singh, University of Cincinnati

2:00 PM

Manufacturing at the Nano-Scale: Dreams to Reality, Lab to Market (Invited)

K. P. Cooper*, Naval Research Laboratory, USA

2:40 PM

Site-Specific Stamping of Graphene Patterns and Fabrication of Graphene-Based Nanoelectronic Devices

D. Li*, N. Padture, W. Windl, Ohio State University, USA

3:00 PM

Mineral based fungus mediated synthesis of silver nano particles and characterization study

P. K. Mishra*, N. Pradhan, Institute of Minerals and Materials Technology, India

3:20 PM

Interaction of Metal Nanoparticle Compact and Electromagnetic Wave at GHz frequencies

K. Matsumura*, Y. Kagawa, The University of Tokyo, Japan

3:40 PM

Microwave Transmittance of Nano-Aluminum Particle-Dispersed Epoxy Matrix Composites

S. Utsuno*, K. Matsumura, Y. Kagawa, the University of Tokyo, Japan

4:00 PM

Development of Graphene-Based Nanostructured Polymer Blends for EMI Shielding

R. Cieslinski*, H. Fowler, D. Strand, V. Wani, M. Paquette, The Dow Chemical Company, USA

Processing & Product Manufacturing: International Symposium on Ceramic Matrix Composites

Composite Processing and Characterization II

Room: 413

Session Chairs: Ivar Reimanis, Colorado School of Mines; Edgar Lara-Curzio, Oak Ridge National Laboratory

2:00 PM

Fabrication and Modeling of Nanoengineered Al₂O₃/WC-Co Composites

D. J. Cunningham*, I. Smid, Pennsylvania State University, USA; J. Keane, Allomet Corporation, USA

2:20 PM

Mechanical Properties of Zirconium Carbide-Tungsten Cermets Prepared by In Situ Reaction Sintering

M. M. Giles*, S. C. Zhang, W. G. Fahrenholtz, G. E. Hilmas, Missouri University of Science and Technology, USA

2:40 PM

Fracture Toughness and Microstructural Characterization of β -Eucryptite

S. Ramalingam*, T. W. Jochum, R. E. Ivar, Colorado School of Mines, USA

3:00 PM

Effect of flow rate, nitrogen precursor and diluent on Si₂N₂O deposition by HSYCV

A. L. Leal-Cruz, M. I. Pech-Canul*, Cinvestav Saltillo, Mexico; E. Lara-Curzio, Oak Ridge National Laboratory, USA

3:20 PM

Mechanical properties of α/β -SiAlONs fabricated by nitriding and post-sintering of Si mixture

Y. Park*, E. Noh, J. Ko, H. Kim, Korea Institute of Materials Science, South Korea

3:40 PM

Effect of Variations in Process Shear on the Mixedness of an Alumina – Titania System

C. August*, R. Haber, M. Jitianu, Rutgers University, USA

4:00 PM

Thermal and Electric Conductivity of Near-zero Thermal Expansion ZrW₂O₈/ZrO₂ Composites

X. Yang*, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China; X. Cheng, Jiangsu University, China; H. Li, J. Xu, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China

Processing & Product Manufacturing: Joining of Advanced and Specialty Materials X

Micro and Nano-Joining

Room: 410

Session Chairs: Mathieu Brochu, McGill University; Norman Zhou, University of Waterloo

2:00 PM

Freeform Fabrication of WC-Co/SUS304 Composite Materials by Using Three Dimensional Micro Welding (Invited)

Y. Yamamoto*, S. Kirihara, Osaka University, Japan

2:40 PM

Freeform Micro Fabrication of Metal Structures to Control Electromagnetic Wave by Using Stereolithography (Invited)

S. Kirihara*, D. Sano, Osaka University, Japan

3:20 PM

Optimization of Control Variable for Resistance Spot Welding

J. Bai*, L. J. Brown, The University of Western Ontario, Canada

3:40 PM

Non-PR Bumping and Wafer Stacking by Microsoldering for Electronics

S. Hong, Amkor, South Korea; J. Cheon, H. Lee, J. Jung*, University of Seoul, South Korea; M. Mayer, Y. Zhou, University of Waterloo, Canada

4:00 PM

ElectroSpark Welding of Thermally Sensitive Materials

S. Cadney, G. Goodall, McGill University, Canada; A. Moran, United States Naval Academy, USA; G. E. Kim, Perpetual Technologies, Canada; M. Brochu*, McGill University, Canada

4:20 PM

Nanoscale Joining of Dissimilar Materials Using a Ti-doped Brazing Alloy

W. Wu*, Y. Zhou, M. Yavuz, University of Waterloo, Canada; J. Wei, K. Wang, Tsinghua University, China

Processing & Product Manufacturing: Processing, Properties and Performance of Composite Materials

Metal Matrix Composites - Nanocomposites

Room: 412

Session Chairs: Nikhil Gupta, Polytechnic University; Ramana Reddy, University of Alabama

2:00 PM

Solidification Processing of Metal Matrix Nanocomposites (Invited)

P. K. Rohatgi*, N. Gupta, B. F. Schultz, Polytechnic University, USA

2:40 PM

Metal Matrix Micro and Nano Composites (Invited)

M. K. Surappa*, Indian Institute of Science, India

3:20 PM

Mechanical Behavior of Ceramic Reinforced Aluminum Nanocomposites

L. An*, University of Central Florida, USA

3:40 PM

Structure and Mechanical Properties of Stir Cast Aluminum alloy-Al₂O₃ Nanoparticle Composites

B. F. Schultz*, P. K. Rohatgi, J. Ferguson, University of Wisconsin-Milwaukee, USA; S. Alaraj, Birzeit University, Israel

4:00 PM

Processing, Microstructural Characterization and Ultrahigh Damping of a Ti₂AlC/Nanocrystalline Mg-Matrix Composite

S. Amini*, Drexel University, USA; C. Ni, University of Delaware, USA; M. W. Barsoum, Drexel University, USA

Wednesday, October 8, 2008

Special Topics: The National Materials Advisory Board Dissemination Series

National Materials Advisory Board Session

Room: 401

Session Chair: Gary Fischman, The National Academies

8:00 AM

NMAB Overview (Invited)

G. Fischman*, National Academies, USA

8:40 AM

Managing Materials for a 21st Century Military (Invited)

R. Latiff*, Science Applications International Corp. (SAIC), USA

9:20 AM

Break

9:40 AM

Integrated Computational Materials Engineering (Invited)
T. Pollock*, University of Michigan, USA

10:20 AM

Panel Discussion

11:40 AM

Closing Remarks

Special Topics: Perspectives from Emerging Materials Professionals: Early Strategies for Career Development

Key Strategies for Career Development I

Room: 403

Session Chairs: Nathan Ashmore, The Boeing Company; Emily Kinser, IBM

8:30 AM

Introduction

8:40 AM

Career Development to be a Multi-National and Multi-Disciplinary Engineer

B. Li*, Metal Pass LLC, USA

9:00 AM

Perspective from a Government Laboratory

M. Welk*, Sandia National Laboratories, USA

9:20 AM

Perspective from Academia

M. S. Kennedy*, Clemson University, USA

9:40 AM

Break

10:00 AM

Engineering Narrative: Telling a Story to Any Audience

W. M. Kane*, Exponent, USA

10:20 AM

Dr. Liu's TKC Theory (Invited)

Z. Liu*, The Pennsylvania State University, USA

11:00 AM

How to Succeed in a Government Lab by Really Trying (Invited)

I. E. Anderson*, Ames Laboratory, USA

Special Topics: Industry Track 2008

Industry Track 2008, Wednesday AM

Room: Hall A

10:30 AM

Eliminating Frame-based Creep with a Novel Nanoindentation Method (Invited)

J. Powell*, CSM Instruments Inc., USA

11:00 AM

Oak Ridge's HTML: A National Resource for Collaborative Materials Research (Invited)

C. Goudy*, Oak Ridge National Laboratory, USA

Electronic & Magnetic Materials: Fabrication, Microstructures and Interfacial Properties of Multifunctional Oxide Thin Films

Processing and Applications of Oxide Films

Room: 315

Session Chairs: Ram Katiyar, University of Puerto Rico; Long-qing Chen, Pennsylvania State University

8:00 AM

The Stability of Thin Metal Films in Contact with Oxides (Invited)

W. D. Kaplan*, Technion - Israel Institute of Technology, Israel

8:40 AM

Manipulating Structural, Dielectric and Insulating Properties of $Ba_{0.60}Sr_{0.40}TiO_3$ (BST) Thin Films by Ultra-violet Irradiation

A. A. Podpirka*, Harvard University, USA; M. W. Cole, U.S. Army Research Laboratory, USA; S. Ramanathan, Harvard University, USA

9:00 AM

Spectral Imaging of the $\Sigma=5$ Grain Boundary in Perovskite $SrTiO_3$ Using Ab Initio Data and Function Field Visualization (Invited)

P. Rulis*, W. Ching, University of Missouri - Kansas City, USA

9:40 AM

Break

10:00 AM

Resistance Switching Memory: Material Design and Conduction Mechanisms (Invited)

I. Chen*, Y. Wang, S. Kim, University of Pennsylvania, USA

10:40 AM

Electrode material effects on the dielectric properties of nano-scale sputtered $BaTiO_3$ thin films

J. Reck*, M. O'Keefe, F. Dogan, University of Missouri - Rolla, USA

11:00 AM

Surface Chrominated Thick Films of $Ba(0.8)Sr(0.2)TiO_3$ for H2S Gas Sensing (Invited)

G. H. Jain*, Arts, Comm. & Sci. College, Nandgaon, India; L. A. Patil, Pratap College, India

Electronic & Magnetic Materials: Ferroelectrics and Multiferroics

Physical Properties and Nanoscale Phenomena in Ferroelectric, Ferromagnetic, and Magnetoelectric Thin Films and Nanostructures

Room: 318

Session Chairs: Geoff Brennecke, Sandia National Laboratories; Paul Clem, Sandia National Laboratories

8:00 AM

Broadband Characterization of Ferroelectric and Multiferroic Thin Films to 40 GHz (Invited)

J. C. Booth*, N. D. Orloff, National Institute of Standards and Technology, USA; M. Murakami, I. Takeuchi, University of Maryland, USA

8:40 AM

A modified Kittel's scaling law for ferroic thin films

L. Chen*, Nanyang Technological Univ, Singapore

9:00 AM

Direct Observation of Domain Switching Dynamics in Multiferroics

J. Bosse, N. Polomoff, R. Nath, University of Connecticut, USA; R. Ramesh, UC Berkeley, USA; B. D. Huey*, University of Connecticut, USA

9:20 AM

Ferroic Phase Transitions and Finite Size Effects of Nano-Crystalline $BiFeO_3$

S. Selbach, M. Einarsrud, T. Tybell, T. Grande*, NTNU, Norway

9:40 AM

Break

10:00 AM

Origin of ferroelectric aging and the associated novel effect (Invited)

X. Ren*, National Institute for Materials Science, Japan

10:40 AM

Dielectric Properties of Ba(Zr,Ti)O₃ Thin Films for Tunable Microwave Applications

J. Liu*, G. Collins, J. Weaver, C. Chen, University of Texas at San Antonio, USA; J. Jiang, E. I. Meletis, University of Texas at Arlington, USA; A. Bhalla, University of Texas at San Antonio, USA

11:00 AM

Strain effects and thickness dependence of ferroelectric properties in epitaxial BiFeO₃ thin films

L. Chen*, Nanyang Technological Univ, Singapore

11:20 AM

Leakage current reduction and improved ferroelectric properties of chemical solution deposited Bi (Fe, M) O₃ (M= Ti and Cr) thin films

N. Murari*, R. Thomas, R. Katiyar, University of Puerto Rico, USA

Electronic & Magnetic Materials: Interfaces and Defects in Functional Oxides

Functional Oxides: Thin Films

Room: 319

Session Chairs: Siu-Wai Chan, Columbia University; Paul Voyles, University of Wisconsin, Madison

8:00 AM

Nanoscale Control of an Interfacial Metal-Insulator Transition at Room Temperature (Invited)

J. Levy*, C. Cen, University of Pittsburgh, USA; S. Thiel, C. W. Schneider, K. E. Andersen, J. Mannhart, University of Augsburg, Germany; C. Hellberg, Naval Research Laboratory, USA

8:40 AM

Growth, relaxation mechanisms, and properties of complex titanate thin films (Invited)

P. Salvador*, P. Fisher, H. Du, S. Havelia, S. Wang, M. De Graef, M. Skowronski, Carnegie Mellon University, USA

9:20 AM

Break

9:40 AM

Influence of a Ferroelectric Substrate on the Photochemical Properties of Titania Thin Films (Invited)

G. Rohrer*, N. Burbure, P. Salvador, CMU, USA

10:20 AM

Role of Oxide-Semiconductor Interfaces on Materials Properties (Invited)

R. Droopad*, Freescale, USA

11:00 AM

Observations & Simulations of resistance switching in oxide thin film heterostructures

S. Choi*, J. Meador, K. Jiang, M. Noman, R. Hussin, J. A. Bain, M. Skowronski, P. A. Salvador, Carnegie Mellon University, USA

11:20 AM

Electro-resistance and ionic motion at Schottky Interfaces

W. Jiang*, R. Hussin, M. Skowronski, J. Bain, P. Salvador, Carnegie Mellon University, USA

11:40 AM

Diffusion Controlled Solid State Reactions in the CoO-MgO-TiO₂ System

S. Reddy*, IBM, USA; D. Lewis, Rensselaer Polytechnic Institute, USA; B. Sundlof, IBM, USA

Electronic & Magnetic Materials: International Symposium on Advanced Dielectric Materials & Electronic Devices

Advancement in Dielectric Materials

Room: 317

Session Chairs: Rick Ubic, Boise State University; Derek Sinclair, University of Sheffield

8:00 AM

Residual Stress Effects on Fine Grain and Nanograin Barium Titanate Ceramics (Invited)

I. Chen*, University of Pennsylvania, USA

8:40 AM

Grain Boundaries: Innocent or guilty? Are they Responsible for Causing Loss in Microwave Ceramics? (Invited)

N. Alford*, J. Breeze, Imperial College London, United Kingdom

9:20 AM

Towards effective zero-index materials: reduce losses

L. Chen*, Nanyang Technological University, Singapore

9:40 AM

Break

Synthesis and Properties of Thick and Thin Films

Room: 317

Session Chairs: Rick Ubic, Boise State University; Derek Sinclair, University of Sheffield

10:00 AM

New Low Dielectric Loss LTCC Green Tape SYSTEM (Invited)

K. M. Nair*, K. W. Hang, M. F. McCombs, K. E. Souders, E.I. duPont de Nemours & Co., Inc., USA; S. C. Beers, E.I. duPont de Nemours & Co. Inc, USA

10:40 AM

Design of Wireless LTCC Devices (Invited)

J. Jean*, W. Lo, National Tsing Hua University, Taiwan

11:00 AM

Buried Capacitor Materials For LTCC Devices

K. M. Nair*, M. F. McCombs, M. A. Skurski, T. P. Mobley, E.I. duPont de Nemours & Co., Inc., USA

11:20 AM

Vertically aligned nanocomposite films: their strain control and electrical properties

H. Yang, Los Alamos National Lab, USA; P. Zerrer, University of Cambridge, United Kingdom; H. Wang, J. Yoon, Texas A&M University, USA; A. Fouchet, Y. Yu, M. G. Blamire, J. L. MacManus-Driscoll, University of Cambridge, United Kingdom; Q. Jia*, Los Alamos National Lab, USA

11:40 AM

Characteristics of Alkoxy-Derived TiO₂ Arrays Fabricated by Nanoimprint Method

K. Kato*, K. Tanaka, K. Suzuki, National Institute of Advanced Industrial Science and Technology, Japan; T. Morimoto, N. Tsutsui, Itea Co. Ltd., Japan

12:00 PM

Low-temperature Fabrication of Highly Loaded Dielectric Films for 3D Integration (Invited)

J. Kim*, H. Kim, E. Koo, Y. Yoon, H. Shin, Korea Institute of Ceramic Engineering & Technology, South Korea

Environmental & Energy Issues: Ceramics and Glass for Waste Minimization, Stabilization, and Disposition

Waste Glass Chemistry and Properties

Room: 326

Session Chairs: Kevin Fox, Savannah River National Lab; Fabienne Raszewski, Savannah River National Lab

8:00 AM

Accelerated Processing of SB4 and Preparation for SB5 Processing at DWPF

C. C. Herman*, Savannah River National Laboratory, USA

8:20 AM

Constraint Evaluation on Hanford HLW Glass Properties

D. Kim*, J. Vienna, V. Jain, Hanford Tank Waste Treatment and Immobilization Plant Project, USA

8:40 AM

Compositional and Kinetic Drivers for Nepheline Formation

F. C. Raszewski*, K. M. Fox, D. K. Peeler, Savannah River National Lab, USA

9:00 AM

Nepheline Crystallization in High-Level Waste Glass

K. M. Fox*, D. K. Peeler, T. B. Edwards, J. D. Newell, Savannah River National Laboratory, USA

9:20 AM

Effect of compositional changes on the structure and crystallization tendency of a borosilicate glass containing MoO₃

M. Magnin*, S. Schuller, CEA, France; D. Caurant, O. Majérus, C. Mercier, CNRS, France

9:40 AM

Break

10:00 AM

Vitreous Waste Forms for a Mixed Cs/Sr/Ba/Rb Waste Stream with Charge Compensation

J. Ryan, J. Crum, D. Strachan, J. Vienna*, Pacific Northwest National Laboratory, USA

10:20 AM

The Immobilisation of a Chloride Containing Actinide Waste Surrogate into Calcium Aluminosilicate Glasses

J. M. Schofield*, P. A. Bingham, R. J. Hand, University of Sheffield, United Kingdom

10:40 AM

Higher Waste Loading Glasses for Enhanced DOE High-Level Waste Melter Throughput Studies

F. C. Raszewski*, T. B. Edwards, D. K. Peeler, Savannah River National Laboratory, USA

11:00 AM

Properties of Higher Waste Loading, High-Level Radioactive Waste Glasses

A. L. Youchak*, J. C. Marra, D. K. Peeler, T. B. Edwards, Savannah River National Laboratory, USA

11:20 AM

Melting of Simulated Hanford HLW Glasses – A Composition Variation Study

V. Jain*, Hanford Tank Waste Treatment and Immobilization Plant Project, USA; K. Matlack, I. Pegg, Catholic University of America, USA; I. Joseph, Energy Solutions, USA; L. Petkus, J. Vienna, Hanford Tank Waste Treatment and Immobilization Plant Project, USA

Environmental & Energy Issues: Energy Materials

Other Energy Materials III

Room: 327

Session Chairs: Fatih Dogan, Missouri University of Science and Technology; Masanobu Awano, National Institute of Advanced Industrial Science and Technology

8:00 AM

Preparation of high-Jc MOD-YBCO films for fault current limiters (Invited)

M. Sohma*, W. Kondo, K. Tsukada, I. Yamaguchi, T. Kumagai, T. Manabe, K. Arai, H. Yamasaki, National Institute of Advanced Industrial Science and Technology, Japan

8:40 AM

Development of Advanced Ceramic Reactors (Invited)

T. Suzuki, Y. Fujishiro, T. Yamaguchi, K. Hamamoto, M. Awano*, National Institute of Advanced Industrial Science and Technology, Japan

9:20 AM

Electrochemical Cell for Removing NO_x and Soot from Diesel Exhaust

K. B. Andersen, Z. He, R. M. Larsen Werchmeister, L. Keel, F. B. Nygaard, M. Menon*, K. K. Hansen, Risø National Laboratory for Sustainable Energy, Technical University of Denmark, Denmark

9:40 AM

Break

Thermoelectric Materials

Room: 327

Session Chairs: Ali Sayir, NASA Glenn Research Center; Fred Dynys, NASA Glenn Research Center

10:00 AM

Combination of Ceramic Electrochemical Reactor and Thermoelectric Ceramic Module for Enhanced DeNO_x Property by Using Wasted Heat Energy (Invited)

Y. Fujishiro*, K. Hamamoto, T. Suzuki, T. Yamaguchi, M. Awano, National Institute of Advanced Industrial Science and Technology, Japan

10:40 AM

Multi-Functional Materials for Aeronautical Power Generation (Invited)

F. Dynys, A. Sayir*, NASA Glenn, USA; A. Sehirlioglu, Case Western Reserve University, USA

11:20 AM

Self-Powered Wireless Sensors (Invited)

F. Dynys*, A. Sayir, NASA Glenn, USA

Environmental & Energy Issues: Fuel Cells: Materials, Processing, Manufacturing, Balance of Plant and Systems Operation

Cell and Stack Component Materials II

Room: 325

Session Chairs: Ayyakkannu Manivannan, National Energy Technology Lab; Abdul-Majeed Azad, University of Toledo

8:00 AM

Electrical Stability of Refractory Sealing Glass with Coated Metallic Interconnect Materials (Invited)

Y. Chou*, J. Stevenson, J. Choi, S. Weil, P. Singh, Pacific Northwest National Laboratory, USA

8:40 AM

Electrical Properties of a Sealing Glass Exposed to Electric Field for SOFC application

S. K. Singh*, R. N. Singh, University of Cincinnati, USA

9:00 AM

Thermal Cycle Reliability of Glass/Ceramic Composite Gas Sealing Materials

S. Suda*, M. Matsumiya, K. Kawahara, K. Jono, Japan Fine Ceramics Center, Japan

9:20 AM

Experimental Study of Aging and Self-healing Behavior of Glass/Ceramic Sealant Used in SOFC
W. Liu*, X. Sun, Pacific Northwest National Lab, USA

9:40 AM

Break

10:00 AM

Development of Seal-Less Solid Oxide Fuel Cells at Siemens (Invited)
C. Lu*, Siemens Energy, USA

10:40 AM

Development of a Reactive Air Coating Process for Glass-Metal Joining in SOFC Stacks
J. Choi*, S. K. Weil, Pacific Northwest National Laboratory, USA

11:00 AM

Reaction Sintering of Yttria Stabilized Zirconia Anodes via Nickel Oxide
J. White*, I. E. Reimanis, Colorado School of Mines, USA; G. W. Coors, S. Menzer, CoorsTek, USA

11:20 AM

Low temperature sintering and proton conductivity of Yb-doped BaZrO₃
J. Park*, J. Lee, H. Lee, B. Kim, Korea Institute of Science and Technology, South Korea

11:40 AM

Diffusion study of a novel glass seal with metallic interconnect and shape memory alloy for solid oxide cells
M. Mahapatra*, K. Lu, W. Reynolds, Virginia Polytechnic Institute and State University, USA

Environmental & Energy Issues: Green Technologies for Materials Manufacturing and Processing

Environmentally Benign Process I

Room: 323

Session Chairs: Alex Cozzi, Savannah River National Lab; Allen Apblett, Oklahoma State University

8:00 AM

On the Great Pyramids of Egypt and Sustainable Building Materials (Invited)
M. Barsoum*, Drexel University, USA

8:40 AM

Alkali-activated Cements based on Diatomaceous Earth
E. Jud Sierra*, S. Miller, P. Narang, A. Moseson, M. W. Barsoum, Drexel University, USA

9:00 AM

Silica-based Nanostructures and the Pyramids of Egypt
M. W. Barsoum*, E. Jud Sierra, A. Sakulich, A. Moseson, Drexel University, USA; K. J. MacKenzie, Victoria University of Wellington, New Zealand; S. C. Vogel, L. L. Daemen, Los Alamos National Laboratory, USA

9:20 AM

Alkali-Activated Cements As A Sustainable Building Material; Case Study of Slag Cement using Design Of Experiment
A. J. Moseson*, A. Sakulich, A. Curtin, E. Jud, M. W. Barsoum, Drexel University, USA

9:40 AM

Break

10:00 AM

Green Process for Separation of Metals from Sulfide Ores
A. Apblett*, K. Barber, Oklahoma State University, USA

10:20 AM

Exploiting Hall-Petch Strengthening for Sustainability
R. Heard*, Carnegie Mellon University, USA; U. Erb, University of Toronto, Canada; G. Palumbo, Integran Technologies Inc., Canada

10:40 AM

Effect of Bismuth on the Dry Machinability of Al-12 Si Alloys
P. Chen*, A. T. Alpas, University of Windsor, Canada

11:00 AM

Novel process development with continuous casting and precise forging for Al-Si alloys to produce an engine piston
O. Umezawa*, Yokohama National University, Japan; H. Takagi, Toyama Alloy Co., Japan; T. Sekiguchi, Miyamoto Industry Co., Japan; T. Yamashita, Toyama Alloy Co., Japan; N. Miyamoto, Miyamoto Industry Co., Japan

Environmental & Energy Issues: Thermoelectric Materials: Science, Technology and Applications

Thermoelectric Antimonides, Tellurides, and Borides

Room: 324

Session Chairs: Hsin Wang, Oak Ridge National Lab; Øystein Prytz, University of Oslo

8:00 AM

Filled Skutterudites: from single to multiple filling (Invited)
W. Zhang*, L. Xi, J. Yang, L. Chen, Shanghai Institute of Ceramics, China; J. Yang, Materials and Processes Laboratory, USA

8:30 AM

Low and high temperature thermoelectric properties of n-type multiple-filled skutterudites
X. Shi*, J. R. Salvador, J. Yang, General Motors R&D Center, USA; C. Uher, University of Michigan, USA

8:50 AM

Electrical transport properties for filled CoSb₃ skutterudites: a theoretical study
J. Yang*, General Motors R&D Center, USA

9:10 AM

Thermoelectric properties of the β -Zn₄Sb₃ compound
E. Flage-Larsen*, O. Løvvik, University of Oslo, Norway

9:30 AM

Break

10:00 AM

In search of the elusive high-ZT: Thermoelectric performance of (AgSbTe₂) (PbTe)_m through variations in synthesis and stoichiometry (Invited)
F. Drymiotis*, D. Thompson, T. Drye, T. Tritt, Clemson University, USA

10:30 AM

Thermoelectric Properties of Quaternary Molybdenum Antimonides
T. Holgate*, S. Zhe, T. Tritt, Clemson University, USA; H. Xu, H. Kleinke, University of Waterloo, Canada

10:50 AM

Seebeck's Effect on Amorphous-Crystalline Transition Zone and Amorphous-Crystalline Thermocouple
M. Finkel*, DAATH-Scientific Center, USA; J. Chen, Temple University, USA; D. Finkel, DAATH-Scientific Center, USA

11:10 AM

Thermoelectric Properties of FeSb₂ Single Crystal
Q. Jie*, R. Hu, C. Petrovic, P. Khalifah, Q. Li, Brookhaven National Lab, USA

11:30 AM

Thermal expansion behaviors of LAST and LASTT thermoelectric materials as a function of temperature
F. Ren*, B. D. Hall, E. D. Case, E. J. Timm, Michigan State University, USA; R. M. Trejo, E. Lara-Curzio, Oak Ridge National Laboratory, USA

Fundamentals & Characterization: ACeRS Sosman Award Symposium: Kinetic Engineering of Interfacial Transport Processes

Robert B. Sosman Session

Room: 406

Session Chair: Gregory Rohrer, Carnegie Mellon University

8:00 AM

First Principles Modeling of Diffusion Kinetics and Sliding of Alumina Grain Boundaries: Implications for Oxide Growth and Creep (Invited)

E. A. Carter*, Princeton University, USA

8:40 AM

Oxygen and Aluminum Diffusion in α -Al₂O₃: How much do we really understand? (Invited)

A. H. Heuer*, Case Western Reserve University, USA

9:20 AM

Break

9:40 AM

An Overview of Normal versus Abnormal Grain Growth (Invited)

A. Rollett*, Carnegie Mellon University, USA

10:20 AM

Grain boundary films in silicon nitride (Invited)

M. J. Hoffmann*, University of Karlsruhe, Germany; P. F. Becher, Oak Ridge National Laboratory, USA; R. L. Satet, University of Karlsruhe, Germany

11:00 AM

Interface Stability: The Variety and Conditions for Complexion Transitions (Invited)

W. C. Carter*, M. Tang, Massachusetts Institute of Technology, USA

Fundamentals & Characterization: Discovery and Optimization of Materials through Computational Design

Multiscale Materials Design II

Room: 303

Session Chairs: Carelyn Campbell, National Institute of Standards and Technology; Zi-Kui Liu, Pennsylvania State University

8:00 AM

3D Materials by Design (Invited)

G. B. Olson*, Northwestern University, USA

8:40 AM

Progress in MatCASE: Automation and New Capabilities (Invited)

Z. Liu*, The Pennsylvania State University, USA

9:20 AM

Break

9:40 AM

Multi-Million Atom Simulations of Strain and Electronic Structure with NEMO 3-D (Invited)

G. Klimeck*, N. Kharche, M. Usman, Purdue, USA; T. B. Boykin, University of Alabama in Huntsville, USA

10:20 AM

Diffusion Mobility Descriptions in Ordered Phases: Applications in Ni-base Superalloys and Bond Coat Materials (Invited)

C. Campbell*, National Institute of Standards and Technology, USA

11:00 AM

Thermodynamic Stability of Materials: Integration of Finite-Temperature Ab Initio Methods and CALPHAD Modeling (Invited)

R. Arroyave*, Texas A&M University, USA

11:40 AM

Multiscale Computational Design of Ductile Refractory Alloys for Modern Fossil Energy Applications

M. Gao*, O. Dogan, P. King, National Energy Technology Lab, USA

Fundamentals & Characterization: Failure Analysis for Problem Solving

Tools and Techniques

Room: 304

Session Chairs: Larry Hanke, Materials Evaluation and Engineering, Inc.; David Norfleet, Engineering Systems Inc.; Craig Clauser, CCECI

8:00 AM

Forget Success, Lets Talk About Failure! (Invited)

A. B. Tanzer*, Lehigh Testing Laboratories, Inc., USA

8:40 AM

Method for Cross Section Preparation for SEM Using a Broad Argon Ion Beam (Invited)

N. Erdman*, C. Nielsen, R. Mierzwa, R. Campbell, JEOL USA, Inc, USA

9:00 AM

Failure Analysis with Electron Microscopes and the new Silicon Drift Detectors (Invited)

M. Kelsey*, Bruker AXS Inc., USA

9:20 AM

Radiography in Failure Analysis: X-ray vs. Neutron (Invited)

D. Norfleet*, D. Alexander, Engineering Systems Inc., USA; J. Gauthier, Nray Services Inc., Canada; C. Cherry, YXLON International Inc., USA

9:40 AM

Break

10:00 AM

Correlating microstructure and crystallography with fracture topography in titanium alloys (Invited)

A. L. Pilchak*, R. E. Williams, A. Bhattacharjee, The Ohio State University, USA; A. H. Rosenberger, Air Force Research Laboratory, USA; J. C. Williams, The Ohio State University, USA

10:40 AM

Chemical Incompatibility Studies of a Pool Liner System

K. Steiner*, Wiss, Janney, Elstner Associates, Inc., USA

11:00 AM

Quantitative Microstructural Analysis to evaluate the Strength and Reliability of Ceramics

T. Bernthaler*, A. Nagel, G. Schneider, Aalen University, Germany; M. Hoffman, University of New South Wales, Australia

11:20 AM

Advantages of Low-Voltage SEM for Failure Analysis

L. Hanke*, R. Haase, Materials Evaluation and Engineering, Inc., USA

Fundamentals & Characterization: Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life

Fatigue of Steels, Nickel and Titanium Alloys

Room: 305

Session Chairs: P. Liaw, University of Tennessee; J. Earthman, University of California, Irvine

8:00 AM

Perspective on Competing Modes Fatigue Behavior (Invited)

G. T. Cashman*, University of Utah, USA

8:40 AM

Foreign Object Damage and Short Crack Behavior in Ti-6Al-4V Alloy

B. Majidi*, Amirkabir University of Technology, Iran

9:00 AM

Low Cycle Fatigue Variability in Single Crystal Superalloys Solidified with Liquid Metal Cooled and Conventional Bridgman Processes

C. L. Brundidge*, T. M. Pollock, J. Jones, University of Michigan, USA

9:20 AM

Competing Fatigue Failure Modes in High Temperature Fatigue of René 88DT Nickel-Base Superalloy at 650C

P. Chang*, G. T. Cashman, R. Chandran, University of Utah, USA

9:40 AM

Break

10:00 AM

High Stress Fatigue Behavior of Fine Grained Thin Film Nickel

J. G. Collins*, C. Muhlstein, Pennsylvania State University, USA

10:20 AM

Development of a low cost hold-time fatigue (SPLCF) test system

J. L. Myers*, B. H. Lawless, W. H. Buttrill, GE Aviation, USA

10:40 AM

Effect of Alloying on the Elevated-Temperature Fatigue Behavior of Ti Alloys Reinforced with SiC Fibers or TiB Whiskers

W. Chen, J. Quast, C. J. Boehlert*, Michigan State University, USA

11:00 AM

Fatigue properties of pre-FPP (fine particle peening) treated and gas nitrided austenitic stainless steel

S. Kikuchi*, Y. Nakahara, Graduate school of Science and Technology, Keio university, Japan; J. Komotori, Keio university, Japan

11:20 AM

Electron Microscopy Analysis of Crack Propagation Behavior of Alumina

H. Matsuo*, K. Ikeda, S. Hata, H. Nakashima, Kyusyu University, Japan

Fundamentals & Characterization: International Symposium on Defects, Transport and Related Phenomena

Defects and Transport in Ceramics II

Room: 307

Session Chairs: Doreen Edwards, Alfred University; Stefan Adams, National University of Singapore

8:00 AM

Ion transport in oxides investigated by means of current-assisted tracer diffusion and impedance spectroscopy (Invited)

J. Fleig*, A. Schintlmeister, M. Gerstl, M. Ahrens, H. Hutter, Vienna University of Technology, Austria

8:40 AM

Conductivity Behaviour of V2O5 Pressed Bodies and Correlation to the Catalytic Behaviour

M. Harth, O. Goerke, D. Habel, H. Schubert*, Berlin University of Science and Technology, Germany

9:00 AM

Ionic transport in intercalation compounds from first principles (Invited)

A. Van der Ven*, The University of Michigan, USA

9:40 AM

Break

10:00 AM

Bond valence analysis of ionic conductivity in disordered ceramic materials (Invited)

S. N. Adams*, Nat. University of Singapore, Singapore

10:40 AM

Impedance and phase stability studies on the 1-dimensional conductor $A_xGa_{4-x}Ti_{1-x}O_8$ (AGTO) ($x \sim 0.7$, $A = Na^+, K^+, Li^+, Ag^+, H^+$)

J. W. Amoroso*, D. D. Edwards, Kazuo Inamori School of Engineering at Alfred University, N.Y.S. College of Ceramics, USA

11:00 AM

From Weak Electrolytes to Superionic Solids: Discussion of the Coulombic Interaction Potential (Invited)

D. S. Mebane*, R. Merkle, J. Maier, Max Planck Institute for Solid State Research, Germany

11:40 AM

Analytical and Numerical Treatment of Tracer Diffusion in Oxides from a Heterogeneous Thick Film Source

J. D. McGuffin-Cawley*, Case Western Reserve University, USA

Fundamentals & Characterization: Micro- and Nano- Mechanical Behavior of Low-Dimensional Structures and Materials

Micro- and Nano- Mechanical Behavior of Materials - Ceramics

Room: 308

Session Chairs: Xiaodong Li, University of South Carolina; David Bahr, Washington State University

8:00 AM

Nanoindentation Behavior of Nanoclay-Zirconia Multilayers and its Implications for Synthesis and Design

Z. Wei, X. Wang, G. Zhang*, Louisiana State University, USA; H. Chen, J. Luo, Clemson University, USA

8:20 AM

Hardness and deformation mechanisms of Ti3SnC2, a ternary nanolaminate carbide

C. Tromas, N. Ouabadi, V. Gauthier, M. Jaouen, S. Dubois*, Laboratoire PHM, France

8:40 AM

Room Temperature Creep of Brittle Solids Studied by Spherical Nanoindentation

S. Basu*, Drexel University, USA; M. Radovic, Texas A&M University, USA; M. W. Barsoum, Drexel University, USA

9:00 AM

Spherical Nanoindentation Stress-Strain Curves, Kinking Nonlinear Elastic Solids and Low Dimensionality Solids (Invited)

M. Barsoum*, Drexel University, USA

9:40 AM

Break

10:00 AM

Approaching the Theoretical Strength of Silicon: Tensile Behavior of Silicon Nanowires

M. Steighner*, The Pennsylvania State University, USA; D. C. Miller, University of Colorado, USA; B. L. Boyce, Sandia National Laboratory, USA; C. L. Muhlstein, The Pennsylvania State University, USA

10:20 AM

Quantitative Fracture Toughness Measurements of Thin Films

D. Morris*, National Institute of Standards and Technology, USA

10:40 AM

Bulk Synthesis of Silica Nanowires and Self-assembled Hierarchical Structures

Z. Liu*, J. C. Yang, University of Pittsburgh, USA

11:00 AM

Synthesis and Characterization of MgO-Y2O3 nanocomposite synthesized using argon-shrouded plasma system

J. Al-Sharab*, R. Sadangi, V. Shukla, B. Kear, Rutgers University, USA; J. Bentley, Oak Ridge National Laboratory, USA

Fundamentals & Characterization: Performance and Growth of Bulk and Thin Film Materials - Role of Surface and Interface Phenomena during Growth and Processing

Recent Advances in Growth of Thin Film Materials

Room: 306

Session Chair: N. Singh, Northrop Grumman Corporation, ES

8:00 AM

Morphology of Nanodots and Nanocubes of Detector Materials (Invited)

S. McLaughlin, B. Wagner*, N. B. Singh, A. Berghmans, D. Kahler, D. Knuteson, M. Fitelson, M. Singh, M. House, N. Paraskevopoulos, Northrop Grumman Corporation, ES, USA

8:40 AM

Thin Film Medical Sensors (Invited)

R. J. Narayan*, University of North Carolina, USA

9:20 AM

Long-term ordered crystals and their multi-layered film analogues

S. L. Pyshkin*, Academy of Sciences, Moldova; J. M. Ballato, Clemson University, USA

9:40 AM

Break

10:00 AM

Synthesis and characterization of bandgap reduced p-type Cu incorporated ZnO films (Invited)

S. Shet*, K. Ahn, Y. Yan, J. Turner, M. Al-Jassim, National Renewable Energy Laboratory, USA; N. M. Ravindra, New Jersey Institute of Technology, USA

10:40 AM

Modeling and Simulation of Magnetic Field Assisted Assembly

G. Devrani*, R. D. Rivero, M. R. Booty, A. T. Fiory, N. M. Ravindra, New Jersey Institute of Technology, USA

11:00 AM

Evolution of a 3D Grain within a Thin Film: Surface Diffusion Effects (Invited)

A. Vilenkin, Hebrew University of Jerusalem, Israel; A. Novick-Cohen*, Technion-IIT, Israel

11:40 AM

TEM Research on the Growth of Pt Clusters Deposited on γ -Al₂O₃/NiAl(110)

Z. Zhang*, L. Li, University of Pittsburgh, USA; S. I. Sanchez, University of Illinois at Urbana-Champaign, USA; Q. Wang, Yeshiva University, USA; L. Wang, D. D. Johnson, University of Illinois at Urbana-Champaign, USA; A. I. Frenkel, Yeshiva University, USA; R. G. Nuzzo, University of Illinois at Urbana-Champaign, USA; J. C. Yang, University of Pittsburgh, USA

Fundamentals & Characterization: Phase Stability, Diffusion Kinetics and Their Applications (PSDK-III)

Diffusion Kinetics III

Room: 302

Session Chairs: Nagraj Kulkarni, Oak Ridge National Laboratory; Liang Jiang, GE Central Research & Development

8:00 AM

Diffusion Path Development in Single-phase Cu-Ni-Zn Multilayered Assemblies (Invited)

M. A. Dayananda*, Purdue University, USA

8:40 AM

Carbon diffusion in pure iron under a magnetic field

H. Fujii*, Tohoku University, Japan; S. Tsurekawa, Kumamoto University, Japan

9:00 AM

Microstructural Simulation and Life Prediction for Advanced Gas Turbine Coatings (Invited)

L. Jiang*, J. Zhang, G. Singh, GE Global Research, USA; C. Hardwicke, GE Energy, USA

9:40 AM

Break

10:00 AM

Instrument Error and its Propagation through Diffusion Coefficient Measurement Procedures (Invited)

J. C. LaCombe*, A. V. Jaques, University of Nevada, Reno, USA

10:40 AM

Determining Diffusivities and Solid Solubilities of Yb and Er in Al by Microstructural Characterization of Aged Al-Yb and Al-Er Alloys

M. E. van Dalen, R. A. Karnesky, D. Dunand, D. N. Seidman*, northwestern university, USA

11:00 AM

Interdiffusion Behavior and Microstructural Development of U-7wt.%Mo, U-10wt.%Mo and U-12wt.%Mo Alloys in Contact with Al and 6061Al alloy at 600°C

E. Perez*, University of Central Florida, USA; D. Keiser, Idaho National Laboratory, USA; Y. Sohn, University of Central Florida, USA

11:20 AM

Enhanced Carbon Diffusion in Austenitic Stainless Steel Carburized at Low Temperature

F. Ernst*, A. Avishai, H. Kahn, X. Gu, G. M. Michal, A. H. Heuer, Case Western Reserve University, USA

11:40 AM

Exploiting anomalous diffusion near polymorphic transition to achieve deep titanium boride surface coatings on titanium

B. Sarma*, N. Tikekar, K. Chandran, University of Utah, USA

Fundamentals & Characterization: Phase Transformations and Microstructural Changes during Sustained Mechanical Forcing

Deformation-induced Microstructural Changes and Phase Transformations II

Room: 310

Session Chair: Rainer Hebert, University of Connecticut

8:00 AM

Dissolution of cementite in carbon steels by severe plastic deformation (Invited)

M. Umemoto*, Y. Todaka, Toyohashi University of Technology, Japan

8:40 AM

Confirmation of a Pressure-Induced Phase Transformation in β -Eucryptite with *In-Situ* Raman Spectroscopy

T. Jochum*, I. Reimanis, Colorado School of Mines, USA; M. Lance, Oak Ridge National Laboratory, USA

9:00 AM

The effect of strain on the microstructural evolution in metal cutting chips in AA 2195 T81

L. Dong*, J. Schneider, Mississippi State University, USA

9:20 AM

Layer refinement of Mo-Ta multilayers during accumulative roll bonding

R. Hebert, G. Marathe*, University of Connecticut, USA

9:40 AM

Break

10:00 AM

Degradation of Three Ni-based Superalloys Used for Gas Turbine Hot-Gas Path Components after Long Term Agings

D. Saito*, TOSHIBA Corporation, Japan

Fundamentals & Characterization: Recent Advances in Structural Characterization of Materials

New Techniques and Multidimensional Approaches

Room: 309

Session Chairs: Roumiana Petrova, New Jersey Institute of Technology; Jacob Jones, University of Florida

8:00 AM

Emergent Phenomena at Epitaxial Interfaces: A Structural View (Invited)

R. Clarke*, University of Michigan, USA; P. Willmott, S. Pauli, C. Schlepuetz, Paul Scherrer Institut, Switzerland; Y. Yacoby, Hebrew University, Israel; D. Kumah, N. Husseini, University of Michigan, USA

8:20 AM

Raman Spectroscopy and Electron Diffraction of Functional Ceramics (Invited)

I. M. Reaney*, University of Sheffield, United Kingdom

8:40 AM

Structure-Property Relationships in Ferroic Nanostructures (Invited)

A. Petford-Long*, A. Chiaramonti, M. Tanase, D. Schreiber, Argonne National Laboratory, USA

9:00 AM

Characterization of Defect-Structure in Acceptor- and Donor-modified Piezoelectrics by Multifrequency and Multipulse EPR Spectroscopy (Invited)

R. Eichel*, Technische Universität Darmstadt, Germany

9:20 AM

Spectroscopic Imaging of Defect-Controlled Polarization Dynamics on a Single Defect Level (Invited)

S. V. Kalinin*, S. Jesse, A. Baddorf, Oak Ridge National Laboratory, USA; E. A. Eliseev, A. N. Morozovska, National Academy of Sciences of Ukraine, Ukraine; S. Choudhury, L. Chen, Pennsylvania State University, USA

9:40 AM

Break

10:00 AM

Nucleation and Growth Dynamics of Individual Ferroelectric Domains with High Speed Scanning Property Mapping (Invited)

N. Polomoff, R. Nath, J. Bosse, A. Lucas, B. D. Huey*, University of Connecticut, USA

10:20 AM

Photo-stimulated luminescence spectroscopy and high energy x-rays to advance stress measurements in polycrystalline ceramics

S. Raghavan*, P. K. Imbrie, Purdue University, USA

10:40 AM

Direct three-dimensional microstructural characterization of Ti-5111

V. Dixit*, P. Collins, H. L. Fraser, The Ohio State University, USA

11:00 AM

Advanced Microstructural Characterization of Firn

I. Baker*, S. Chen, R. Lomonaco, Dartmouth College, USA; R. Obbard, British Antarctic Survey, United Kingdom; D. Iliescu, Seldon Technologies, Inc., USA; N. Spaulding, D. Meese, University of Maine, USA

11:20 AM

Adaptive Diffraction Phenomenon and Microstructural Characterization of Nanodomain Materials

Y. U. Wang*, W. Rao, Virginia Tech, USA

Fundamentals & Characterization: The Effect of Electrical (and Electromagnetic) Fields and Stress (and Capillarity) on Diffusional Transport in Ceramics and Related Phenomena

Interface Kinetics

Room: 311

Session Chair: Rishi Raj, University of Colorado

8:00 AM

Influence of an Electric Field on Equilibria and Kinetics in Ceramics (Invited)

H. Conrad*, North Carolina State University, USA

8:40 AM

Influence of Electrical Fields on Grain Growth in Ceramics

S. Ghosh, A. H. Chokshi, Indian Institute of Science, India; R. Raj*, University of Colorado at Boulder, USA

9:00 AM

Electrical field enhances the grain growth in MgAl₂O₄ spinel

B. Franck*, C. Jacques, N. Nicolas, B. Alain, University of Lille1, France

9:20 AM

Break

Li+ Batteries

Room: 311

Session Chair: Rishi Raj, University of Colorado

10:00 AM

Lithium metal oxide electrodes with structurally integrated Li₂MnO₃ for advanced lithium-ion batteries (Invited)

S. Kang*, M. M. Thackeray, Argonne National Laboratory, USA

10:40 AM

Analysis of Surface Interfaces and Interphases (Invited)

A. Dillon*, S. Asher, C. Perkins, D. Gillaspie, E. Whitney, National Renewable Energy Laboratory, USA; S. Lee, University of Colorado, USA

11:20 AM

Polymer derived ceramics for lithium-ion batteries (Invited)

D. Ahn, S. Lee*, R. Raj, University of Colorado, USA

Iron & Steel: Steel Product Metallurgy and Applications

Material Testing and Characterization

Room: 330

Session Chair: Lifeng Zhang, Missouri University of Science and Technology

8:00 AM

Deformation and Fracture of TRIP 700 Steel by Digital Image Correlation

V. Savic*, L. G. Hector, P. D. Zavattieri, General Motors, USA; W. Tong, Southern Methodist University, USA

8:20 AM

Propagating Deformation Bands in TWIP Steel from Digital Image Correlation

P. D. Zavattieri*, L. G. Hector, General Motors Research and Development, USA; J. R. Fekete, General Motors, USA

8:40 AM

Computer Modeling of Induction Heating Processes to Ensure Superior Coil Designs

V. Rudnev*, Inductoheat, Inc., USA

9:00 AM

Deformation and Hardening Characteristics of Low Carbon Steel at Elevated Temperature

K. Maciejewski*, O. Gregory, H. Ghonem, University of Rhode Island, USA

9:20 AM

Break

9:40 AM

Using NDT Image Processing Analysis to Study the Soundness and Cleanliness of Accelerated Cooled Continuously Cast Steel Slabs

M. R. Allazadeh*, C. Garcia, K. J. Alderson, A. J. DeArdo, University of Pittsburgh, USA

10:00 AM

Effect of Substrate Hardness on Performance of An Alternative Stamping Die Material

O. N. Cora*, M. Koc, Virginia Commonwealth University, USA

10:20 AM

Specimen Configurations for Gleeble Dilatometry

C. Samuel, S. Viswanathan*, The University of Alabama, USA

10:40 AM

Instrumented hole expansion testing

A. Karellova*, E. Werner, Technische Universitaet Muenchen, Germany; A. Pichler, voestalpine Stahl Linz GmbH, Austria; C. Kremaszky, Technische Universitaet Muenchen, Germany; T. Hebesberger, voestalpine Stahl Linz GmbH, Austria

11:00 AM

Bake Hardening Steel (BH220) Characterization

S. Ghosal*, B. R. Gaigali, S. P. Joshi, M. M. Ogale, Tata Motors, India

11:20 AM

Reception of Borized Coatings Eutectic Type on Steel in Conditions Self-propagating High-temperature Synthesis

B. Sereda*, ZSEA, Ukraine

Iron & Steel: Refractory Innovations and Novel Applications in Iron & Steel Manufacture

Refractories for Iron and Steel I

Room: 329

Session Chair: Dana Goski, Allied Mineral Products

10:00 AM

Composite Design Technology Development for High Performance Sliding Gate Materials

P. G. Desai*, M. R. Snyder, D. L. DeBastiani, Vesuvius, USA

10:20 AM

Casthouse Refractory Systems

Y. C. Ma, R. G. Brenneman*, C. R. Larkin, F. R. van Laar, Allied Mineral Products, Inc., USA

10:40 AM

Low temperature oxidation on magnesia carbon brick

Y. M. Lee*, ArcelorMittal Steel, USA

11:00 AM

Modeling of Thermo-Mechanical Effects of Covering a Ladle During Continuous Casting on Refractory Behavior

W. L. Headrick*, Missouri Refractories, USA; A. R. Hanifi, University of Limerick, Ireland; A. Eilaghi, A. Salary, F. Golestani-Fard, Iran University of Science and Technology, Iran; J. Canon, Wahl Refractories, USA

11:20 AM

An Attempt to Enhance BOF Productivity: Role of Hot Metal Transfer Ladle Lining at Durgapur Steel Plant

S. Sarkar*, T. K. Pal, N. K. Ghosh, S. K. Garai, P. Chintaiyah, M. K. Kujur, P. K. Dutta, A. N. Misra, Sreel Authority of india Limited, India

Materials & Systems: Advances in Biomedical and Biomimetic Materials

Surface Modification of Biomaterials

Room: 333

Session Chairs: Bret Chisholm, North Dakota State University; Shane Stafslie, North Dakota State University

8:00 AM

Polysiloxane Coatings Containing Tethered Antimicrobial Moieties (Invited)

B. Chisholm*, P. Majumdar, S. Stafslie, J. Daniels, A. Kugel, North Dakota State University, USA

8:20 AM

Surface Modification of Implantable Neural Electrode Arrays (Invited)

X. T. Cui*, A. Erdrin, C. F. Lagenaur, University of Pittsburgh, USA

8:40 AM

Combinatorial/High-Throughput Methods for the Rapid Discovery of Antimicrobial Coatings and Materials for Biomedical Applications (Invited)

S. J. Stafslie*, B. Chisholm, P. Majumdar, J. Bahr, J. Daniels, D. Christianson, North Dakota State University, USA

9:00 AM

Surface Modification of Biomaterials Using Electro Plasma Technology

P. George*, CAP Technologies LLC, USA; V. Singh, Louisiana State University, USA; E. Daigle, CAP Technologies LLC, USA

9:20 AM

Influence of Mg and Y dopants on electrical polarization of hydroxyapatite ceramics

S. Bodhak*, S. Bose, A. Bandyopadhyay, Washington State University, USA

9:40 AM

Break

10:00 AM

Molecular Modulation in Biomaterials (Invited)

R. Qiu*, Lawrence Livermore National Laboratory, USA; M. Weaver, University of California, USA; R. Friddle, Lawrence Livermore National Laboratory, USA; A. Wierzbicki, University of South Alabama, USA; W. Casey, University of California, USA; J. De Yoreo, Lawrence Berkeley National Laboratory, USA

10:20 AM

Interfacial Energetics of Protein Adsorption from Aqueous Buffer to Surfaces with Varying Hydrophilicity (Invited)

P. Cha*, E. Vogler, V. Fiore, Penn State University, USA

10:40 AM

Advances in Surface Modification of Biomaterials (Invited)

V. Singh*, Q. Nguyen, T. Monroe, J. Goettert, Louisiana State University, USA

11:00 AM

Use of dye-embedded silicone elastomers to prevent Catheters Related Infections

C. Piccirillo*, I. P. Parkin, S. Perni, M. Wilson, J. Pratten, University College London, United Kingdom

11:20 AM

Chemical-Hydrothermal Combined Synthesis of Bioactive TiO₂ and CaTiO₃ Films on Ti Surfaces

M. Ueda*, M. Ikeda, Kansai University, Japan; M. Ogawa, Daio Steel Co., Ltd, Japan

11:40 AM

Tribological Behavior of Titanium Alloys in Biocompatible Solutions

S. N. Paul*, Visvesvaraya National Institute of Technology, Nagpur (VNIT), India; S. Sahu, Indian Institute of Technology, India; M. Roy, Defence Mteallurgical Research laboratory, India

Materials & Systems: Enabling Surface Coating Systems: Science and Technology

Environmental Barrier Coatings

Room: 335

Session Chair: H. T. Lin, Oak Ridge National Laboratory

8:00 AM

Flexible Approach to Selecting and Applying EBC Coating Systems for Application at Elevated Temperatures (Invited)

C. A. Lewinsohn*, B. Nair, H. Anderson, Ceramatec, Inc., USA

8:40 AM

Develop SiAlCN Ceramics for Environmental Barrier Coating Applications (Invited)

L. An*, University of Central Florida, USA; Y. Wang, Northwestern Polytechnical University, China

9:20 AM

Evaluation of the Corrosion Resistance of Fe-Al-Cr Alloys in a Simulated Coal Combustion Environment

R. Deacon*, Johns Hopkins University Applied Physics Lab, USA; J. DuPont, C. Kiely, A. Marder, Lehigh University, USA; P. Tortorelli, Oak Ridge National Laboratory, USA

9:40 AM

Break

10:00 AM

Effect of gelatin additions on the corrosion resistance of cerium based conversion coatings

W. Pinc*, P. Yu, M. O'Keefe, W. Fahrenholtz, T. O'Keefe, Missouri University of Science and Technology, USA

10:20 AM

Effect of Phosphate Source on the Post-treatment of Cerium Based Conversion Coatings on Al2024-T3

D. Heller*, M. O'Keefe, W. Fahrenholtz, Missouri University of Science and Technology, USA

10:40 AM

The effect of phosphate additions on the corrosion resistance of cerium conversion coatings on aluminum alloy 7075 – T6

S. Joshi*, M. O. Keefe, W. G. Fahrenholtz, T. O. Keefe, Missouri University of Science and Technology, USA

11:00 AM

Effect of Al Addition on the Structure of Vapor-Deposited Stainless Steel-Aluminum Coatings

U. R. Seelam*, C. Suryanarayana, University of Central Florida, USA; N. Sastry, R. Wei, Southwest Research Institute, USA

11:20 AM

Comparison of HVOF sprayed CoNiCrAlY coating on Incoloy 909 and Inconel 718

B. Mettupalayam*, K. Shanker, Standard Aero, Canada; N. Richards, University of Manitoba, Canada

11:40 AM

High Temperature Corrosion of some Ni-Base Superalloys in the Presence of ZnSO4

G. Goyal*, Government College of Engineering & Technology, India; R. Gupta, Government College of Engineering and Technology, India; H. Singh, BBSB Engineering College, India; S. Prakash, Indian Institute of Technology Roorkee, India

Materials & Systems: International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites

Rapid Prototyping

Room: 336

Session Chair: John Halloran, University of Michigan

8:00 AM

Ceramic Manufacture By Photopolymerization: Stereolithography And Large Area Maskless Photopolymerization (Invited)

J. W. Halloran*, C. Torres-Garibay, V. Tomeckova, C. Bae, University of Michigan, USA; S. Das, Georgia Institute of Technology, USA

8:40 AM

Integrally Cored Ceramic Investment Casting Molds fabricated by Ceramic Stereolithography

C. Bae*, J. W. Halloran, University of Michigan, USA

9:00 AM

Criteria for preventing segregation in layers built by Ceramic Stereolithography (CerSLA) : Degree of segregation parameter (β)

C. Bae*, J. W. Halloran, University of Michigan, USA

9:20 AM

Terpene-based Thermoreversible Photocurable Vehicle for Ceramics

V. Tomeckova*, C. Torres-Garibay, J. W. Halloran, University of Michigan, USA

9:40 AM

Break

10:00 AM

Terpene System-Acrylate Monomer Phase-Change Photopolymerizable Material Compositions

C. Torres-Garibay*, V. Tomeckova, J. W. Halloran, University of Michigan, USA

10:20 AM

Characterization of Highly Loaded Photopolymerizable Suspensions

C. Torres-Garibay*, V. Tomeckova, C. Bae, J. W. Halloran, University of Michigan, USA

10:40 AM

Shrinkage During Polymerization of Ceramic Suspensions

V. Tomeckova*, C. Torres-Garibay, C. Bae, J. W. Halloran, University of Michigan, USA

11:00 AM

Quantifying particle size segregation by differential sedimentation of powder

C. Bae*, J. W. Halloran, University of Michigan, USA

11:20 AM

RF processing for low energy glass, armor, and solar panel lamination

S. M. Allan*, M. L. Fall, H. S. Shulman, Ceralink Inc, USA

Nanotechnology: Controlled Processing of Nanoparticle Structures and Composites

Nano-enabled Films

Room: 408

Session Chair: Ian Nettleship, University of Pittsburgh

8:00 AM

Processing, Microstructure, and Mechanical Behavior of TiO2 Nanotubes on Ti (Invited)

G. Crawford, N. Chawla*, Arizona State University, USA

8:40 AM

Reversible Transition from Superhydrophobic to Superhydrophilic SU8 Pillars Using TiO2 Nanocrystals

G. Caputo*, B. Cortese, C. Nobile, L. Manna, R. Cingolani, A. Athanassiou, D. P. Cuzzoli, NNL-ISUFI University of Salento, Italy

9:00 AM

Electron Beam Induced Fabrication of Nanodendritic Tree-structures on Insulator Substrates

K. Furuya*, M. Song, K. Mitsuishi, National Institute for Materials Science, Japan

9:20 AM

Hydrothermal Production and Characterization of Structures Grown on Titanium Metal

J. D. Sorge*, D. P. Birnie, Rutgers University, USA

9:40 AM

Break

10:00 AM

Properties of Alumina Dielectrics via Ink Jet Process

E. Koo*, J. Kim, Korea Institute of Ceramic Engineering & Technology, South Korea

10:20 AM

Inkjet printing of nanocrystalline titania layers for dye sensitized solar cells

S. Phadke*, A. Jackson, D. P. Birnie, III, Rutgers University, USA

10:40 AM

Processing of Electrospun Ceramic Nanoparticles and Fibers (Invited)

W. M. Sigmund*, University of Florida, USA

11:20 AM

Formation of Composite Electrodeposited Ni-WC Coatings

R. K. Saha*, T. Khan, University of Calgary, Canada

11:40 AM

Orientation Effect on Stiffness of Layer-by-Layer Assembled Nano-Composite Films

L. Sui*, N. A. Kotov, J. Kieffer, University of Michigan, USA

12:00 PM

Nanostructured TiN/CNx Multilayer Films

A. Vyas*, The Hong Kong Polytechnic University, China; K. Li, Y. Shen, City University of Hong Kong, China

Nanotechnology: Nano-Materials for Electronic & Multifunctional Applications

Nanotubes, Nanorods and Nanowires

Room: 409

Session Chair: Siu-Wai Chan, Columbia University

8:00 AM

Advances in Synthesis and Application of Carbon Nanotube Materials (Invited)

V. Shanov*, Y. Yun, M. Schulz, University of Cincinnati, USA

8:40 AM

Production of nano silicon carbide rods by high temperature arc plasma heating of silicon carbide grains

B. B. Nayak*, S. K. Pradhan, B. K. Mishra, IMMT, India

9:00 AM

Growth of Carbon Nanotubes on Porous Microcellular Carbon Substrates

I. T. Barney*, S. M. Mukhopadhyay, A. G. Jackson, Wright State University, USA

9:20 AM

Ceramic Nano-structures without Lithography (Invited)

S. A. Akbar*, Ohio State University, USA

10:00 AM

Synthesis, Characterization, and Properties of Metal-Oxide-Metal Heterojunction Nanowires

E. D. Herderick*, N. P. Padture, The Ohio State University, USA

Nanoscale Films and Coatings

Room: 409

Session Chair: Siu-Wai Chan, Columbia University

10:20 AM

Novel 3-D Micro/Nanostructured Sn/SnO₂ Films

Y. Sun*, University of South Carolina, USA; J. Liang, EMC Corp., USA; X. Li, University of South Carolina, USA

10:40 AM

Atomic Layer Deposition of ceramic films on particles using a fluidized bed reactor

D. M. King*, X. Liang, A. W. Weimer, University of Colorado, USA

11:00 AM

Improved Electronics Reliability for Thin Film Smart Materials When Exposed to Severe Longitudinal Vibrations

W. D. Nothwang*, M. Cole, D. Demaree, S. Hirsh, C. Hubbard, E. Ngo, U.S. Army Research Laboratory, USA

11:20 AM

Structural, Mechanical and Tribological Properties of Nanocrystalline Diamond Films

H. Gomez*, H. Jeedigunta, A. Kumar, University of South Florida, USA

Processing & Product Manufacturing: International Symposium on Ceramic Matrix Composites

Ceramic Fiber Composites

Room: 413

Session Chair: Raj Singh, University of Cincinnati

8:00 AM

Recent Research Trends of Advanced Fiber-Reinforced Ceramic Matrix Composites in Japan (Invited)

Y. Kagawa*, The university of Tokyo, Japan

8:40 AM

Processing and High Temperature Mechanical Properties of Si/SiC Composites Fabricated by Melt Infiltration (Invited)

R. N. Singh*, University of Cincinnati, USA

9:20 AM

Effects of Environment on Creep Behavior of Nextel 720™/Alumina-Mullite Ceramic Composite at 1200 °C

M. Ruggles-Wrenn*, C. Genelin, Air Force Institute of Technology, USA

9:40 AM

Break

10:00 AM

Microstructural Concepts for Robust Oxide Composites (Invited)

F. Zok*, University of California, Santa Barbara, USA

10:40 AM

Distinguished Functions Making the Best Use of the Unique Composite Structures (Invited)

T. Ishikawa*, Ube Industries, Ltd., Japan

11:20 AM

Foreign Object Damage Behavior in Ceramic Matrix Composite at Ambient Temperature

S. R. Choi, D. Alexander*, Naval Air Systems Command, USA

Processing & Product Manufacturing: Joining of Advanced and Specialty Materials X

Joining of Ceramics

Room: 410

Session Chair: Michael Halbig, NASA Glenn Research Center

8:00 AM

The sources of flaws in air brazed joints

J. Darsell*, K. Weil, Pacific Northwest National Laboratory, USA

8:20 AM

Mechanical strength of air brazed joints

J. Darsell*, K. Weil, Pacific Northwest National Laboratory, USA

8:40 AM

Large area joining of Sialon to Steel by reactive brazing

S. Boddapati*, D. R. Siddle, S. Brahmandam, I. Spitsberg, Kennametal, Inc, USA

9:00 AM

Effect of Pressure on Air Brazed Alumina Joints

A. Ibrahim*, F. Ul Hasan, University of Engg and tech , Pakistan

9:20 AM

Joining of Silicon Carbide: Diffusion Bond Optimization and Characterization

M. Halbig*, M. Singh, Army Research Laboratory, USA

9:40 AM

Break

10:00 AM

Active Metal Brazing and Characterization of Brazed Joints in C-C and C-SiC Composites to Cu-clad-Molybdenum System

M. Singh*, Ohio Aerospace Institute, USA; R. Asthana, University of Wisconsin-Stout , USA

10:20 AM

Joining of Zirconium Diboride-Based Ceramic Composites to Metallic Systems for High-Temperature Applications

R. Asthana*, University of Wisconsin-Stout, USA; M. Singh, Ohio Aerospace Institute, USA

Processing & Product Manufacturing: Processing, Properties and Performance of Composite Materials

Properties of Composite Materials

Room: 412

Session Chairs: Amit Misra, Los Alamos National Laboratory; Troy Topping, University of California, Davis

8:00 AM

Thermal Transport in Composite Materials and Its Interfaces (Invited)

A. Roy*, Air Force Research Laboratory, USA

8:40 AM

Investigation of Absorptivity for Fiber Laser Assisted Machining of Silicon Nitride

F. Sciammarella, S. Panguntani*, Northern Illinois University, USA

9:00 AM

Fracture and Fatigue of Implantable Cables

J. Lewandowski*, R. Varadarajan, B. Smith, Case Western Reserve University, USA

9:20 AM

Aging of Mechanically Alloyed Cu₂Fe₄W₄

A. O. Aning*, A. Rojas, N. Monsegue, Virginia Tech, USA

9:40 AM

Break

10:00 AM

Sliding Wear and Damping Characteristics of Fly ash reinforced A356 Al Matrix Composites

M. K. Surappa*, S. Sarappa, Indian Institute of Science, India

10:20 AM

Improving the transverse tensile strength of power metallurgy Al-Y-Ni-Co alloy through the introduction of SiC particles into monolithic alloy

Y. Wang*, R. S. Mishra, Missouri University of Science & Technology, USA; T. J. Watson, Pratt & Whitney, USA

10:40 AM

Mechanical Properties of TiB/Ti-6Al-4V Metal Matrix Composite Prepared by Spark Plasma Sintering

H. Izui*, Nihon University, Japan

11:00 AM

Damage Fractography of C/C-SiC Composite at Elevated Temperature under Loads

V. K. Srivastava*, S. Singh, Institute of Technology, India

Keynote & Lectures

Robert B. Sosman Lecture

Room: 406

1:00 PM

Interfacial Kinetic Engineering: How Far Have We Come Since Kingery's Inaugural Sosman Address? (Invited)

M. P. Harmer*, Lehigh University, USA

Special Topics: Industry Track 2008

Industry Track 2008, Wednesday PM

Room: Hall A

2:00 PM

Roll Failure Analysis, Causes and Prevention (Invited)

J. Sychterz*, Union Electric Steel, USA

2:40 PM

Roll Failure Analysis (Invited)

G. Ott, J. Sychterz*, Union Electric Steel, USA

3:20 PM

Roll Inspection Equipment (Invited)

A. Payling*, Sarclad North America LP, USA

Special Topics: Perspectives from Emerging Materials Professionals: Early Strategies for Career Development

Key Strategies for Career Development II

Room: 403

Session Chairs: Nathan Ashmore, The Boeing Company; Emily Kinser, IBM

2:00 PM

Introduction

2:10 PM

Can You Spell Entrepreneur? (Invited)

L. Hanke*, Materials Evaluation and Engineering, Inc., USA

2:50 PM

ASM - You and the Engineering Needs of the Future (Invited)

R. Fabian*, Bodycote Thermal Processing, USA

3:30 PM

Break

3:50 PM

Navigating International Waters: Perspectives from Overseas Materials Laboratory Implementation Experience

J. Auliff*, Sauer-Danfoss, USA

4:10 PM

GE Aviation's Edison Engineering Development Program and Life after the Program

M. Maly*, General Electric Aviation, USA

4:30 PM

The Benefits of Society Involvement to the Emerging Professional

J. Frajford*, U.S. Dept. of Energy, USA

Electronic & Magnetic Materials: Fabrication, Microstructures and Interfacial Properties of Multifunctional Oxide Thin Films

Preparation and Properties of Oxide Films

Room: 315

Session Chairs: Kui Yao, Institute of Materials Research and Engineering; Matthew Chisholm, Oak Ridge National Laboratory

2:00 PM

Heterolayered Pb(Zr_{0.52}Ti_{0.48})O₃/CoFe₂O₄ Multiferroic Thin Films (Invited)

J. Wang, C. Sim*, R. Zheng, A. Pan, National University of Singapore, Singapore

2:40 PM

Growth of BST Films with a Seeding Layer and Application in Uncooled IR Pyroelectric Detector (Invited)

Y. Li*, J. Zhu, C. Wu, W. Zhang, State Key Laboratory of Electronic Thin Films and Integrated Devices, China

3:20 PM

Break

3:40 PM

Fabrication and microstructure of the BaTiO₃ thin films on Ti substrate

J. Jiang*, J. He, E. Meletis, The University of Texas at Arlington, USA; Z. Yuan, J. Liu, J. Weaver, C. Chen, University of Texas at San Antonio, USA; B. Lin, V. Giurgiutiu, University of South Carolina, USA; R. Guo, A. Bhalla, University of Texas at San Antonio, USA

4:00 PM

Development of ferromagnetic oxide semiconductor thin films towards spintronics applications (Invited)

K. Fujita*, Kyoto University, Japan

Electronic & Magnetic Materials: Ferroelectrics and Multiferroics

Single Crystals/Relaxors

Room: 318

Session Chairs: Xiaoli Tan, Iowa State University; Armen Khachaturyan, Rutgers University

2:00 PM

Control of Ferroelectric and Magnetic Phases in Multiferroic Compounds through External Pressure and Substitutions (Invited)

B. Lorenz*, R. P. Chaudhury, University of Houston, USA; C. R. dela Cruz, University of Tennessee, USA; C. Chu, University of Houston, USA

2:40 PM

Dielectric and ferroelectric properties in the Pb(Mg_{1/3}Nb_{2/3})O₃-PbZrO₃ solid solution with long range cation order

X. Zhao*, X. Tan, Iowa State University, USA

3:00 PM

Break

3:40 PM

Enhanced piezoelectricity in relaxor ferroelectrics: a phenomenological approach (Invited)

J. Liu*, Nanjing University, China

4:20 PM

Fatigue Crack Growth Behavior of PMN-PT Piezoelectric Single Crystals

M. Pan*, E. P. Gorzkowski, Naval Research Laboratory, USA

4:40 PM

Polarized Raman spectroscopy study of relaxor-ferroelectric PbSc_{0.5}Nb_{0.5}O₃ single crystal

A. Kumar*, R. S. Katiyar, UPR, USA; S. Lushnikov, Ioffe Physical Technical Institute, Russian Federation

5:00 PM

The effect of NaNbO₃ substitution into Pb(Zn_{1/3}Nb_{2/3})O₃-PbTiO₃ single crystal on the piezoelectric properties

J. Park*, Korea Institute of Science and Technology, South Korea; J. Lee, University of Pittsburgh, USA; K. Hong, Seoul National University, South Korea

Electronic & Magnetic Materials: International Symposium on Advanced Dielectric Materials & Electronic Devices

Design, Preparation, and Application

Room: 317

Session Chairs: K.M. Nair, E.I. duPont de Nemours & Co., Inc.; Vojislav Mitic, ITN SASA

2:00 PM

Multi-functions of LaNiO₃ Layer for Integrated BaTiO₃ Film on Si (Invited)

K. Kato*, S. Kayukawa, K. Tanaka, K. Suzuki, National Institute of Advanced Industrial Science and Technology, Japan

2:20 PM

Recent Investigations of Cobaltite Thermoelectric Materials at NIST (Invited)

W. Wong-Ng*, M. Otani, G. Liu, E. Thomas, N. Lowhorn, Q. Huang, P. Schenck, M. Green, NIST, USA; J. A. Kaduk, INEOS Technologies, USA

2:40 PM

Percolation Modeling in Composite Dielectrics

V. Chaswal*, V. K. Vasudevan, R. C. Buchanan, University of Cincinnati, USA

3:00 PM

Break

3:40 PM

Nanocalorimetric Investigation of Interfacial Stability in Advanced Electronic Materials (Invited)

L. P. Cook*, R. E. Cavicchi, W. F. Egelhoff, C. B. Montgomery, NIST, USA

4:00 PM

Characterization of SMA and polypyrrole actuator for humanoid face (Invited)

Y. Tadesse*, S. Priya, Virginia Tech, USA

4:20 PM

Preparation and Electrical Properties of Multilayer ZnO Varistors with Water-based Tape Casting

L. Wang*, G. Tang, Tsinghua University, China; Z. Xu, City University of Hong Kong, China

4:40 PM

Dielectric Properties of Rare Earth doped Sr-M Hexaferrites

B. Singh Anterpreet*, T. Kulwant Singh, N. Sukhleen Bindra, Guru Nanak Dev University, India; K. R.k, National Physical Laboratory, India

5:00 PM

Piezoelectric Behaviour of the Blended Systems (NYLON 6 / NYLON 11)

S. A. Pande*, H. Raisoni College of Engineering, India; D. S. Kelkar, Institute of Science, India; D. R. Peshwe, Visvesvaraya National Institute of Technology, India

Electronic & Magnetic Materials: Low Temperature Processing for Integration of Microelectronics Devices

Piezoelectric Integration

Room: 319

Session Chair: Paul Clem, Sandia National Laboratories

2:00 PM

Shear Mode Ultrasonic Motor and Ink-jet Head Using Lead-Free Alkaline Niobate Ceramics (Invited)

T. Tsurumi*, E. Li, R. Suzuki, Tokyo Institute of Technology, Japan; S. Uraki, Konica Minolta IJ Technologies, Inc., Japan; T. Hoshina, Tokyo Institute of Technology, Japan

2:40 PM

Low temperature processing of piezoelectric thick films by designing of powder morphology and composition (Invited)

M. Kosec*, J. Holc, D. Kuscer, Jozef Stefan Institute, Slovenia

3:20 PM

Pulse excimer laser annealing of ferroelectric thin films for MEMs applications (Invited)

S. Bharadwaja*, R. Akarapu, S. Trolier-McKinstry, The Pennsylvania State University, USA; H. Beratan, D. Arbutnot, L-3 Communications IP, USA

Electronic & Magnetic Materials: Perovskite Oxides: Films, Nanostructures, Properties, and Applications

Physical Properties of Perovskite Oxides II

Room: 316

Session Chair: Ashok Kumar, University of Puerto Rico

2:00 PM

Multiferroics phenomenon in Pb(B`B``)O3 relaxor thin films and ceramics (Invited)

R. S. Katiyar, A. Kumar*, M. Correa, I. Rivera, UPR, USA

2:40 PM

Studies on Gas Sensing Performance of (Ba0.8Sr0.2)(Sn0.8Ti0.2)O3 Thick Film Resistors

V. B. Gaikwad*, K.T.H.M. College, Nashik, India; L. A. Patil, Pratap.College, Amalner, India

3:00 PM

Break

3:40 PM

Preparation and Electrical Properties of lanthanum-manganese-nickel and lanthanum-manganese-indium oxides (Invited)

C. Kao*, P. Hsu, National Cheng Kung University, Taiwan

4:20 PM

Metal oxides as possible thermoelectric material (Invited)

Q. Li*, Pennsylvania State University, USA

5:00 PM

The Effect of Electrode Materials on Resistive Switching in Heterostructures Containing Manganese Perovskites

J. Meador*, S. Choi, M. Noman, R. Hussin, J. A. Bain, M. Skowronski, P. Salvador, Carnegie Mellon University, USA

Environmental & Energy Issues: Frontiers in Materials Science: Closing the Nuclear Fuel Cycle

Advanced Nuclear Fuels

Room: 326

Session Chair: Srinath Viswanathan, University of Alabama

2:00 PM

Thermodynamics of Advanced Oxide Nuclear Fuels (Invited)

M. Stan*, Los Alamos National Laboratory, USA; P. Cristea, University of Bucharest, Romania; S. Y. Hu, Pacific Northwest National Laboratory, USA; B. Mihaila, M. Valone, A. D. Andersson, L. A. Morales, K. J. McClellan, Los Alamos National Laboratory, USA; J. C. Ramirez, Exponent, Inc., USA

2:40 PM

Adsorption of Uranium and Cadmium from Process Solutions (Invited)

Z. Zhang, R. Reddy*, University of Alabama, USA

3:20 PM

Break

3:40 PM

Fabrication of (U,Dy)N Fuel Pellets

B. J. Jaques*, B. M. Marx, M. F. Hurley, D. D. Osterberg, D. P. Butt, Boise State University, USA

4:00 PM

Physico-chemical Properties of Erbium-Bearing Super High Burnup Fuel

S. Yamanaka*, M. Katayama, K. Kurosaki, M. Uno, Osaka University, Japan; M. Yamasaki, T. Kuroishi, Nuclear Fuel Industries, Ltd, Japan

4:20 PM

Characterization of Oxide Precipitates Observed as a Gray Phase in High-Burnup Mixed Oxide Fuels for Fast Reactors

K. Kurosaki*, Osaka University, Japan; K. Tanaka, M. Osaka, Japan Atomic Energy Agency, Japan; T. Maekawa, H. Muta, M. Uno, S. Yamanaka, Osaka University, Japan

Environmental & Energy Issues: Fuel Cells: Materials, Processing, Manufacturing, Balance of Plant and Systems Operation

Corrosion, Degradation and Protection Technologies

Room: 325

Session Chairs: S.K. Sundaram, Pacific Northwest National Lab; Chun Lu, Siemens Energy

2:00 PM

Structural Degradation Mechanisms of SOFCs Anode and FEA for Long Term Anode Material Behavior in Coal Syngas Environment (Invited)

G. Iqbal, B. S. Kang*, West Virginia University, USA

2:40 PM

Development of a New Aluminizing Process to Mitigate Chromium Volatility in Planar SOFC Stacks

J. Choi*, S. K. Weil, Pacific Northwest National Laboratory, USA

3:00 PM

Break

3:40 PM

Automotive Composite Fuel Cell Bipolar Plates: Environmental Stress Cracking and Adhesive Bonding Concerns

R. H. Blunk*, D. Lisi, Y. Lai, V. Kumar, General Motors R&D Center, USA

4:00 PM

Oxidation behavior of Crofer 22 interconnects for SOFC in coal syngas

Y. Li*, R. Ravi Dastane, Y. Jiang, X. Liu, West Virginia University, USA; C. Johnson, R. Gemmen, National Energy Technology Laboratory, USA

4:20 PM

Embrittlement of Palladium Membrane Grain Boundary by Sulfur Segregation

R. Le Gall*, A. Hassini, H. Mourton, Nantes University, France

4:40 PM

Defects in $\text{CaFeO}_{3.8}$ perovskite

S. Lee*, V. R. Manga, Z. Liu, The Pennsylvania State University, USA

Environmental & Energy Issues: Green Technologies for Materials Manufacturing and Processing

Environmentally Benign Process II

Room: 323

Session Chairs: Mrityunjay Singh, Ohio Aerospace Institute; Koji Watari, AIST

2:00 PM

Microwave Assisted Technologies for Ceramics and Chemical Processing (Invited)

S. M. Allan*, Ceralink Inc, USA

2:40 PM

Green Manufacturing Strategy and Approach for Reducing Organic Binders

K. Watari*, K. Sato, T. Nagaoka, AIST, Japan

3:00 PM

Break

3:40 PM

Environmentally Benign Utilization of Fossil Fuel Resources

S. K. Sundaram*, G. G. Muntean, Pacific Northwest National Laboratory, USA

4:00 PM

Sintering Behavior of Si_3N_4 Ceramics Prepared by Energy-saving Post-reaction Technique

T. Wakihara*, H. Yabuki, J. Tatami, K. Komeya, T. Meguro, Yokohama National University, Japan; H. Hyuga, H. Kita, Advanced Industrial Science and Technology, Japan

4:20 PM

Ultrahigh Porous Cordierite with Micrometer-sized Cells for Environmental Purification

M. Fukushima*, M. Nakata, Y. Yoshizawa, National Institute of Advanced Industrial Science and Technology (AIST), Japan

4:40 PM

Low-cost Solid Geopolymeric Material for Water Purification

M. Alshaaer*, B. El-Eswed, R. Yousef, F. Khalili, H. Khouri, University of Jordan, Jordan

Environmental & Energy Issues: Thermoelectric Materials: Science, Technology and Applications

Thermoelectric Materials Properties and Characterizations

Room: 324

Session Chairs: Jihui Yang, General Motors R&D Center; Thierry Caillat, NASA Jet Propulsion Laboratory

2:00 PM

Influence of Microstructure on Transport Properties of Bulk Thermoelectrics (Invited)

H. Wang*, Oak Ridge National Lab, USA

2:30 PM

Lanthanum Telluride for High Temperature Thermoelectric Application

A. F. May*, Caltech, USA; J. Fleurial, Jet Propulsion Laboratory, USA; G. Snyder, Caltech, USA

2:50 PM

Effect of V, Nb and Ta Additions on Thermoelectric Properties of Directionally Solidified Single-Phase Half-Heusler $(\text{Zr,Hf})\text{NiSn}$ Alloys

Y. Kimura*, H. Ueno, Y. Mishima, Tokyo Institute of Technology, Japan

3:10 PM

Break

3:40 PM

Structural analysis of thermoelectric AgSbTe_2 and $(\text{AgSbTe}_2)_x(\text{PbTe})_{1-x}$ using high resolution transmission electron microscopy (Invited)

L. Wu*, J. Zheng, J. Zhou, Q. Li, Brookhaven National Laboratory, USA; J. Yang, General Motors R&D Center, USA; Y. Zhu, Brookhaven National Laboratory, USA

4:10 PM

TEM Investigation of Nanoscale Substructures in Intermetallic Thermoelectric Materials

J. Zhou*, L. Wu, J. Zheng, Y. Zhu, Brookhaven National Lab, USA; J. Yang, GM R&D Center, USA; Q. Li, Brookhaven National Lab, USA

4:30 PM

Effect of porosity on the mechanical properties of Lead-Antimony-Silver-Tellurium (LAST) thermoelectric materials

J. E. Ni*, F. Ren, E. D. Case, E. Timm, Michigan State University, USA; R. M. Trejo, E. Lara-Curzio, Oak Ridge National Laboratory, USA

4:50 PM

Electronic Structure and Thermoelectric Transport Properties of $(\text{Bi}_{0.25}\text{Sb}_{0.75})_2\text{Te}_3$: First-Principles Calculations

M. Oh*, B. Kim, S. Park, H. Lee, Korea Electrotechnology Research Institute(KERI), South Korea

Fundamentals & Characterization: Ceramic Surfaces, Grain Boundaries and Interfaces

Self Organization and Biomineralization

Room: 301

Session Chairs: Helen Chan, Lehigh University; Ivar Reimanis, Colorado School of Mines

2:00 PM

Using Ice to Mimic Nacre: From Structural Materials to Artificial Bone (Invited)

A. P. Tomsia*, E. Munch, E. Saiz, Lawrence Berkeley Lab, USA

2:40 PM

Nano to Macroscale 3-D Biomineral Architecture of Red Coral (Invited)

D. P. Vielzeuf*, N. Floquet, J. Garrabou, CNRS, France

3:20 PM

Influence of electrical polarization on in vitro dissolution behavior of sol gel derived hydroxyapatite coating

S. Bodhak*, S. Bose, A. Bandyopadhyay, Washington State University, USA

3:40 PM

Dissociative chemisorption of water onto silica surfaces and enhanced hydronium ion formation

S. Garofalini*, Rutgers University, USA

Fundamentals & Characterization: Discovery and Optimization of Materials through Computational Design

3D Modeling and Design of Microstructures

Room: 303

Session Chair: Nik Chawla, Arizona State University

2:00 PM

The development of anisotropic grain boundary character distributions: experimental observations and modeling (Invited)

G. Rohrer*, CMU, USA

2:40 PM

Microstructural Design of Materials for Optimized Performance (Invited)

K. Thornton*, University of Michigan, USA

3:20 PM

Break

3:40 PM

Using Image-based Mesoscale Simulations to Identify Critical Microstructural Features (Invited)

A. C. Lewis, Naval Research Laboratory, USA; S. Qidwai, Science Applications International Corporation, USA; A. B. Geltmacher*, Naval Research Laboratory, USA

4:20 PM

Computer Simulations of Realistic Three-Dimensional Microstructures (Invited)

A. M. Gokhale*, Y. Mao, Georgia Institute of Technology, USA

5:00 PM

Understanding Deformation Behavior of Materials by Microstructure-Based Simulations (Invited)

N. Chawla*, Arizona State University, USA

5:40 PM

Strain Prediction for Open-Celled Foams through 3D Imaging in a Scalable Modelling Environment

J. K. Farooqi*, F. C. Plaza, L. Margetts, P. Mummery, M. A. Sheikh, The University of Manchester, United Kingdom

Fundamentals & Characterization: Failure Analysis for Problem Solving

Historical Case Studies

Room: 304

Session Chairs: Daniel Dennies, The Boeing Company; Brett Miller, IMR Test Labs; David Moore, Packer Engineering, Inc.

2:00 PM

SWA Flight 1248 Incident at Midway Airport (Invited)

D. Moore*, P. Fenoglio, Packer Engineering, Inc, USA

2:20 PM

Phoenix Wrought Iron Circa 1863 - Mechanical Fibering (Invited)

F. E. Schmidt, Jr. - P.E.*, Engineering Systems Inc, USA

3:00 PM

Break

3:40 PM

Texas A&M University Bonfire Collapse (Invited)

D. Moore*, T. Carlson, Packer Engineering, Inc, USA

4:00 PM

Revisiting the Molasses Spill of 1919 (Invited)

G. A. Wildridge*, IMR Test Labs, USA

4:40 PM

An Historical Review of Fracture Control in Bridges (Invited)

A. W. Pense*, Lehigh University, USA

Fundamentals & Characterization: Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life

Fatigue of Advanced Materials

Room: 305

Session Chairs: D. McDowell, Georgia Tech; T. Nakamura, Hokkaido University

2:00 PM

The Fatigue Behavior of Bulk Metallic Glasses and Their Composites (Invited)

P. K. Liaw*, G. Wang, university of Tennessee, USA; Y. Yokoyama, Tohoku University, Japan; L. Huang, M. Freels, D. Qiao, university of Tennessee, USA; A. Inoue, Tohoku University, Japan

2:40 PM

Fatigue Crack Initiation in Nickel-based Superalloy René 88DT at 593°C

J. Miao*, T. M. Pollock, J. W. Jones, University of Michigan, USA

3:00 PM

Influence of Electrical Discharge Machining on the Fatigue Behavior of Nano-Crystalline Ni

L. Lai, University of California, Irvine, USA; W. Chiou, University of Maryland, USA; J. C. Earthman*, University of California, Irvine, USA

3:20 PM

Break

4:00 PM

Fatigue in High-Performance Titanium Hybrid Laminates (Invited)

R. Dauskardt*, M. Oliver, Stanford University, USA; K. Blohowski, Boeing Phantom Works, USA

4:40 PM

Small fatigue crack growth modeling and its implications for worst-case life prediction

A. Shyam*, E. Lara-Curzio, Oak Ridge National Laboratory, USA; J. Jones, University of Michigan, USA; J. E. Allison, Ford Motor Company, USA

5:00 PM

Fatigue Crack Growth Resistance of Nanocrystalline Copper

R. K. Rajgarhia*, C. Jackson, A. Saxena, University of Arkansas, USA

Fundamentals & Characterization: International Symposium on Defects, Transport and Related Phenomena

Defects and Transport in Ceramics III

Room: 307

Session Chairs: Thomas Mason, Northwestern University; David Cann, Oregon State University

2:00 PM

Kinetics of Cation Distribution and Diffusion in Cobalt Containing Olivines (Invited)

K. D. Becker*, J. Shi, Technische Universität Braunschweig, Germany

2:40 PM

EXAFS of ZITO Thin Films

D. Proffit*, D. Buchholz, R. Chang, M. J. Bedzyk, T. O. Mason, Northwestern University, USA; Q. Ma, Northwestern Synchrotron Radiation Center at Advanced Photon Source, USA

3:00 PM

Break

3:40 PM

Using Isotope Exchange and Diffusion to Probe Space-charge Layers at Interfaces in Complex Oxides (Invited)

R. De Souza*, RWTH Aachen University, Germany

4:20 PM

New Aspects of Defect Structure in CaTiO₃-BaTiO₃ Solid Solutions

S. Lee*, G. Yang, C. A. Randall, The Pennsylvania State University, USA

4:40 PM

Transport and Capacitance Behavior of CuO/ZnO Heterocontact Interfaces (Invited)

D. Cann, Y. Jeon, B. Gibbons*, C. Dandeneau, Oregon State University, USA

Fundamentals & Characterization: Micro- and Nano- Mechanical Behavior of Low-Dimensional Structures and Materials

Micro- and Nano- Mechanical Behavior of Materials - Soft Matter

Room: 308

Session Chairs: Charles Lu, University of Kentucky; Michelle Dickinson, Hysitron, Inc.

2:00 PM

Nanoindentation in Polymeric Materials (Invited)

S. Lee*, C. Liu, C. Lin, National Tsing Hua University, Taiwan

2:20 PM

Accuracy Improvements in the Mechanical Analysis of Polymers with an Atomic Force Microscope (AFM)

G. Moeller*, Arkema Inc., USA

2:40 PM

Nano scale deformation mechanisms in semi-crystalline polymer: in situ atomic force microscopy study and modelling

F. Detrez*, Université des Sciences et Technologies de Lille, France; S. Cantournet, Ecole des Mines de Paris, France; R. Seguela, G. Coulon, Université des Sciences et Technologies de Lille, France

3:00 PM

Break

3:40 PM

Characterizing the inelastic properties of polymer thin films and coatings through cylindrical indentation

Y. Lu*, University of Kentucky, USA; D. M. Shinozaki, University of Western Ontario, Canada

4:00 PM

Non-Destructive High-Resolution Nano-Mechanical Mapping of Low-Dimensional Structures and Materials

N. Gitis*, M. Vinogradov, V. Khosla, CETR, Inc., USA

4:20 PM

Nanomechanics of Self-Assembled Chiral Lipid Tubes (Invited)

J. Fang*, L. An, University of Central Florida, USA

4:40 PM

What roles do nanostructures play in the strengthening and toughening of nacre? (Invited)

X. Li*, University of South Carolina, USA

5:00 PM

Indentation-Controlled Dissolution of 45S5 Bioactive Glass in Phosphate Buffer Solution

D. Li*, University of Kentucky, USA; M. Yang, C. Wu, P. Muralidhar, Paul Laurence Dunbar High School, USA; F. Yang, University of Kentucky, USA

5:20 PM

Quantitative Modulus Maps of Wood Cell Structure

J. Schirer*, Hysitron, Inc., USA

5:40 PM

Microindentation of hemlock leaf cushions: the first step to understanding susceptibility of hemlocks to insect attack

P. Ayayee*, Y. Li, F. Yang, L. K. Rieske-Kinney, University of Kentucky, USA

Fundamentals & Characterization: Performance and Growth of Bulk and Thin Film Materials - Role of Surface and Interface Phenomena during Growth and Processing

Recent Advances in Growth of Inorganic and Organic Thin Film Materials

Room: 306

Session Chair: Nuggehalli Ravindra, New Jersey Institute of Technology

2:00 PM

Growth Thermodynamics of Nano-scaled Alpha-Alumina crystallites

R. Yang*, P. Yu, National Cheng Kung University, Taiwan; C. Chen, Far East University, Taiwan; F. Yen, National Cheng Kung University, Taiwan

2:20 PM

Effect of aligned nanorods in ZnO thin films for the enhanced photoelectrochemical response

S. Shet*, K. Ahn, T. Deutsch, Y. Yan, J. Turner, M. Al-Jassim, National Renewable Energy Laboratory, USA; N. M. Ravindra, New Jersey Institute of Technology, USA

2:40 PM

Growth and Characterization of Substituted Anilines for Nonlinear Optical Applications (Invited)

O. P. Singh, K.N. Government Post Graduate College, India; G. Singh, UP Power Corporation, India; R. N. Rai*, Banaras Hindu University, India

3:20 PM

Break

4:00 PM

Development of di-(8-hydroxyquinoline) Strontium (SrQ2) Polymer for Blue OLED Applications

I. M. Nagpure*, Kamla Nehru College, India

4:20 PM

Optical Properties of Phthalocyanines

S. K. Sikha*, G. Devrani, R. Rivero, N. M. Ravindra, New Jersey Institute of Technology, USA

4:40 PM

Crystal cored fibers growth of organic non-linear optical material

R. N. Rai*, Banaras Hindu University, India

Fundamentals & Characterization: Phase Stability, Diffusion Kinetics and Their Applications (PSDK-III)

Thermodynamics and Phase Stability

Room: 302

Session Chairs: Sudarsanam Babu, The Ohio State University; Raymundo Arroyave, Texas A&M University

2:00 PM

Design of Engineering Materials based on ab initio Thermodynamics and Kinetics (Invited)

J. Neugebauer*, B. Grabowski, L. Ismer, T. Hickel, M. Friak, Max-Planck-Institut für Eisenforschung, Germany

2:40 PM

Ab Initio Investigation of the Finite-Temperature Thermodynamic Properties of Strontium Silicides

R. Arroyave*, Texas A&M University, USA; A. Garay, CINVESTAV - Unidad Querataro, Mexico; M. E. Williams, Texas A&M University, USA; G. Trapaga, CINVESTAV - Unidad Querataro, Mexico

3:00 PM

Break

3:40 PM

Phase stability and selection in Al-Sm binary alloys (Invited)

R. E. Napolitano*, Iowa State University, USA; S. H. Zhou, Ames Laboratory, USA

4:20 PM

Application of Computational Thermodynamics and Kinetics to Predict Weld Microstructure Evolution

S. S. Babu*, Ohio State University, USA

4:40 PM

Determination of phase relations in the quaternary Fe-Ni-Ti-Al system

L. I. Duarte*, C. Leinenbach, Empa, Swiss Federal Laboratories for Materials Testing and Research, Switzerland; U. E. Klotz, FEM, Research Institute for Precious Metals and Metals Chemistry, Germany; J. F. Loeffler, ETH Zurich, Switzerland

5:00 PM

Subsolidus Phase Equilibria in the Zn-In-Sn-O and In-Ga-Zn-O Systems

S. P. Harvey, A. Adler*, K. R. Poeppelmeier, T. O. Mason, Northwestern University, USA

5:20 PM

Solvus boundaries of metastable phases in Al-Mg-Si system: First-principles phonon calculations and thermodynamic modeling

H. Zhang*, Y. Wang, S. Shang, The Pennsylvania State University, USA; C. Wolverton, Northwestern University, USA; L. Chen, Z. Liu, The Pennsylvania State University, USA

5:40 PM

Thermodynamic Evaluation of the Mg-Y-Ni Ternary System

M. Islam*, M. Medraj, Concordia University, Canada

Fundamentals & Characterization: Recent Advances in Structural Characterization of Materials

Electron Microscopy and Electron Diffraction: Developments and Applications I

Room: 309

Session Chairs: Xiaoli Tan, Iowa State University; Ian Reaney, University of Sheffield

2:00 PM

Observing Nanosecond Phenomena at the Nanoscale with the Dynamic Transmission Electron Microscope (Invited)

G. H. Campbell*, N. D. Browning, J. S. Kim, T. LaGrange, B. W. Reed, M. L. Taheri, Lawrence Livermore National Lab, USA

2:40 PM

Microcharacterization of CF8C-Plus and CF8C-Plus+Cu/W Alloys Required to Explain High Temperature Strength and Creep Properties

N. D. Evans*, P. J. Maziasz, J. P. Shingledecker, Oak Ridge National Laboratory, USA; M. J. Pollard, Caterpillar Inc., USA

3:00 PM

Revealing local structural disorder and inhomogeneity using quantitative electron microscopy (Invited)

Y. Zhu*, BNL, USA

3:40 PM

Break

4:00 PM

Tomographic reconstruction of the magnetic vector potential of a magnetic nano-particle by means of Lorentz transmission electron microscopy

C. Phatak, Carnegie Mellon University, USA; M. Tanase, A. K. Petford-Long, Argonne National Laboratory, USA; M. De Graef*, Carnegie Mellon University, USA

4:20 PM

HREM Studies on Nano-scale Pt Catalysts Supported on γ -Al₂O₃

L. Li*, Z. Zhang, University of Pittsburgh, USA; J. H. Kang, S. I. Sanchez, University of Illinois at Urbana-Champaign, USA; Q. Wang, Yeshiva University, USA; L. Wang, D. D. Johnson, University of Illinois at Urbana-Champaign, USA; A. I. Frenkel, Yeshiva University, USA; R. G. Nuzzo, University of Illinois at Urbana-Champaign, USA; J. C. Yang, University of Pittsburgh, USA

4:40 PM

In-situ UHV-TEM study of the reduction of surface oxide islands

G. Zhou*, State University of New York, Binghamton, USA; J. C. Yang, University of Pittsburgh, USA

5:00 PM

Experimental Investigations on Nitrides Stability in a 12CrWMoVNb Steel

F. Mendez Martin*, M. Albu, B. Sonderegger, G. Kothleitner, Graz University of Technology, Austria

5:20 PM

Compositional Characterisation of Secondary Carbides and Complex Nitrides in Chromium Steels

M. Albu*, F. Mendez Martin, G. Kothleitner, Graz University of Technology, Austria

5:40 PM

3D-TEM characterization of metal nanoparticle-dispersed amorphous SiO composite

Y. H. Ikuhara*, K. Yoshida, T. Saito, S. Takahashi, T. Hirayama, Japan Fine Ceramics Center, Japan

Fundamentals & Characterization: The Effect of Electrical (and Electromagnetic) Fields and Stress (and Capillarity) on Diffusional Transport in Ceramics and Related Phenomena

Enhanced Sintering

Room: 311

Session Chair: Rishi Raj, University of Colorado

2:00 PM

The Absence of Plasma in "Spark Plasma Sintering" (Invited)

D. M. Hulbert, D. V. Dudina, D. Jiang, C. Unuvar, U. Anselmi Tamburini, E. J. Lavernia, A. K. Mukherjee*, University of California, USA; A. Anders, J. Andersson, Lawrence Berkeley National Lab, USA

2:40 PM

Effect of Pulsed DC Current and Electric Field on the Growth of Carbide Ceramics during SPS

T. Kondo*, T. Kuramoto, M. Yasumasa, Y. Kodera, M. Ohyanagi, Ryukoku Univ., Japan; Z. A. Munir, University of California, USA

3:00 PM

Field-Assisted Acceleration of Diffusion in Spark-Plasma and Microwave Sintering (Invited)

E. Olevsky*, San Diego State University, USA

Iron & Steel: Refractory Innovations and Novel Applications in Iron & Steel Manufacture

Refractories for Iron and Steel II

Room: 329

Session Chair: Mike Alexander, Riverside Refractories, Inc.

2:00 PM

A New Temperature Independent Cement for Low and Ultra Low Cement Castables

D. Zacherl*, Almatix, INC, USA; A. Buhr, D. Gierisch, H. Gross, Almatix GmbH, Germany; F. Kraaijenbos, G. Wams, Almatix B. V., Netherlands

2:20 PM

Characterization of Silica Fume by Dynamic Viscosity and Thermal Gravimetric Analysis

B. G. Self*, Reno Refractories, Inc., USA

2:40 PM

Solid Solution Effects on Thermal Conductivity

K. Ohara*, J. Smith, Missouri University of Science and Technology, USA; J. Hemrick, Oak Ridge National Laboratory, USA

3:00 PM

Break

3:40 PM

Newly-Developed Technique in Evaluation of Resistance to Slag Corrosion for Refractory at High Temperature

H. Sunayama*, T. Hiroi, M. Kawahara, Kumamoto University, Japan

4:00 PM

Comparison of thermal shock testing between a direct electrical heating method and a water-quenching method with carbon-containing refractories

S. Hosohara*, Y. Fukushima, Y. Kiyota, M. Iiyama, JFE Steel Corporation, Japan; S. Honda, S. Hashimoto, H. Awaji, Nagoya Institute of Technology, Japan

4:20 PM

A Study on the Interfacial Oxygen Behavior in Molten Steel by Electrochemical Method Using ZrO₂ based Solid Electrolyte

W. Kim*, D. Min, YONSEI university, South Korea

Iron & Steel: Steel Product Metallurgy and Applications

Microstructure - Property Correlations III

Room: 330

Session Chair: John Paules, Ellwood Materials Technologies

2:00 PM

Influence of the Epsilon Phase Transition on Microstructure and Dynamic Shear Behavior of 1018 Steel

L. M. Dougherty*, E. K. Cerreta, G. T. Gray, C. P. Trujillo, Los Alamos National Laboratory, USA

2:20 PM

The Effect of Nickel Content on 4330 Steel with Regard to Microstructure and Grain Growth Characterization

E. A. Billitz*, IIT, USA; G. Brada, A. Finkel & Sons, USA; P. Nash, IIT, USA

2:40 PM

Thermo-metallurgical model of the run out table and coiler applied to Ternium Siderar

G. R. Gomez, J. Schich, M. A. Vicente Alvarez*, F. Balzarotti, Tenaris Siderca R&D, Argentina; S. Moriconi, Ternium, Argentina; M. Goldschmidt, T. E. Perez, Tenaris Siderca R&D, Argentina

3:00 PM

Break

3:40 PM

The Influence Of Chemical Composition, Heat Treatment And Microstructure On Fracture Behaviour Of Three Pressure Vessel Steels In "Wet H₂S" Environment

G. Chiofalo*, E. Guglielmino, Università di Messina, Italy; V. Gazzotti, Raffineria di Milazzo, Italy

4:00 PM

Microstructure and tensile behavior of metastable austenitic steels with high Mn content

D. Suh*, S. Park, S. Kim, Korea Institute of Materials Science, South Korea

4:20 PM

Steels for Large Plastic Moulds: Microstructures Arising during the Production Cycle

M. Pinasco, D. Firrao*, M. Fabbreschi, P. Matteis, B. Rivolta, R. Gerosa, A. Ghedini, University of Genoa, Italy

4:40 PM

Effects of TMCP conditions on tensile strength decrease of 780MPa grade steels by PWHT

J. Shimamura*, M. Okatsu, N. Ishikawa, S. Endo, N. Shikanai, JFE Steel Corporation, Japan

Materials & Systems: Advances in Biomedical and Biomimetic Materials

Bioceramics I

Room: 333

Session Chairs: Ryan Roeder, University of Notre Dame; John Nychka, University of Alberta

2:00 PM

Hydroxyapatite Whisker Reinforced Polyaryletherketone for Orthopaedic and Spinal Implants (Invited)

G. L. Converse, R. J. Kane, T. L. Conrad, N. Yanchak, University of Notre Dame, USA; S. M. Smith, North Central Neurosurgery, Inc., USA; R. K. Roeder*, University of Notre Dame, USA

2:20 PM

Effect of crystallinity on mechanical properties and dissolution of bioactive glass (Invited)

J. A. Nychka*, University of Alberta, Canada; D. Li, F. Yang, University of Kentucky, USA

2:40 PM

Simultaneous Enhancements in the Hardness and Toughness of Nanocrystalline Hydroxyapatite (Invited)

J. Wang, L. Shaw*, University of Connecticut, USA

3:00 PM

Break

3:40 PM

Novel Nanocomposites for Bone Regeneration (Invited)

A. P. Tomsia*, E. Munch, J. Franco, P. Hunger, E. Saiz, Lawrence Berkeley Lab, USA

4:00 PM

Nanocrystalline Titania Bioceramic doped with Metal Ions (Invited)

S. J. Kalita*, A. K. Menon, University of Central Florida, USA

4:20 PM

Microwave Processing of Dental Porcelain

J. Jokisaari, Clemson University, USA; S. B. Bhaduri*, The University of Toledo, USA; J. R. Mackert, Medical College of Georgia, USA

4:40 PM

Surface Modification of Hydroxyapatite: A Review (Invited)

O. C. Wilson*, Catholic University, USA

5:00 PM

Biotribological Characterization of the bilayer system: HA/ZrO₂ on 316LSS

B. Bermúdez-Reyes, M. Contreras-García*, J. Zárate-Medina, I. Espitia-Cabrera, Universidad Michoacana de San Nicolás de Hidalgo, Mexico; J. Ortega -Saenz, M. Hernández-Rodríguez, Universidad Autónoma de Nuevo León, Mexico; F. Espinoza-Beltrán, CINVESTAV, IPN, Mexico

Materials & Systems: Enabling Surface Coating Systems: Science and Technology

Tribology Coatings

Room: 335

Session Chair: Pravansu Mohanty, University of Michigan

2:00 PM

Synthesis and Tribological Behavior of MoS₂-Based Nanostructured Films by High Power Pulse Ion Ablation (Invited)

S. V. Prasad*, T. Renk, P. Kotula, Sandia National Laboratories, USA

2:40 PM

Nano-Engineered Encapsulated-Particles for the Creation of Self Lubricating Coatings and Alloys

J. Weyant*, A. Segall, I. Smid, T. Eden, Penn State, USA

3:00 PM

Break

3:40 PM

Low Temperature alpha-Alumina Coating by Laser Chemical Vapor Deposition (Invited)

T. Goto*, T. Kimura, H. Kadokura, IMR, Tohoku Univ., Japan

4:20 PM

Microtexture and Hardness of CVD Deposited α -Al₂O₃ and TiC_xN_{1-x} Coatings

H. Chien*, M. C. Gao, H. M. Miller, G. S. Rohrer, Carnegie Mellon University, USA; Z. Ban, P. Prichard, Y. Liu, Kennametal Inc., USA

4:40 PM

Adhesion and Friction Behavior of Commercial Lubricants for Al5083/P20 Steel Sliding Surfaces at High Temperature

A. Morales*, V. Franetovic, General Motors R&D Center, USA

5:00 PM

Influence of thermal exposure on the interfacial microstructure of Stellite 6 coated 12%-Cr steels for steam turbine applications

C. Leinenbach*, A. Al-Badri, M. Roth, EMPA - Materials Science & Technology, Switzerland

5:20 PM

Wear behavior of nanocrystalline nickel-tungsten alloy coatings

J. A. Hamann*, Xtallic Corporation, USA; C. A. Schuh, Massachusetts Institute of Technology, USA; A. C. Lund, Xtallic Corporation, USA

Materials & Systems: International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites

Polymeric and Chemical Processing

Room: 336

Session Chair: Davion Hill, DNV Research and Innovation - CC Technologies

2:00 PM

Development of Monolithic and Dense Polymer Derived SiOC from Commercial Polymethylsilsesquioxane

M. Esehianian*, R. Oberacker, M. J. Hoffmann, University of Karlsruhe, Germany; T. Felt, Karlsruhe Research Center, Germany

2:20 PM

Electrical Behavior of Polymer-Derived Amorphous Ceramics

L. An, T. Jiang*, University of Central Florida, USA

2:40 PM

Comparison of Bulk Properties of Polymer Precursor Derived Silicon Carbide with Sintered Silicon Carbide

A. Rahman*, S. C. Zunjarrao, R. P. Singh, Oklahoma State University, USA

3:00 PM

Break

3:40 PM

Processing of Uranium Carbide based Silicon Carbide Matrix Composites Using Polymer Infiltration and Pyrolysis

A. K. Singh*, A. Apblett, R. P. Singh, Oklahoma State University, USA

4:00 PM

Pressure Filtration Processing and Testing of Ceramic Slips

E. Medvedovski*, C. J. Szepesi, Umicore Indium Products, USA

4:20 PM

Process Design and Production of Boron Trichloride from Native Boron Carbide in Lab-Scale

D. Agaogullari*, I. Duman, Istanbul Technical University, Turkey

4:40 PM

Synthesis and Photocatalytic Properties of Mesoporous Titanium Dioxide

I. Kolesnik*, M. Kharlamova, A. Eliseev, A. Lukashin, Y. D. Tretyakov, Moscow State University, Russian Federation

Nanotechnology: Controlled Processing of Nanoparticle Structures and Composites

Novel Nanoparticle Processing

Room: 408

Session Chair: Kathy Lu, Virginia Polytechnic Institute and State University

2:00 PM

Microstructural control of Si₃N₄ and AlN ceramics using nanocomposite particles prepared by mechanical treatment (Invited)

J. Tatami*, Yokohama National University, Japan; H. Nakano, Ryukoku University, Japan; T. Wakihara, K. Komeya, Yokohama National University, Japan

2:40 PM

Mild Dispersion of Nanoparticles

H. Way*, NETZSCH Fine Particle Technology, USA

3:00 PM

Break

3:40 PM

Engineered Nanostructures For Multifunctional Single-Walled Carbon Nanotube Reinforced Non-Oxide Ceramic Nanocomposites (Invited)

E. L. Corral*, Sandia National Laboratories, USA

4:20 PM

Microstructure, Precipitation and Deformation Behavior of Novel Spinodal FeNiMnAl Alloys

I. Baker*, J. A. Loudis, J. Hanna, X. Wu, Dartmouth College, USA

4:40 PM

Production of innovative ceramic nano powders via Pulsation Reactor Process

L. Leidolph*, IBU-tec advanced materials GmbH, Germany

5:00 PM

Synthesis of Nanostructured LaB₆ Powders for Micro- and Nano-satellite Propulsion Applications

O. A. Graeve*, R. Kanakala, G. Rojas-George, University of Nevada, Reno, USA

5:20 PM

Titanium Nanoparticles Production by Using Vapors of Sodium and Titanium Tetrachloride

A. Attar, M. Halali, A. Sanghaleh*, Sharif University of Technology, Iran

Nanotechnology: Nanotechnology for Power Generation

Nanotechnology for Power Generation I

Room: 409

Session Chairs: Navin Manjoooran, Siemens AG, Energy; Gary Pickrell, Virginia Polytechnic Institute and State University

2:00 PM

Synthesis of Nano-metric Oxide Dispersion Strengthened (ODS) Ferritic Stainless Steels from Gas Atomized Precursor Powders (Invited)

I. E. Anderson*, Ames Laboratory, USA; J. R. Rieken, Iowa State University, USA; M. J. Kramer, D. Shechtman, M. F. Besser, Ames Laboratory, USA

2:40 PM

Structural changes and stability of pore morphologies of a porous glass at elevated temperatures

B. L. Scott*, G. Pickrell, Virginia Polytechnic Institute and State University, USA

3:00 PM

Break

3:40 PM

Resistivity measurement of nano/microwires

S. Annamalai*, I. L. Pegg, B. Dutta, The Catholic University of America, USA

4:00 PM

Construction of Electronic Device Components on Nano-Porous Glass Fibers Using Electroless Deposition, Chemical Vapor Deposition, and Dip Coating Techniques

M. Wooddell*, G. Pickrell, Virginia Tech, USA

4:20 PM

Preparation and Lubricating Performance of Oil-based Nanofluids Containing Carbon Nanoparticles

C. Choi, J. Oh*, M. Jung, K. Ahn, Korea Electric Power Research Institute, South Korea

4:40 PM

Synthesis of Nanostructured Metallic Glasses by Ion Irradiation

J. Carter, M. Martin, L. Shao*, Texas A&M University, USA

5:00 PM

Nanomaterials for Energy Applications: Storage, Efficiency, Conversion and Generation

R. L. Vander Wal*, USRA c/o NASA-Glenn, USA

Processing & Product Manufacturing: Joining of Advanced and Specialty Materials X

Welding Metallurgy and Welding in Nuclear Industry

Room: 410

Session Chairs: Viola Acoff, University of Alabama; Boian Alexandrov, The Ohio State University

2:00 PM

Laser Welding of Zn-coated Advanced High Strength Steels (Invited)

Y. Zhou*, University of Waterloo, Canada

2:40 PM

Reconstitution Charpy Test Specimens by Electron Beam Welding

P. I. Petrov*, Institute of Electronics, Bulgaria

3:00 PM

Break

3:40 PM

Flux System Optimization for Shield-Metal Arc Welding Electrodes for High Nickel Alloys

K. Sham*, S. Liu, Colorado School of Mines, USA; G. Young, Lockheed Martin Corporation, USA

4:00 PM

Irradiation Effects in W, Ta, and Steel Diffusion Bonds

A. T. Nelson*, University of Wisconsin, USA; D. E. Dombrowski, S. A. Maloy, Los Alamos National Laboratory, USA

4:20 PM

Microstructure Control in Welded Joints of HSLA Steels

B. T. Alexandrov*, J. C. Lippold, E. Gould, Ohio State University, USA

4:40 PM

Fabrication of Monolithic U-Mo Fuels by Hot Isostatic Pressing

B. H. Park, J. Jue*, G. A. Moore, C. R. Clark, D. K. Keiser, Idaho National Laboratory, USA

Processing & Product Manufacturing: Processing, Properties and Performance of Composite Materials

Metal Matrix Composites - Processing

Room: 412

Session Chairs: Ajit Roy, Air Force Research Laboratory; John Lewandowski, Case Western Reserve University

2:00 PM

Processing of In-Situ Aluminum Metal-Matrix Composites

D. Spears, S. Viswanathan*, R. G. Reddy, The University of Alabama, USA

2:20 PM

Reinforcement of aluminum by AlB₂ flakes at high volume fractions and alignment

J. Meyer*, J. Economy, University of Illinois at Urbana-Champaign, USA

2:40 PM

Manufacture and Mechanical Properties of Metal Matrix Syntactic Foams

Y. Zhao*, X. Tao, X. Xue, The University of Liverpool, United Kingdom

3:00 PM

Break

3:40 PM

Development of Cold Spray Composite Coatings Non Destructive Characterization

M. A. Lubrick*, R. Maev, V. Leshchynsky, University of Windsor, Canada

4:00 PM

Nanocrystalline W Reinforced Amorphous Ni-W Matrix Composites

A. Zeagler*, A. O. Aning, Virginia Tech, USA

4:20 PM

Effect of Pressure and Plastic Deformation on Aluminum-Beryll Composites

D. H. Basavaraj, S. K. Rama Reddy*, M. p. Jebaraj, C. M. Puttaiah, S E A College of Engineering & Technology, India

4:40 PM

A Route for Obtaining NiCrAl-Al₂O₃ Composite Powders

E. T. Kubaski*, D. G. Simoes, University of Sao Paulo - Escola Politecnica, Brazil; O. M. Cintho, Universidade Estadual de Ponta Grossa, Brazil; J. T. Capocchi, University of Sao Paulo - Escola Politecnica, Brazil

5:00 PM

Using Microwave Assisted Powder Metallurgy Route and Nano-size Reinforcements to Develop High Strength Lead-free Solder Composites

M. Nai*, M. Alam, X. Zhong, P. Babaghorbani, National University of Singapore, Singapore; J. Kuma, Minerals, Metals and Materials Technology Centre, Singapore; M. Gupta, National University of Singapore, Singapore

Thursday, October 9, 2008

Electronic & Magnetic Materials: Fabrication, Microstructures and Interfacial Properties of Multifunctional Oxide Thin Films

Microstructures, Defects, and Interfaces

Room: 315

Session Chair: Xiaoqing Pan, University of Michigan

8:00 AM

Atomic-scale Probing of Interface Effects in Ferroelectric Thin Films (Invited)

M. Chisholm*, H. Lee, Oak Ridge National Laboratory, USA

8:40 AM

Interfacial Structures of Epitaxial Perovskite Oxide Thin Films on (001) MgO Substrate

J. Jiang*, J. He, E. Meletis, The University of Texas at Arlington, USA; J. Liu, Z. Yuan, C. Chen, University of Texas at San Antonio, USA

9:00 AM

Photovoltaic response as a probe for ferroelectric-electrode interfaces (Invited)

K. Yao*, Institute of Materials Research and Engineering, Singapore

9:40 AM

Relaxation of Langmuir-Blodgett Ferroelectric Polymer Films

P. Liu*, J. L. Wang, X. J. Meng, J. H. Chu, Chinese Academy of Sciences, China; P. Gemeiner, S. Geiger, B. Dkhil, Propriétés et Modélisation des Solides, France

Fabrication Issues of Oxide Thin Films

Room: 315

Session Chairs: Li Yan, Virginia Tech; Jiechao Jiang, University of Texas at Arlington

10:00 AM

Miniaturized Metal Oxide Nanoparticle Gas Sensor Arrays built on Micro Hotplate Substrates deposited with a Drop on Demand Ink Jet Printer

E. R. Beach*, M. Andio, P. Morris, The Ohio State University, USA

10:20 AM

Nanoclay-Zirconia Multilayers: Processing Optimization and Layer-by-Layer Deposition Mechanisms

H. Chen*, J. Luo, Clemson University, USA; X. Wang, G. Zhang, Louisiana State University, USA

10:40 AM

Comparing Epitaxial Growth of MgO and CaO Films on GaN Surfaces

M. D. Losego*, H. Craft, S. Mita, T. Rice, R. Collazo, Z. Sitar, J. Maria, North Carolina State University, USA

11:00 AM

Phase Decomposition: A Model for Ferroelectric Fatigue

L. Peng, L. Qiao, University of Science and Technology Beijing, China; T. Li, General Research Institute for Non-Ferrous Metals, China; D. Xie, Tsinghua University, China; J. Cao*, University of Science and Technology Beijing, China

11:20 AM

Direct Measurements of Individual Domain Nucleation and Growth Dynamics with <20 nsec Temporal Resolution per Pixel

R. Nath, N. Polomoff, J. Bosse, A. Lucas, B. D. Huey*, University of Connecticut, USA

Electronic & Magnetic Materials: Ferroelectrics and Multiferroics

Physical Properties and Nanoscale Phenomena

Room: 318

Session Chair: Sharmila Mukhopadhyay, Wright State University

8:00 AM

Self-Assembled Epitaxial Multiferroic Nanocomposite Films Prepared by Polymer-Assisted Deposition (Invited)

H. Luo*, H. Yang, S. A. Baily, O. Ugurlu, M. Jain, M. E. Hawley, E. Bauer, T. McCleskey, A. K. Burrell, L. Civalè, T. G. Holesinger, Q. X. Jia, Los Alamos National Laboratory, USA

8:40 AM

Structure-Property Relationships in Sodium-Potassium Niobate Ceramics

M. A. Cottrell*, University of Florida, USA; J. Daniels, European Synchrotron Radiation Facility, France; J. L. Jones, University of Florida, USA

9:00 AM

Poling of Piezoelectric Ceramics (Invited)

T. Granzow*, Technische Universität Darmstadt, Germany; A. B. Kounga, EPCOS OHG, Austria; T. Leist, J. Rödel, Technische Universität Darmstadt, Germany

9:40 AM

Break

10:00 AM

Doping of BiScO₃-PbTiO₃ Ceramics for Enhanced Resistivity

A. Sehirlioglu*, Case Western Reserve University, USA; A. Sayir, F. Dynys, NASA Glenn Research Center, USA

10:20 AM

Sr modified PCBN ceramics for piezoelectric and pyroelectric applications

K. Ramam*, University of Concepcion, Chile; K. Chandramouli, Andhra University, India

10:40 AM

Competing Effects of Cu Ion Charge States on Ferromagnetism in Cu co-doped (ZnCo)O Nanoparticles

M. Khan*, S. K. Hasanain, Quaid-i-Azam University, Pakistan

Electronic & Magnetic Materials: Low Temperature Processing for Integration of Microelectronics Devices

Direct Write Integration

Room: 319

Session Chair: Yoshihiko Imanaka, Fujitsu Laboratories Ltd.

8:00 AM

Low Temperature Sintering of Patterned Nanostructured Silver Produced by Laser Ablation of Microparticle Aerosols (Invited)

A. D. Albert, P. D. Ferreira, M. F. Becker, J. W. Keto, D. Kovar*, University of Texas at Austin, USA

8:40 AM

Conductor Edge Definition Influence on High Frequency Electrical Loss

T. S. Vincent*, I. Bar-On, WPI, USA

9:00 AM

Low-Temperature Maskless Mesoscale Materials Aerosol Deposition (M3D) of Oxides from Precursors and Suspensions (Invited)

B. P. Gorman*, University of North Texas, USA

9:40 AM

Break

10:00 AM

Low Temperature Curing of Printed Electronic Conductors and Dielectrics

J. W. Sears*, M. Carter, South Dakota School of Mines & Technology, USA

10:20 AM

Dense Yttrium Oxide Film Prepared by Aerosol Deposition at Room Temperature (Invited)

J. Iwasawa*, R. Nishimizu, H. Ashizawa, TOTO LTD., Japan

Electronic & Magnetic Materials: Perovskite Oxides: Films, Nanostructures, Properties, and Applications

Heterostructured Perovskite Oxides

Room: 316

Session Chairs: Menka Jain, Los Alamos National Laboratory; Lane Martin, Lawrence Berkeley National Laboratory

8:00 AM

Engineering New Functionalities with Multiferroics: Electrical Control of Magnetism (Invited)

L. W. Martin*, Lawrence Berkeley National Laboratory, USA

8:40 AM

Direct Measurement of the Low-Temperature Spin-State Transition in LaCoO₃

R. F. Klie*, G. Yang, Y. Zhao, University of Illinois at Chicago, USA

9:00 AM

Ferroc Epitaxial Oxide Thin Films and Heterostructures (Invited)

B. Wessels*, Northwestern U, USA

9:40 AM

Perovskite Oxides: Recent Trends (Invited)

B. Raveau*, CRISMAT, France

10:20 AM

Magnetotransport properties of the Pr_{0.5}Ca_{0.5}MnO₃ thin film grown by a solution technique

M. Jain*, F. Ronning, J. D. Thompson, L. Stan, Q. X. Jia, Los Alamos National Laboratory, USA; J. Yoon, H. Wang, Texas A&M University, USA; C. B. Eom, University of Wisconsin, USA

10:40 AM

Strain Relaxation of BaTiO₃ Thin Films Grown on Small Lattice-Mismatched Substrates (Invited)

X. Pan*, University of Michigan, USA

Environmental & Energy Issues: Frontiers in Materials Science: Closing the Nuclear Fuel Cycle

Nuclear Fuel Management

Room: 326

Session Chair: Ramana Reddy, University of Alabama

8:00 AM

The Global Nuclear Energy Partnership (GNEP) - An Overview

J. Marra*, Savannah River National Lab, USA

8:20 AM

Candidate Alloy System for a GNEP Metallic Wasteform

M. Kane*, R. Sindelar, Savannah River National Laboratory, USA

8:40 AM

Glass Formulation Development and Testing for Lanthanide and Fission Product Wastes

J. Marra*, A. Youchak, Savannah River National Laboratory, USA; J. Vienna, J. Crum, Pacific Northwest National Laboratory, USA

9:00 AM

Glasses for Immobilizing Grouped Fission Products

J. V. Crum*, J. D. Vienna, Pacific Northwest National Lab, USA

9:20 AM

Overview of Materials Issues for Fusion Power Plants

R. J. Hanrahan*, National Nuclear Security Administration, USA

9:40 AM

A mechanism of non-equilibrium grain boundary segregation for intermediate temperature brittleness in metals

T. Xu*, K. Wang, Central Iron & Steel Research Institute, China

Environmental & Energy Issues: Fuel Cells: Materials, Processing, Manufacturing, Balance of Plant and Systems Operation

Manufacturing, Balance of Plant, Modeling

Room: 325

Session Chairs: Ayyakkannu Manivannan, National Energy Technology Lab; Z. Gary Yang, Pacific Northwest National Lab

8:00 AM

Durability and Suitability of Fe-Cr-Nb(-Ti) Base Ferritic Stainless Steels for SOFC Interconnect Applications

Z. Yang*, G. Xia, Z. Nie, J. Templeton, L. Li, C. Wang, J. Stevenson, P. Singh, Pacific Northwest National Lab, USA; J. Rakowski, Allegheny Ludlum, USA

8:20 AM

Anode supported SOFC fabricated by tape casting and co-sintering of anode and electrolyte

M. Gong*, X. Liu, Y. Jiang, C. Xu, J. Zondlo, West Virginia University, USA; C. Johnson, R. Gemmen, National Energy Technology Laboratory, USA

8:40 AM

Thin-wall Ceramic Heat Exchangers for Solid Oxide Fuel Cells

T. Briselden*, T. Reilly, D. Forsman, Penn State University The Behrend College, USA

9:00 AM

Effect of solids loading and plasticizer content of concentrated zirconia inks for screen printing SOFC electrolyte

J. W. Phair*, A. Kaiser, Risø National Laboratory for Sustainable Energy, Denmark

9:20 AM

In Situ Deformation of a SOFC Button Cell in Coal Syngas

H. Guo*, R. R. Dastane, B. S. Kang, West Virginia University, USA

9:40 AM

Break

10:00 AM

Development and Investigation of (Mn,Fe,Co)₃O₄ Protection Layers on Ferritic Stainless Steels for SOFC Interconnect Applications

L. Li*, G. Xia, J. Templeton, Z. Yang, J. Stevenson, P. Singh, Pacific Northwest National Lab, USA

10:20 AM

The performance of solid oxide fuel cells (SOFC) with electroplated interconnect as cathode current collector

J. Wu*, West Virginia Univ., USA; R. S. Gemmen, C. D. Johnson, National Energy Technology Lab, USA; Y. Jiang, West Virginia Univ., USA; X. Liu, National Energy Technology Lab, USA

10:40 AM

Pore-Scale Modeling and Toward Virtual Material Design in Polymer Electrolyte Fuel Cells

P. P. Mukherjee*, C. Wang, Los Alamos National Laboratory, USA

11:00 AM

Chemical Fracture of a Ceramic Oxygen Ion Conductor with Periodic Edge Cracks

Z. Jin*, Z. Fan, University of Maine, USA

Environmental & Energy Issues: Green Technologies for Materials Manufacturing and Processing

Green Technology Analysis

Room: 323

Session Chairs: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology; Richard Sisson, Worcester Polytechnic Institute

8:00 AM

Teaching and Learning Green Engineering and Environmental Sustainability (Invited)

R. D. Sisson*, J. O'Shaughnessy, J. A. Bergendahl, WPI, USA

8:40 AM

Approaches to Minimal-Manufacturing for Sustainability (Invited)

H. Kita*, National Institute of Advanced Industrial Science and Technology (AIST), Japan

9:20 AM

Application of Furnace Modeling Software to Energy Consumption and Sustainability

Y. K. Rong*, L. Zhang, P. Radhakrishnan, R. D. Sisson, Worcester Polytechnic Institute, USA

9:40 AM

Break

10:00 AM

Engineering Decisions to Green the Automobile Supply Chain

J. Isaacs*, Northeastern University, USA; T. Seager, Rochester Institute of Technology, USA; J. Laird, Metaversal Studios, USA

10:20 AM

Environmental Assessment of Manufacturing with CNTs

J. Isaacs*, L. Dahlben, Northeastern University, USA

10:40 AM

The Analysis of Emissions Produced During Glass Manufacturing

L. Jones*, Smith College, USA

11:00 AM

Exergy Analysis on Life Cycle of Ceramic Parts

H. Kita*, H. Hyuga, N. Kondo, T. Ohji, National Institute of Advanced Industrial Science and Technology, Japan

11:20 AM

Emission Estimate Methods

W. J. Fullen*, Boeing, USA

11:40 AM

Materials Information Technology for Eco Design and Restricted Substances

P. Coulter*, D. Cebon, Granta Design Ltd., United Kingdom

Environmental & Energy Issues: Materials and the Climate Change Challenge

Materials and the Climate Change Challenge

Room: 327

Session Chair: John Halloran, University of Michigan

8:00 AM

Carbon Materials from Fossil Fuel Thermolysis

J. W. Halloran*, Z. Guerra, A. Wiratmoko, G. Pioszak, A. E. Sall, University of Michigan, USA

8:20 AM

Carbon-based Construction Materials from Fossil Fuel Thermolysis

A. Wiratmoko, G. Pioszak, A. E. Sall, J. W. Halloran*, University of Michigan, USA

8:40 AM

Technoeconomic Analysis of the Production of Hydrogen Fuel and Carbon Materials from Fossil Fuel Thermolysis

Z. Guerra*, J. W. Halloran, University of Michigan, USA

9:00 AM

Boeing Report: Development of Sustainable Biojet Fuel

J. Ray*, S. A. Millett, Boeing, USA

9:20 AM

CO₂ emission of Chinese cement industry

D. Xu, H. Li*, J. Fan, Y. Chen, S. Yun, College of Material Science and Engineering, Xi'an University of Architecture & Technology, China

Fundamentals & Characterization: Ceramic Surfaces, Grain Boundaries and Interfaces

Thermodynamics, Kinetics and Atomistics

Room: 301

Session Chairs: Jian Luo, Clemson University; Manfred Ruhle, MPI fur Metallforschung

8:00 AM

Exploring the Crystallography of Grain Boundary Motion Coupled to Shear Deformation (Invited)

V. A. Ivanov*, George Mason University, USA; J. W. Cahn, University of Washington, USA; Y. Mishin, George Mason University, USA

8:40 AM

Interfaces in Zr-based, Glass Forming Alloys (Invited)

D. Lewis*, H. McGee, Rensselaer Polytechnic Institute, USA

9:20 AM

Surface dynamics of Highly Anisotropic Refractory Materials (Invited)

S. Kodambaka*, University of California Los Angeles, USA

9:40 AM

Break

10:00 AM

Finite Element Simulation of Segregation at Complex Interfaces in Dilute Alloys

F. Tancret*, F. Fournier Dit Chabert, F. Christien, R. Le Gall, Université de Nantes, France

10:20 AM

Microstructural Studies on Solid Oxide Fuel Cell Cathode Materials

L. Helmick*, S. Dillon, Carnegie Mellon University, USA; K. Gerdes, R. Gemmen, National Energy Technology Laboratory, USA; G. Rohrer, S. Seetharaman, P. Salvador, Carnegie Mellon University, USA

10:40 AM

Orientation Relationships and Morphologies of Pt Precipitates in Sapphire

M. Santala*, University of California, Berkeley, USA; V. Radmilovic, Lawrence Berkeley National Laboratory, USA; R. Giulian, M. Ridgway, Australian National University, Australia; R. Gronsky, A. Glaeser, University of California, Berkeley, USA

11:00 AM

Asymmetric tilt grain boundary structure and energy in copper and aluminum

M. Tschopp*, Air Force Research Laboratory (UTC), USA; D. L. McDowell, Georgia Institute of Technology, USA

11:20 AM

Boundary Structural Transition and Grain Growth Behavior in BaTiO₃ by A-Site-Donor-Doping and Oxygen Partial Pressure Change

S. An*, B. Yoon, S. L. Kang, Korea Advanced Institute of Science and Technology, South Korea

Fundamentals & Characterization: Discovery and Optimization of Materials through Computational Design

Mesoscale Modeling and Microstructural Evolution I

Room: 303

Session Chairs: James Warren, National Institute of Standards and Technology; Edwin Fuller, National Institute of Standards & Technology

8:00 AM

Hyperthermia Induction Modeling for Optically-Active Nanoparticles (Invited)

E. R. Fuller*, A. T. Durnford, W. Hatchett, National Institute of Standards & Technology, USA

8:40 AM

Numerical Modeling of Sintering, a Status Check (Invited)

M. W. Reiterer*, Medtronic, Inc., USA; T. R. Hinklin, Sandia National Laboratories, USA

9:20 AM

Phase Field Simulation of the Morphology of Eutectic Solidification in a Binary Alloy Containing Encapsulated Impurities

R. Arroyave, M. Park*, Texas A&M University, USA

9:40 AM

Break

10:00 AM

Phase Field Modeling of Complex Polycrystalline Solidification Morphologies (Invited)

L. Granasy*, G. Tegze, Brunel University, United Kingdom; T. Pusztai, L. Kornyei, G. I. Toth, Research Institute for Solid State Physics and Optics, Hungary

10:40 AM

Phase Field Modeling: From Drug Delivery to Soldering (Invited)

J. A. Warren*, W. Boettinger, D. Wheeler, NIST, USA; D. Saylor, FDA, USA

11:20 AM

Quantitative phase-field modeling of coarsening and grain growth in multi-component polycrystalline alloys (Invited)

N. Moelans*, L. Vanherpe, A. Serbruyns, K.U.Leuven, Belgium; B. Rodiers, LMS International, Belgium

Fundamentals & Characterization: Failure Analysis for Problem Solving

Modeling and Simulation

Room: 304

Session Chairs: Amar Sabih, McGill Institute of Advanced Materials; Julian Raphael, C M Hoist

8:00 AM

Finite Element Analysis of Unnotched Charpy Impact Tests

D. Jeong*, US DOT/Volpe Center, USA; H. Yu, Chenga Advanced Solutions & Engineering, LLC, USA; J. Gordon, Y. Tang, US DOT/Volpe Center, USA

8:20 AM

Finite Element Models to Study the Internal Failure Mechanisms in Cold-Heading Process (Invited)

A. Sabih*, J. Nemes, McGill University, Canada

8:40 AM

Fracture of Inconel 718 Structure and Combined Two-back Stress Hardening model

S. Yun*, Agency for Defense Agency, South Korea

9:00 AM

Modeling Dynamic Forces in Powered Chain Hoists (Invited)

J. Raphael*, C M Hoist, USA

9:20 AM

3D image-based analyses of fatigue crack propagation in an Al-Mg-Si alloy

P. Qu*, H. Toda, H. Zhang, Toyohashi University of Technology, Japan; L. Qian, Research Institute for Applied Mechanics, Kyushu University, Japan; Y. Sakaguchi, M. Kobayashi, Toyohashi University of Technology, Japan

9:40 AM

Break

10:00 AM

Thermographic Detection of Mechanical Damage

P. K. Liaw*, university of Tennessee, USA

10:40 AM

Using Simplified Fracture Mechanics Modeling to Understand Classical Fractographic Features in Rotating and Three Point Bending Fatigue (Invited)

D. Aliya*, Aliya Analytical Inc., USA; J. Raphael, JR Technical Services, USA

11:00 AM

Overview of Steel Wear Research in Tumbling Mill Grinding (Invited)

P. Radziszewski, A. Sabih*, S. Martins, B. Picard, McGill University, Canada

11:20 AM

Ignition of Titanium Clad Steel in Pressure Oxidation Leaching Autoclaves

B. E. Hansford*, S. Liu, E. Vidal, Colorado School of Mines, USA; J. Banker, Dynamic Materials Corporation, USA

Fundamentals & Characterization: Fatigue of Materials: Competing Failure Modes and Variability in Fatigue Life

Modeling, Statistics, Life Prediction

Room: 305

Session Chairs: C. Boehlert, Michigan State University; S. Jha, Universal Technology Corporation

8:00 AM

Microstructure-Sensitive Modeling of High Cycle Fatigue (Invited)

C. Przybyla, R. PrasannaVenkatesan, N. Salageheh, D. L. McDowell*, Georgia Tech, USA

8:40 AM

On Stochastic Evaluation of S-N Data Based On Fatigue Strength Distribution

S. Hanaki*, M. Yamashita, H. Uchida, University of Hyogo, Japan; M. Zako, Osaka University, Japan

9:00 AM

Obtaining High Cycle Fatigue Data (S-N) From Energy Release Rate Concept

H. Saghizadeh*, B. Farahmand, Boeing, USA

9:20 AM

Extreme Value Marked Correlation Statistics in HCF of Ti-6Al-4V

C. P. Przybyla*, D. L. McDowell, Georgia Institute of Technology, USA

9:40 AM

Break

10:00 AM

Competing Failure Modes in Aerospace Alloys and the Implications for Life Management Approaches (Invited)

M. Caton*, J. Larsen, Air Force Research Lab, USA; S. Jha, Universal Technology Corporation, USA

10:40 AM

Computational Model to Predict the Statistical Nature of Competing Fatigue Mechanisms (Invited)

R. Tryon*, VEXTEC, USA

11:20 AM

Bimodal Fatigue Life Behavior: A Formal Analysis Framework with Applications (Invited)

C. McClung*, M. Enright, Southwest Research Institute, USA

12:00 PM

Development of a database for the prediction of fatigue behavior in Timetal 555

J. Foltz*, B. Welk, P. Collins, J. C. Williams, H. L. Fraser, The Ohio State University, USA

Fundamentals & Characterization: International Symposium on Defects, Transport and Related Phenomena

Defects and Transport in Ceramics IV

Room: 307

Session Chairs: Han-Il Yoo, Seoul National University; Klaus-Dieter Becker, Technische Universität Braunschweig

8:00 AM

Defects Resulting from Thermochemical Interactions at Inner Electrodes (Invited)

C. Randall*, A. Polotai, S. Lee, W. Liu, N. Donnelly, G. Yang, E. Dickey, The Pennsylvania State University, USA

8:40 AM

Space charge at grain boundary investigation by nano-scale TEM microanalysis in spinel MgAl₂O₄

B. Franck*, C. Jacques, N. Nicolas, M. Alexandre, University of Lille1, France

9:00 AM

Hall Effects on Gallium and Copper doped Pr₂NiO₄ Mixed Conductor for oxygen permeation (Invited)

T. Ishihara*, K. Tominaga, H. Matsumoto, Kyushu University, Japan

9:40 AM

Break

10:00 AM

Diffusion Characteristics in Isotope-Hetero-Structural Thin Films with Wurtzite Structure (Invited)

H. Haneda*, National Institute for Materials Science, Japan; K. Matsumoto, Kyushu University, Japan; T. Ohgaki, T. Nakagawa, Y. Yao, I. Sakaguchi, N. Ohashi, National Institute for Materials Science, Japan

10:40 AM

Oxidation and hydration kinetics of proton conductor oxides (Invited)

H. Yoo*, J. Kim, Seoul National University, South Korea

11:20 AM

Discussion

Discussion of the future of the International Symposium on Defects, Transport and Defect-Related Phenomena symposium series.

Fundamentals & Characterization: Lifecycle of Engineered Residual Stresses: Processing, Aging, and Rejuvenation

Lifecycle of Engineered Residual Stresses: Processing, Aging, and Rejuvenation

Room: 310

Session Chair: Calvin Tszeng, Berkeley Materials Research

8:00 AM

Evolution of Microstructure and Residual Stresses Induced by Surface Severe Plastic Deformation in a Multi-Phase Ni Superalloy

T. Shimamura, Nagaoka University of Technology, Japan; L. Shaw*, University of Connecticut, USA

8:20 AM

Study on Residual Stress Measurement of Aluminum Pipe Using Raman Spectroscopy

M. Kang*, S. Kim, J. Koo, C. Seok, Sungkyunkwan University, South Korea

8:40 AM

Microstructure and Residual Stress Distributions in Laser Shock Peening Processed Ti-6Al-4V Alloy

Y. Zhao*, S. R. Mannava, V. K. Vasudevan, University of Cincinnati, USA; J. Almer, U. Lienert, Y. Ren, Argonne National Laboratory, USA; D. Lahrman, LSP Technologies, USA

9:00 AM

Effects of Cold Working, Shot Peening and Post Annealing on Residual Stress and Microstructure of Ni-Base Alloys IN718 and Waspaloy

H. Song*, P. B. Nagy, V. K. Vasudevan, University of Cincinnati, USA

9:20 AM

Effects of Laser Shock Peening on Residual Stress Distributions and Microstructure of IN718 Superalloy

A. Gill*, University of Cincinnati, USA; J. Almer, U. Lienert, Y. Ren, APS, Argonne National Laboratory, USA; D. Lahrman, LSP Technologies, USA; V. Vasudevan, S. Mannava, University of Cincinnati, USA

9:40 AM

Break

10:00 AM

Analysis of Fatigue Test Results of U-shaped Copper Pipe by Considering Residual Stress

S. Kim*, J. Koo, C. Seok, Sungkyunkwan Univ., South Korea

10:20 AM

A thermo-mechanical model to predict the tribological behavior of Ti6Al4V/carbide pair for dry sliding conditions and its application to predict residual stresses in machining processes

B. M. Abraham*, S. Y. Liang, Georgia Institute of Technology, USA

10:40 AM

Stability of Residual Stresses in Shot-Peened Ti-6Al-2Sn-4Zr-6Mo

R. John*, US Air Force Research Laboratory, USA; D. Buchanan, University of Dayton Research Institute, USA; S. Jha, Universal Technology Corporation, USA; J. Larsen, US Air Force Research Laboratory, USA

11:00 AM

Thermal Relaxation of Shot Peened and Laser Shock Peened Residual Stresses in a Nickel-Base Superalloy

D. Buchanan*, University of Dayton RI, USA; R. John, M. Shepard, Materials & Manufacturing Directorate, AFRL/RXLMN, US Air Force Research Laboratory, USA

11:20 AM

Evaluation of Residual Stress Relaxation and Microstructural Changes in Laser Shock Peened Ni-Base Alloy IN718 Plus

V. Chaswal*, University of Cincinnati, USA; D. Lahrman, LSP Technologies, USA; Y. Ren, Argonne National Lab, USA; D. Qian, S. R. Mannava, V. K. Vasudevan, University of Cincinnati, USA

Fundamentals & Characterization: Performance and Growth of Bulk and Thin Film Materials - Role of Surface and Interface Phenomena during Growth and Processing

Microstructures and Properties of Thin Films in the Sub-Micron Range and Beyond

Room: 306

Session Chair: Roger Narayan, University of North Carolina

8:00 AM

Effect of Oxygen Gas on the Deposition of Reactively Sputtered Carbon Thin Films (Invited)

T. McKindra*, M. J. O'Keefe, Missouri University of Science and Technology, USA

8:40 AM

Effects of Oxygen and Hydrogen on Surface Morphology of MgO Films Deposited by Ion-Plating

H. Kim*, S. Ryu, J. h. Kim, Korea Institute of Ceramic Engineering & Technology, South Korea; J. J. Kim, Samsung SDI, South Korea

9:00 AM

Lattice behavior of carbon doped HPCVD MgB₂ thin films from first-principles

A. Saengdeejing*, Y. Wang, Z. Liu, Pennsylvania State University, USA

9:20 AM

Cs-corrected STEM Characterization of Ca_xCoO₂ Film

R. Huang*, Japan Fine Ceramics Center, Japan; K. Sugiura, Nagoya University, Japan; T. Mizoguchi, the University of Tokyo, Japan; H. Ohta, K. Koumoto, Nagoya University, Japan; Y. Ikuhara, T. Hirayama, Japan Fine Ceramics Center, Japan

9:40 AM

Break

10:00 AM

Analysis of NiAl-Hf Bond Coats via Tomographic Atom Probe and Transmission Electron Microscopy

M. A. Bestor*, M. S. Kirsch, R. L. Martens, M. L. Weaver, The University of Alabama, USA

10:20 AM

Bandgap reduction and photoelectrochemical properties of ZnO:N films deposited by reactive RF magnetron sputtering

S. Shet*, K. Ahn, T. Deutsch, Y. Yan, J. Turner, M. Al-Jassim, National Renewable Energy Laboratory, USA; N. M. Ravindra, New Jersey Institute of Technology, USA

10:40 AM

Superplastic Boronizing of Duplex Stainless Steel (DSS): Initial Pressure and Surface Roughness Effect

H. Mohd Yusof*, I. Jauhari, N. Abd Aziz, University of Malaya, Malaysia

11:00 AM

Protective Aluminum Oxide-based Coatings against Metal Dusting

D. V. Melo-Maximo*, Instituto Politecnico Nacional, Mexico; J. Alvarez, O. Salas, J. Oseguera, Instituto Tecnológico de Estudios Superiores (Campus Estado de Mexico), Mexico; V. M. Lopez-Hirata, Instituto Politecnico Nacional, Mexico

Fundamentals & Characterization: Phase Stability, Diffusion Kinetics and Their Applications (PSDK-III)

Microstructural Analysis, Control and Modeling III

Room: 302

Session Chair: Yongho Sohn, University of Central Florida

8:00 AM

Pragmatic Phase-Field Approach for Modeling Diffusion- and Curvature-Controlled Phase Transformations in Technical Alloys (Invited)

B. Böttger*, M. Apel, J. Eiken, P. Schaffnit, I. Steinbach, access, Germany

8:40 AM

Thermal Aging Effects on Microstructural Evolution in IN718 Plus Alloy

V. Chaswal*, S. R. Mannava, V. Vasudevan, University of Cincinnati, USA

9:00 AM

Carburization-Induced Ferrite to Austenite Transformation in Stainless Steels

G. M. Michal*, X. Gu, F. Ernst, A. H. Heuer, H. Kahn, Case Western Reserve University, USA

9:20 AM

Elastic properties of dilute Mg alloys from first-principles calculations

S. Ganeshan*, S. Shang, Z. Liu, PSU, USA

9:40 AM

Break

10:00 AM

Core-Shell Al₃Sc/Al₃Li Nanoscale Precipitates in Aluminum

M. E. Krug, D. Dunand*, D. N. Seidman, Northwestern University, USA

10:20 AM

Coarsening Kinetics of γ' Precipitates in the Commercial Nickel base Superalloy Rene88DT

G. B. Viswanathan*, R. Srinivasan, The Ohio State University, USA; J. Tiely, Air Force Research Laboratory, USA; R. Banerjee, University of North Texas, USA; H. L. Fraser, The Ohio State University, USA

10:40 AM

Coarsening in Equiaxially-Solidified Al-Cu Solid-Liquid Mixtures

J. L. Fife*, L. K. Agesen, P. W. Voorhees, Northwestern University, USA

11:00 AM

Probing the Early Stages of Elemental Partitioning During the Nucleation and Growth of Alpha in the Beta Matrix of Titanium Alloys

S. Nag*, R. Banerjee, University of North Texas, USA; S. Rajagopalan, Ohio State University, USA; J. Hwang, University of North Texas, USA; H. Fraser, Ohio State University, USA

Fundamentals & Characterization: Recent Advances in Structural Characterization of Materials

Electron Microscopy and Electron Diffraction: Developments and Applications II

Room: 309

Session Chairs: Amanda Petford-Long, Argonne National Laboratory; Geoffrey Campbell, Lawrence Livermore National Lab

8:00 AM

In-Situ Tensile-Creep Characterization of Structural Alloys Using a Scanning Electron Microscope

C. J. Boehlert*, S. Longanbach, Michigan State University, USA; M. Nowell, S. Wright, EDAX-TSL, Inc., USA

8:20 AM

Quantitative Mapping of Cation Content in (Pb,La)(Zr,Ti)O₃

C. M. Parish*, G. L. Brennecke, B. A. Tuttle, L. N. Brewer, Sandia National Laboratories, USA

8:40 AM

Ultra High Resolution Backscatter Imaging at Low Excitation Voltages

C. Hayzelden*, J. R. Porter, D. R. Mumm, University of California at Irvine, USA

9:00 AM

HRSTEM imaging and analysis of Bi segregation at Grain Boundaries in a Cu-Bi alloy

G. Viswanathan*, S. Rajagopalan, The Ohio State University, USA; F. Otto, G. Eggeler, Ruhr University, Germany; H. L. Fraser, The Ohio State University, USA

9:20 AM

Direct Atomic Scale Observation of the Structure and Chemistry of Order/Disorder Interfaces

S. Rajagopalan*, Ohio State University, USA; R. Banerjee, J. Hwang, University of North Texas, USA; G. B. Viswanathan, Ohio State University, USA; J. Tiely, Air Force Research Laboratory, USA; H. L. Fraser, Ohio State University, USA

9:40 AM

Break

10:00 AM

Three-Dimensional Atom Probe Tomography of Nanocomposite Diamond-like Carbon Films

T. W. Scharf*, M. C. Romanes, K. Mahdak, J. Y. Hwang, R. Banerjee, The University of North Texas, USA; R. D. Evans, G. L. Doll, The Timken Company, USA

10:20 AM

Microstructural Evolution in Near-Alpha Titanium Friction Stir Welds

K. E. Knipling*, R. Fonda, Naval Research Laboratory, USA

10:40 AM

Characterization of Metallurgical Effects in Laser Drilling of Ni-based Superalloys

J. K. Garofano*, H. L. Marcus, M. Aindow, University of Connecticut, USA

11:00 AM

Structure and Plasmon Resonance Properties of Gold Nanostars as Determined by Analytical Electron Microscopy

R. Tiruvalam*, P. Clasen, Lehigh University, USA; M. Watanabe, Lawrence Berkeley National Laboratory, USA; M. P. Harmer, C. J. Kiely, Lehigh University, USA

11:20 AM

STEM-EELS Analysis of Pressureless Sintered W(Ta)C

B. P. Gorman*, Univ. of North Texas, USA; M. Teague, G. Hilmars, W. Fahrenholtz, Missouri Univ. of Science and Technology, USA

Fundamentals & Characterization: Structure-Property Relationships in Multifunctional Materials

Structure-Property Relationships in Multifunctional Materials

Room: 311

Session Chair: Kevin Doherty, Army Research Lab

8:00 AM

Characterization of Al-based Alloyed Foams Containing Sn Formed by Powder Metallurgical Processing

L. Y. Aguirre Perales*, F. Jalilian, R. A. Drew, McGill University, Canada

8:20 AM

Properties of Al and Al-12Si Foams Produced from Ni-coated TiH₂

P. M. Proa-Flores*, R. L. Drew, McGill University, Canada

8:40 AM

Nanocrystalline Periodic Cellular Metals

G. D. Hibbard*, University of Toronto, Canada

9:00 AM

Synthesis and Electrical Properties of the Combined (V : Sn ; V : Ti ; V : Co ; V : Ni) oxides by solid-state method (Invited)

C. Kao*, H. Cheng, National Cheng Kung University, Taiwan

9:40 AM

Break

10:00 AM

Design and Fabrication of Linear Cellular Alloys as Casings for Structural Energetic Materials

D. A. Fredenburg*, T. M. McCoy, A. Jakus, J. Cochran, N. Thadhani, Georgia Tech, USA

10:20 AM

Perforation Stretch Formed Periodic Cellular Copper

E. Ng*, A. McLean, G. D. Hibbard, University of Toronto, Canada

10:40 AM

Structural Performance of Aluminum and Stainless Steel Pyramidal Truss Core Sandwich Panels

K. Doherty*, A. Yiournas, J. Wagner, US Army Research Laboratory, USA

11:00 AM

Truss Core Sandwich Panel Performance Enhancement Enabled by Novel Discrete-Truss Arrangements

B. Langhorst*, D. Mumm, University of California, Irvine, USA

11:20 AM

Texture and microstructure of BFO thin films analyzed by EBSD

D. Goran*, Oxford Instruments HKL, Denmark; M. Es-Souni, C. Solterbeck, University of Applied Sciences of Kiel, Germany

11:40 AM

Mechanical Properties in relation to Fiber Orientation Distribution of two C/C composite

S. S. Iqbal*, P. Filip, Southern Illinois Univ. Carbondale (SIUC), USA

12:00 PM

Compositionally and Structurally Graded CoCrMo-Ti6Al4V Alloy Structures for Bone Implants

V. K. Balla*, W. Xue, S. Bose, A. Bandyopadhyay, Washington State University, USA

Iron & Steel: Advancements in Steel Production through EAF, Ladle Refining, and Continuous Casting Technologies and Practices

Advancements in Steel Production: EAF, Ladle Refining, and Continuous Casting Technologies and Practices

Room: 328

Session Chair: Les Niemi, Affival Inc.

8:00 AM

Integrated process modeling of decarburization in RH-OB process

Y. Kim*, K. Yi, Seoul National University, South Korea

8:20 AM

De-oxidizing Behaviors of Al and Ti in Fe-melts under High Temperatures

C. Wang*, H. Matsuura, S. Seetharaman, Carnegie Mellon University, USA

8:40 AM

Optimized Slag Analysis Using Energy Dispersive X-ray Fluorescence Analysis (EDXRF)

A. Seyfarth*, J. Jackson, D. Pecard, Bruker AXS Inc., USA

9:00 AM

New Observation of Inclusions in Steel

L. Zhang*, Missouri Univ. Sci. Tech., USA

9:20 AM

Fluid Flow and Inclusion Motion in the Holding Furnace of a Two-strand Horizontal Continuous Caster

S. Yang, J. Li, Univ. Sci. Tech. Beijing, China; L. Zhang*, K. Peaslee, Missouri Univ. Sci. Tech., USA; S. Shi, Z. Zuo, Hengyang Hualing Steel Tube Co Ltd, China

9:40 AM

Break

10:00 AM

Effect of BaO on the Properties of Continuous Casting Mold Flux

Q. Huang, Q. Wang, Chongqing University, China; L. Zhang*, Missouri University of Science and Technology (Missouri S&T), USA; B. Xie, S. He, Chongqing University, China; X. Lu, Missouri University of Science and Technology (Missouri S&T), USA

10:20 AM

A Numerical Simulation of the Thickness of Liquid Flux layer in Continuous Casting

E. Ko*, K. Yi, Seoul National University, South Korea

Iron & Steel: Steel Product Metallurgy and Applications

Property - Application Studies

Room: 330

Session Chair: Dibyajyoti Aichbhaumik, U.S. Dept. of Energy

8:00 AM

Innovative Induction Heat Treating Technologies

V. Rudnev*, D. Brown, G. Doyon, Inductoheat, Inc., USA

8:20 AM

Effect of Temperature and Strain Rate on Secondary Phase Formation in 2205 Dual Phase Stainless Steel under Hot Working Condition

H. Keshmiri, M. Shahhosseini, Esfarayen Industrial Complex, Iran; A. Shahhosseini*, University of Louisville, USA; G. Ebrahimi, Tarbiat Moallem Sabzevar University, Iran

8:40 AM

Effect of Aging Temperature on Microstructure and Mechanical Properties of 2205 Duplex Stainless Steel

H. Keshmiri, M. Shahhosseini, Esfarayen Industrial Complex, Iran; A. Shahhosseini*, University of Louisville, USA; G. Ebrahimi, Tarbiat Moallem Sabzevar University, Iran

9:00 AM

Investigation of Hot Deformation Behavior of 1.4563 Super-Austenitic Stainless Steel

H. Keshmiri, M. Shahhosseini, Esfarayen Industrial Complex, Iran; A. Shahhosseini*, University of Louisville, USA; G. Ebrahimi, Tarbiat Moallem Sabzevar University, Iran

9:20 AM

Break

9:40 AM

Effects of Paint Baking on the Axial Crash Behavior of Advanced High Strength Steels

T. Link*, United States Steel Research, USA

10:00 AM

Thermo-mechanical crack generation and ultra-fine grains formation in carbon steel railway wheels under continuous contact load and repeated heat input

K. Handa*, Railway Technical Research Institute, Japan; Y. Kimura, Y. Mishima, Tokyo Institute of Technology, Japan

10:20 AM

Finite Element Analysis of Deformation Behavior of Hot Rolled Sheet after Coiling Considering TRIP

H. Cho*, Y. Cho, H. Han, Seoul National University, South Korea; Y. Im, J. Lee, J. Kwak, POSCO, South Korea; S. Ryu, Seoul National University, South Korea

10:40 AM

Development of friction welded shaft for the turbocharger of marine diesel engine

M. Han*, I. Kim, Y. Yoon, E. Kim, Hyundai Heavy Industries Co., Ltd, South Korea; J. Kim, KOREA Special Precision Co, South Korea

11:00 AM

Investigation of Zinc Thermal Diffused Coatings by Solid State Diffusion Method

G. Heidari, M. Mosavi khoei, A. Hasanzade, P. Hoveidamarashi, Amirkabir University of Technology, Iran; H. Keshmiri, Esfarayen Industrial Complex, Iran; A. Shahhosseini*, University of Louisville, USA

Materials & Systems: Advances in Biomedical and Biomimetic Materials

Nanoparticles for Medical Diagnosis and Treatment

Room: 333

Session Chair: Donglu Shi, University of Cincinnati

8:00 AM

In vivo imaging with fluorescent superparamagnetic nano spheres (Invited)

D. Shi*, H. Cho, C. Huth, Z. Dong, University of Cincinnati, USA; Y. Chen, Institute for Biological Sciences, Chinese Academy of Science, China; H. Gu, H. Xu, Shanghai Jiao Tong University, China; W. Wang, G. Liu, Argonne National Laboratory, USA; J. Lian, L. Wang, R. C. Ewing, University of Michigan, USA

8:20 AM

Modeling the Electrochemical Interactions of Nanoparticulate Systems in Medical Devices

D. Saylor*, B. Dair, U.S. Food and Drug Administration, USA; J. Guyer, J. Warren, National Institute of Standards and Technology, USA

8:40 AM

Magnetic Nanoparticle Heating for Hyperthermia Treatment

I. Baker*, G. Zhang, Q. Zeng, J. A. Loudis, P. J. Hoopes, J. Weaver, R. R. Strawbridge, Z. E. Pierce, J. Tate, J. Ogden, Dartmouth College, USA

9:00 AM

Liposome-Quantum Dot Hybrids as Multimodal Therapeutic and Imaging Agent Delivery Systems

W. T. Al-Jamal*, K. T. Al-Jamal, K. Kostarelos, School of Pharmacy/ University of London, United Kingdom

9:20 AM

Break

Bioceramics II

Room: 333

Session Chair: Donglu Shi, University of Cincinnati

10:00 AM

Microwave Synthesis of Nanocrystalline Hydroxyapatite

S. J. Kalita*, S. Verma, University of Central Florida, USA

10:20 AM

Nanoindentation of Biomaterials – new concepts in biomechanical characterization (Invited)

M. E. Dickinson*, Hysitron Inc., USA

10:40 AM

Nanomechanical and structural characterization of hydroxyapatite coatings on ultrafine grained titanium

K. Calvert-Doyle*, K. P. Trumble, S. Chandrasekar, C. Saldana, W. Moscoso, Purdue University, USA

11:00 AM

Pulsed Laser Induced Ca-P Coatings on Ti- 6Al-4V for Hip Bio-implant

S. R. Paital*, The University of Tennessee, Knoxville, USA; N. B. Dahotre, The University of Tennessee, USA

Materials & Systems: Enabling Surface Coating Systems: Science and Technology

Advanced Processing and Modeling

Room: 335

Session Chairs: Rodney Trice, Purdue University; Pravansu Mohanty, University of Michigan

8:00 AM

Spray formation and evolution in coating processes (Invited)

P. E. Sojka*, Purdue University, USA

8:40 AM

Low Pressure Cold Spray - Powder Shock Consolidation Process

E. Leshchinsky, R. Maev*, M. Lubrick, University of Windsor, Canada

9:00 AM

Low pressure Cold Spray Consolidation and Sintering Near-Net Shape Sliding Components

E. Leshchinsky*, E. Maeva, M. Lubrick, University of Windsor, Canada

9:20 AM

Characterization of pure Cu, Ni and Ti coatings produced by cold spray after heat treatment

A. Rezaeian*, McGill University, Canada; E. Irissou, J. Legoux, National Research Council Canada(NRC), Canada; S. Yue, McGill University, Canada

9:40 AM

Break

Multifunctional Coatings I

Room: 335

Session Chairs: Rodney Trice, Purdue University; Pravansu Mohanty, University of Michigan

10:00 AM

Surface Modification by Direct Metal Deposition Process: Technical Challenges, Opportunities and Performance Benefits (Invited)

B. Dutta*, POM Group Inc., USA

10:40 AM

Development of Titanium Nitride films on Titanium and Ti-6Al-4V Alloy using Laser Generated Plasma

R. Akarapu*, S. M. Copley, J. A. Todd, Pennsylvania State University, USA

11:00 AM

Non-immersion surface preparation for cerium-based conversion coatings on aluminum alloy substrates

W. Gammill*, M. O'Keefe, W. Fahrenholtz, Missouri University of Science and Technology, USA

11:20 AM

Coatings to Improve Surface Properties of Microcellular and Fibrous Carbon Structures

A. Karumuri*, D. Sharma, S. M. Mukhopadhyay, Wright state university, USA

Materials & Systems: International Symposium on Innovative Processing and Synthesis of Ceramics, Glasses and Composites

Composite and Powder Processing

Room: 336

Session Chair: Chen-Feng Kao, National Cheng Kung University

8:00 AM

A Comparison of Aqueous and Organic Routes to Structurally Cubic or Pseudo-Cubic Nanoparticles of Hafnia, Zirconia, and their Mixed Oxides

S. Chan*, C. Lu, J. Raitano, J. Tang, M. Steigerwald, L. Brus, Columbia University, USA

8:20 AM

High Purity Nanopowders for Transparent Ceramics: YAG, Spinel and Yttria

Y. Tang*, L. Nguyen, H. Bui, S. Paras, J. Hong, T. Stefanik, R. Ericksen, Nanocerox Inc., USA

8:40 AM

Almatis Implementation of a globalized method of particle size measurement for calcined and reactive alumina's

C. Compson*, R. McConnell, T. Bullard, B. Smith, Almatis Inc, USA; N. Grossmann, B. Kruff-Steuiler, Almatis GmbH, Germany

9:00 AM

The Effect of Water-Soluble Polymers on the Microstructure and Properties of Freeze Cast Ceramics

C. Pekor*, I. Nettleship, University Of Pittsburgh, USA

9:20 AM

Mechanical Behavior of Al-Al85Ni10La5 in situ Nanocomposites by Mechanical Milling

Z. Zhang*, T. Topping, Y. Zhou, E. J. Lavernia, University of California, Davis, USA

9:40 AM

Break

10:00 AM

Performance of Composite Materials in Corrosive Conditions

D. M. Hill*, DNV Research and Innovation - CC Technologies, USA

10:20 AM

Synthesis and Electrical Properties of Cobalt-Nickel-Oxide Ceramic Matrix Composites

C. Kao*, H. Cheng, National Cheng Kung University, Taiwan

Nanotechnology: Controlled Processing of Nanoparticle Structures and Composites

Nano-enabled Devices I

Room: 408

Session Chair: Alex Aning, Virginia Tech

8:00 AM

Microanalytical study on piezoresistive mechanism of RuO₂-particle-dispersed glass-matrix composites (Invited)

M. Totokawa, DENSO Corporation, Japan; T. Tani*, Toyota Technological Institute, Japan

8:40 AM

Electrical Ceramics: Functional at Fifty (and Fewer) Nanometers (Invited)

G. L. Brennecka*, J. S. Wheeler, C. M. Parish, B. A. Tuttle, A. Gin, Sandia National Labs, USA; J. G. Ekerdt, University of Texas at Austin, USA

9:20 AM

Development of Nanoscale Magneto-Rheological (nMR) Suspensions: Effect of Particle Size on Flow and Thermal Characteristics through Microchannels

K. Sinha*, Alfred University, USA; B. Kavlicoglu, Y. Liu, Advanced Materials and Devices Inc., USA; O. A. Graeve, Alfred University, USA

9:40 AM

Break

10:00 AM

Low-Temperature Electrical Power Generation Employing Nanoscale Fluorite-Structured Oxide Electrolytes (Invited)

S. Kim*, H. Park, U. Anselmi-Tamburini, University of California, USA; M. Martin, RWTH Aachen University, Germany; Z. A. Munir, University of California, USA

10:40 AM

A new architecture of vertically aligned carbon nanotube film on a flexible material

S. Chang*, T. Chen, T. Tsai, National Tsing-Hua University, Taiwan; K. Hsieh, National Taiwan University, Taiwan; N. Tai, National Tsing-Hua University, Taiwan; H. Chen, National Taiwan University, Taiwan

11:00 AM

Role of Lattice Vibrations in a Nanoscale Electronic Device (Invited)

K. Kral*, Inst. Phys. ASCR, v.v.i., Czech Republic

11:20 AM

Structural and Functional Nanocomposites with Hierarchical Structures in 1-D, 2-D, and 3-D (Invited)

N. P. Padture*, The Ohio State University, USA

Nanotechnology: Nanotechnology for Power Generation

Nanotechnology for Power Generation II

Room: 409

Session Chairs: Gary Pickrell, Virginia Polytechnic Institute and State University; Navin Manjooan, Siemens AG, Energy

8:00 AM

Sensitivity of a porous clad optical fiber with varying pore structures

B. L. Scott*, C. Ma, G. Pickrell, A. Wang, Virginia Polytechnic Institute and State University, USA

8:20 AM

Miniaturized Chemical Sensors by Functional Integration of Nanomaterials with Highly Sensitive Photonic Devices (Invited)

H. Xiao*, T. Wei, J. Montoya, Y. Li, Missouri University of Science and Technology, USA; J. Zhang, J. Dong, University of Cincinnati, USA

9:00 AM

Synthesis of Sb₂S₃ via Ultrasound as a Potential Photosensibile Material in Nanocrystalline Solar Cells

J. Estevane*, E. M. Sanchez Cervantes, U.A.N.L., Mexico

9:20 AM

Mesoporous hydrous manganese dioxide nanowall arrays with large lithium-ion energy storage capacities

D. Liu*, University of Washington, USA; P. Xiao, Chongqing University, China; Q. Zhang, B. Garcia, C. Cao, University of Washington, USA

9:40 AM

Break

10:00 AM

The modeling of electromagnetic wave propagation of nano-structured fibers for sensor applications

N. T. Pfeifferberger*, G. Pickrell, Virginia Tech, USA

10:20 AM

Novel Organic-Inorganic Hybrid Solar Cells Based on Titania Nanotube Arrays and Metallo-organic/Polymer Blends

T. Jiang*, N. P. Padture, The Ohio State University, USA

10:40 AM

Thermopower measurement of nano/microwires

S. Annamalai*, I. L. Pegg, B. Dutta, The Catholic University of America, USA

**Processing & Product Manufacturing:
Joining of Advanced and Specialty
Materials X**

Repair of Critical Structures

Room: 410

Session Chairs: Leijun Li, Utah State University; Boian Alexandrov, The Ohio State University

8:00 AM

Gradient Material Analysis by Digital Image Correlation

R. Grylls*, Optomec Inc., USA; T. Lienert, Los Alamos National Laboratory, USA; D. Keicher, Optomec Inc., USA

8:20 AM

Direct Metal Deposition: Manufacture, Repair and Restoration of Complex Gas Turbine Components

J. DSouza, B. Dutta*, J. Mazumder, The POM Group Inc., USA

8:40 AM

Thermomechanical Simulation of Repair Procedure for Cr3 Steel Rolls

B. Chen, Y. Huang*, K. Lu, X. Wang, Wuhan University of Technology, China; L. Li, Utah State University, USA

9:00 AM

Feasibility Study of the Repair of Aluminum Components by Variable Polarity GTAW Cladding

R. Sarrafi*, D. Lin, R. Kovacevic, Southern Methodist University, USA

9:20 AM

Vibration-Assisted Laser Powder Deposition

E. Foroozmehr*, D. Lin, R. Sarrafi, R. Kovacevic, Southern Methodist University, USA

9:40 AM

Break

10:00 AM

Pulsed Laser Repair of a DS Superalloy

L. Li*, A. Deceuster, M. Mahapatra, V.Y. Zhang, Utah State University, USA

10:20 AM

Novel Joining and Repair of Aerospace Materials

J. P. Forsdike*, M. R. Bache, Swansea University, United Kingdom; S. J. Tuppen, Rolls-Royce plc, United Kingdom

10:40 AM

Influence of Marble Particle Size in Flux Coating on Performance of D600R Electrode

B. Chen, F. Han, Wuhan University of Technology, China; Y. Huang*, Sinosteel Xingtai Machinery & Mill Roll Co, China; K. Lu, Y. Liu, Wuhan University of Technology, China; L. Li, Utah State University, USA

**Processing & Product Manufacturing:
Processing, Properties and Performance of
Composite Materials**

Polymer Matrix Composites I

Room: 412

Session Chair: Srinath Viswanathan, University of Alabama

8:00 AM

Whispering Gallery Mode Micro-Optical Sensors: New Opportunities for Developing Smart Composite Materials (Invited)

V. Otugen*, T. Ioppolo, Southern Methodist University, USA

8:40 AM

Processing and Properties of Syntactic Foams

N. Gupta*, Polytechnic University, USA

9:00 AM

Environmental Degradation of Carbon Fiber Reinforced Composites by Boiling Water

D. Jeevan Kumar*, A. K. Singh, R. P. Singh, Oklahoma State University, USA

9:20 AM

Morphology and Interactions in Nanostructured EVA/Organoclay Materials

M. Valera-Zaragoza, Universidad del Papaloapan, Mexico; E. Ramirez-Vargas, Centro de Investigación en Química Aplicada, Mexico; F. J. Medellín-Rodríguez, CIEP-FCQ, UASLP, Mexico; L. Rivas-Vázquez*, R. Suárez-Orduña, J. Hernandez-Torres, Universidad del Papaloapan, Mexico

9:40 AM

Break

10:00 AM

High Performance COPVS for In-Space Storage of High Pressure Cryogenic Fuels (Invited)

J. Schneider*, C. Hastings, M. Dyess, J. Wang, Mississippi State University, USA

10:40 AM

A Study on Applicability of Phenolic Fiber Reinforced Composite for Sterntube Bearing of Ship

Y. So*, Y. Ahn, D. Kim, Y. Yoon, J. Youn, Hyundai Heavy Industries, Co., Ltd, South Korea

11:00 AM

Experimental Study on Tensile and Flexural Behavior of Glass Vinyl Ester Composites with and without Graphite Fillers and FEA

R. Vajram*, S. K. Venkatachar, S. Murthylal, Sri Jayachamarajendra College of Engineering, India

**Nanotechnology: Controlled Processing of
Nanoparticle Structures and Composites**

Nano-enabled Devices II

Room: 408

Session Chair: Tom Hinklin, Ceramatec

1:00 PM

Gas Sensor Array Devices Based on Nanostructured Metal Oxides

M. A. Andio*, E. Beach, P. A. Morris, Ohio State University, USA

1:20 PM

Nanowire enhanced TiO2 particles as a platform for gas sensing

B. Dinan*, M. Andio, P. Morris, S. Akbar, The Ohio State University, USA

1:40 PM

Hybrid Organic / Inorganic Nanostructured Solar Cells (Invited)

D. C. Olson*, National Renewable Energy Laboratory, USA

2:20 PM

Application of hierarchically-structured ZnO aggregate films in dye-sensitized solar cells (Invited)

Q. Zhang, S. Jenekhe, G. Cao*, University of Washington, USA

**Electronic & Magnetic Materials:
Fabrication, Microstructures and
Interfacial Properties of Multifunctional
Oxide Thin Films**

Microstructure and Dielectric Properties of Oxide Films

Room: 315

Session Chairs: Brady Gibbons, Oregon State University; Mark Losego, North Carolina State University

2:00 PM

Phase Transition Studies in Multiferroic BiFeO3 thin films using Raman Spectroscopy (Invited)

R. S. Katiyar*, M. K. Singh, R. Palai, University of Puerto , USA; J. F. Scott, University of Cambridge , United Kingdom

2:40 PM

Enhancement of Ferroelectric Properties of BiFeO₃ Thin Films by Domain and Strain Engineering (Invited)

C. Eom*, University of Wisconsin-Madison, USA

3:20 PM

Break

3:40 PM

Polarization, Domain Structures, and Switching in Epitaxial BiFeO₃ Thin Films (Invited)

J. Zhang, S. Choudhury, Y. Li, Penn State University, USA; Y. Chu, F. Zavaliche, M. Cruz, P. Shafer, University of California, USA; H. Jang, S. Baek, D. Ortiz, C. Folkman, R. Das, University of Wisconsin, USA; V. Vaithyanathan, Penn State University, USA; Y. Chen, University of Michigan, USA; Q. Jia, Los Alamos National Laboratory, USA; X. Pan, University of Michigan, USA; D. Schlom, Penn State University, USA; C. Eom, University of Wisconsin, USA; R. Ramesh, University of Michigan, USA; L. Chen*, Penn State University, USA

4:20 PM

Composite-like Structure in the Epitaxial Relaxor Ferroelectric Ba(Zr,Ti)O₃ Thin Films on (001) MgO Substrate

J. He*, J. Jiang, E. Meletis, The University of Texas at Arlington, USA; C. Chen, A. Bhalla, University of Texas at San Antonio, USA

Electronic & Magnetic Materials: Ferroelectrics and Multiferroics

Piezoelectric Materials

Room: 318

Session Chairs: Geoff Brennecke, Sandia National Laboratories; Shashank Priya, Virginia Tech

2:00 PM

Vibration Damping of High-Chromium Ferromagnetic Steel

S. Bhujang Mutt*, M. Kumbheeshwar, G. Bhujang Mutt, East Point College of Engineering and Technology, India

2:20 PM

Effect of CoFe₂O₄ Coercivity by High Energy Ball Mill

Y. P. Cardona*, R. Perez, University of Puerto Rico in Mayaguez, USA; J. Silva, A. Rossa, P. Vargas, O. Uwakweh, University of Puerto Rico, USA

Electronic & Magnetic Materials: Low Temperature Processing for Integration of Microelectronics Devices

Advanced System Integration

Room: 319

Session Chair: Jun Akedo, Natl. Inst. of Advanced Industrial Science & Tech.

2:00 PM

Aerosol Deposition Technology for Microelectronics Packaging Applications (Invited)

Y. Imanaka*, H. Amada, Fujitsu Laboratories Ltd., Japan; J. Akedo, National Institute of Advanced Industrial Science and Technology, Japan

2:40 PM

Tunable Ferroelectric Thin-Film Technology Compatible with LTCC Process for Integrated RF Modules (Invited)

T. Suzuki*, F. Taniguchi, K. Kawamura, Y. Mizuno, H. Kishi, Taiyo Yuden Co., Ltd., Japan

3:20 PM

Ferroelectric/piezoelectric devices for System-in-Package (Invited)

T. Chakraborty*, R. E. Miles, A. Laister, C. James, M. Khan, T. P. Comyn, S. J. Milne, University of Leeds, United Kingdom

4:00 PM

Aerosol Deposition technique as an alternative method in MLCCs fabrication at room temperature (Invited)

D. Popovici*, J. Park, J. Akedo, Natl. Inst. of Advanced Industrial Science and Technology (AIST), Japan

Electronic & Magnetic Materials: Perovskite Oxides: Films, Nanostructures, Properties, and Applications

Perovskite Oxides - Superconducting Films

Room: 316

Session Chairs: Timothy Haugan, U.S. Air Force Research Laboratory; Parans Paranthaman, Oak Ridge National Laboratory

2:00 PM

Superconductivity and Thermoelectricity at the Interface of Perovskite Oxides (Invited)

Q. Li*, Brookhaven National Lab, USA

2:40 PM

Microstructural and Pinning Properties of YBa₂Cu₃O_{7-δ} Thin Films Doped with Magnetic Nanoparticles

J. Wang*, J. Yoon, D. G. Naugle, H. Wang, Texas A&M University, USA

3:00 PM

LaMnO₃: Excellent Cap Layer for IBAD-MgO Template Based High Performance Second Generation Superconducting Wires

M. P. Paranthaman*, T. Aytug, O. Polat, Y. Zhang, A. Goyal, Oak Ridge National Laboratory, USA; Y. Chen, X. Xiong, V. Selvamanickam, SuperPower, Inc, USA

3:20 PM

Break

3:40 PM

Enhancing Critical Currents of YBCO Superconductors with Nanoparticle Additions

T. Haugan*, M. J. Mullins, E. Brewster, J. Reichart, J. F. Baca, J. Bulmer, P. Barnes, U.S. Air Force Research Laboratory, USA; H. Wang, Texas A&M Univ, USA; M. Sumption, The Ohio State Univ, USA

4:00 PM

Exploring the interfacial defects in nanostructured YBa₂Cu₃O_{7-δ} thin films

H. Wang*, J. Wang, J. Yoon, Texas A & M University, USA; S. R. Foltyn, Q. Jia, H. Zhou, B. Maiorov, L. Civale, Los Alamos National Laboratory, USA; J. MacManus-Driscoll, University of Cambridge, United Kingdom; T. J. Haugan, F. J. Baca, C. V. Varanasi, P. N. Barnes, Air Force Research Laboratory, USA

4:20 PM

Electronic Structure and XANES/ELNES Spectral Calculation in YBa₂Cu₃O₇ Superconductor (Invited)

W. Ching*, P. Rulis, University of Missouri-Kansas City, USA

Environmental & Energy Issues: Green Technologies for Materials Manufacturing and Processing

Waste Minimization and Recycling

Room: 323

Session Chairs: Elizabeth Hoffman, Savannah River National Laboratory; Carol Jantzen, Savannah River National Laboratory

2:00 PM

Geopolymers for Hazardous Wastes and Thermal Treatment Residues (Invited)

C. M. Jantzen*, P. R. Burket, A. R. Jurgensen, C. L. Crawford, Savannah River National Laboratory, USA

2:40 PM

Revaluation of Tank Chemistry Control Requirements for Corrosion Protection

E. Hoffman*, P. Zapp, B. Wiersma, K. Subramanian, Savannah River National Laboratory, USA

3:00 PM

Rinsewater Reduction Calculator

W. J. Fullen*, J. Unangst, Boeing, USA

3:20 PM

Break

3:40 PM

Metallurgical Recovery of Metals from Electronic Wastes

L. Zhang*, Missouri Univ. Sci. Tech., USA

4:00 PM

Anion Exchange Property of As(III), As(V), Se(IV), Cr(VI) and B(III) with Hydrotalcite-like Compounds

J. Shibata*, N. Murayama, S. Matsumoto, Kansai University, Japan

4:20 PM

Pilot Testing of a Green, No-Waste, Process to Maximize Value from Hot Aluminum Dross

O. R. Singleton*, Singleton Technology, Inc., USA

4:40 PM

New Applications for Recycled Metallic Matrix Composites

N. Cantres*, J. Vázquez, M. Suárez, University of Puerto Rico, USA

Fundamentals & Characterization: Ceramic Surfaces, Grain Boundaries and Interfaces

Interface Structure and Properties II

Room: 301

Session Chairs: Adham Hashibon, University of Karlsruhe; Shen Dillon, Carnegie Mellon University

2:00 PM

The T-Stress and Fracture in Ceramics: How Can We Utilize it? (Invited)

I. Reimanis*, J. Dorsey, J. R. Berger, Colorado School of Mines, USA

2:40 PM

Grain Boundary Atomic Structures, Segregation site and Properties in Oxide Ceramics (Invited)

Y. Ikuhara*, The University of Tokyo, Japan

3:20 PM

Boron Enrichment at TiN Interfaces (Invited)

C. Scheu*, University of Leoben, Austria; D. Hochauer, J. Wagner, Materials Center Leoben Forschung GmbH, Austria; V. Srot, Max-Planck-Institute for Metal Research, Germany; N. Grobert, K. Jurkschat, Oxford University, United Kingdom; M. Kathrein, CERATIZIT Austria GmbH, Austria; C. Mitterer, University of Leoben, Austria

3:40 PM

Determining the Chemistry and Phase Relationships in Al-Si-Cu-Mg Nanoparticles Using In-Situ TEM (Invited)

S. K. Eswaramoorthy, J. M. Howe*, G. Muralidharan, University of Virginia, USA

4:00 PM

Grain Boundary Complexions in Creep Resistant and Creep Compliant Alumina

S. K. Behera*, M. P. Harmer, Lehigh University, USA

4:20 PM

Role of Silicon in Abnormal Grain Growth Development in Fe-3%Si

K. S. Rao*, C. J. Kiely, Lehigh University, USA; A. D. Rollett, Carnegie Mellon University, USA; M. P. Harmer, Lehigh University, USA

Fundamentals & Characterization: Discovery and Optimization of Materials through Computational Design

Mesoscale Modeling and Microstructural Evolution II

Room: 303

Session Chair: Nele Moelans, K.U.Leuven

2:00 PM

Enhancing Piezoelectric and Multiferroic Responses through Patterning: Phase-field Simulations (Invited)

J. Zhang, L. Chen*, Penn State University, USA

2:40 PM

Phase field modeling of alloy microstructural evolutions driven by irradiation (Invited)

P. M. Bellon*, A. Badillo, R. S. Averback, University of Illinois, USA

3:20 PM

Multiscale Modeling of Waveform Design for Fast Stable Electrodeposition (Invited)

A. C. Powell*, Opennovation, USA

4:00 PM

Recent Additions to the Alloy Theoretic Automated Toolkit

A. van de Walle*, California Institute of Technology, USA

Fundamentals & Characterization: Performance and Growth of Bulk and Thin Film Materials - Role of Surface and Interface Phenomena during Growth and Processing

Role of Surfaces and Interfaces

Room: 306

Session Chair: Ravindra Nuggihalli, New Jersey Institute of Technology

2:00 PM

Overshoot Graded Layers for Defect Engineering in Heteroepitaxial Semiconductor Structures (Invited)

J. F. Ocampo, E. Suarez, D. Shah, P. B. Rago, F. C. Jain, J. E. Ayers*, University of Connecticut, USA

2:40 PM

Mercurous Bromide Crystals for Acousto-Optic Applications (Invited)

N. B. Singh*, M. Gottlieb, D. Suhre, D. Knuteson, D. Kahler, A. Berghmans, W. Brian, S. McLaughlin, M. Fitelson, J. Fusco, N. Paraskevopoulos, Northrop Grumman Corporation, ES, USA

3:20 PM

Break

3:40 PM

A Novel MEMS Fabry-Perot Interferometric Pressure Sensor

I. Padron*, A. T. Fiory, N. M. Ravindra, New Jersey Institute of Technology, USA

4:00 PM

Atomic, Electronic, and Defect Structure of the Dynamically Formed Cu₂O/Cu Interfaces

X. Han*, L. Li, J. C. Yang, University of Pittsburgh, USA

4:20 PM

Alteration of Substrate Compliance and Effects on Fracture of Thin Metallic Films

M. S. Kennedy*, Clemson University, USA; J. Yeager, Washington State University, USA; I. Rook, I. Luzinov, Clemson University, USA; D. Bahr, Washington State University, USA; N. Moody, Sandia National Laboratory, USA

4:40 PM

Solidification Behaviour of Optical material: PbCl₂-AgCl System

A. Singh*, N. Singh, G. D. Singh, T.D. Post Graduate College, India; O. P. Singh, K.N.Government College, India

Fundamentals & Characterization: Recent Advances in Structural Characterization of Materials

Electron Microscopy and Electron Diffraction: Developments and Applications III

Room: 309

Session Chair: Guangwen Zhou, State University of New York, Binghamton

2:00 PM

In-situ TEM Study on the FE_{RL}/FE_{RH} phase transition in Nb-Doped $Pb(Zr_{0.95}Ti_{0.05})O_3$ Ceramics

W. Qu*, X. Tan, Iowa State University, USA; P. Yang, Sandia National Laboratories, USA

2:20 PM

The Yield Strength Anomaly in Fe_2MnAl Single Crystals

Y. Liao*, I. Baker, Dartmouth College, USA

2:40 PM

Crystallographic and Analytical Characterization of precipitation in ferritic weld metal deposited with a Self-Shielded arc welding process

B. Narayanan*, L. Kovarik, The Ohio State University, USA; M. Quintana, The Lincoln Electric Company, USA; M. J. Mills, The Ohio State University, USA

3:00 PM

Analysis of the accessibility of macroporous aluminosilicate using 3D-TEM images

M. Moreaud*, C. Benoit, F. Tihay, IFP-Lyon, France

Iron & Steel: Steel Product Metallurgy and Applications

Microstructure Analysis

Room: 330

Session Chair: Craig Darragh, The Timken Company

2:00 PM

Microstructure Characteristics and CO₂ Corrosion Resistance Properties of Electrical Resistance Welded (ERW) Pipe

Z. Zuogui*, T. Qingchao, D. Xiaoming, L. Junliang, Baoshan Iron & Steel Co. Ltd, China

2:20 PM

The precipitation behavior of steels with niobium and copper

X. Wang*, C. Shang, X. He, C. Li, University of Science and Technology Beijing, China

2:40 PM

Characterization of low carbon bainitic microstructure by using Cs-corrected STEM/EELS and EBSD

J. Kang*, G. Gu, N. Lim, C. Park, POSTECH, South Korea

3:00 PM

Advanced High Strength Steels (AHSS) with Duplex Ferrite and Austenite Microstructures

M. C. McGrath*, S. N. Lekakh, D. C. Van Aken, V. L. Richards, Missouri University of Science and Technology, USA

Materials & Systems: Advances in Biomedical and Biomimetic Materials

Bioceramics III

Room: 333

Session Chair: Samar Kalita, University of Central Florida

2:00 PM

Tricalcium phosphate coating on Ti using LENS

M. Roy*, A. Bandyopadhyay, S. Bose, Washington State University, USA

2:20 PM

Young's modulus, shear modulus and Poisson's ratio as a function of porosity for alumina and hydroxyapatite

F. Ren*, E. D. Case, M. J. Baumann, A. Q. Morrison, Michigan State University, USA

2:40 PM

Chemical and Physical Modification of Calcium Aluminates for use as a Bone Scaffold Material

R. Palchesko*, Duquesne University, USA; K. A. McGowan, Westmoreland Advanced Materials, USA; E. S. Gawalt, Duquesne University, USA

3:00 PM

Nanophase Hydroxyapatite in Biodegradable Polymer Composites as Novel Drug-Carrying Implants for Treating Bone Diseases at Targeted Sites

H. Liu*, T. J. Webster, Brown University, USA

3:20 PM

Break

3:40 PM

Mechanical Properties Modeling of Porous Calcium Phosphates Ceramics

F. Pecqueux*, N. Payraudeau, F. Tancret, J. Bouler, Université de Nantes, France

4:00 PM

Processing of FGM with Five Concentric Layers by Spark Plasma Sintering

T. Watanabe*, Nihon University, Japan; H. Izui, Y. Fukase, M. Okano, Nihon University, Japan

Materials & Systems: Enabling Surface Coating Systems: Science and Technology

Multifunctional Coatings II

Room: 335

Session Chair: Pravansu Mohanty, University of Michigan

2:00 PM

Thermal Shock Resistance of a Functionally Graded Coating with Periodic Edge Cracks

Z. Jin*, Y. Feng, University of Maine, USA

2:20 PM

Laser Surface Modification of 2024 Al Alloy for High Thermal Conductivity

V. K. Balla*, S. Bose, A. Bandyopadhyay, Washington State University, USA

2:40 PM

Next Generation Boiler Wire Development

D. J. Branagan*, A. R. Patete, B. E. Meacham, B. D. Merkle, K. M. Byrne, The Nanosteel Company, USA

3:00 PM

Methyl-modified Melting Gels for Hermetic Barrier Coatings

A. Jitianu*, G. G. Amatucci, L. C. Klein, Rutgers University, USA

3:20 PM

Break

Biomaterial Coatings

Room: 335

Session Chair: Pravansu Mohanty, University of Michigan

3:40 PM

Functionally-graded Nanocomposite Biocompatible Coatings for Orthopedic Implants

T. W. Scharf*, W. Tu, A. Devaraj, J. Y. Hwang, R. Banerjee, The University of North Texas, USA

4:00 PM

Laser Assisted Zr/ZrO₂ Coating on Ti for Biomedical Applications

V. K. Balla*, P. De Vasconcelos, W. Xue, S. Bose, A. Bandyopadhyay, Washington State University, USA

4:20 PM

RF Plasma sprayed hydroxyapatite coating on Ti

M. Roy*, A. Bandyopadhyay, S. Bose, Washington State University, USA

4:40 PM

ZrO₂ Coatings for Biomedical Applications

M. Contreras-García*, I. Espitia-Cabrera, R. Sosa-Rodríguez, H. Orozco Hernández, B. Bermúdez-Reyes, Universidad Michoacana de San Nicolás de Hidalgo, Mexico

Processing & Product Manufacturing: Processing, Properties and Performance of Composite Materials

Polymer Matrix Composites II

Room: 412

Session Chairs: Judy Schneider, Mississippi State University; Volken Otugen, Southern Methodist University

2:00 PM

Review: Self-Healing Composites (Invited)

E. Woldeesenbet*, N. Fikru, LSU and Southern University, USA

2:40 PM

Analysis of Sensitivity of an Encapsulated Micro-Optical Sensor for Structural Health Monitoring in Composite Materials

N. Nguyen, N. Gupta*, Polytechnic University, USA

3:00 PM

Processing and Properties of Advanced Polymer Matrix Composites

S. L. Lewis*, R. Marvel, W. Sherwood, T. Russell, Starfire Systems, Inc., USA

3:20 PM

Break

3:40 PM

Effect of Moisture Absorption on Interfacial Shear Strength of Fluorinated Epoxy Carbon Fiber Composites

C. H. Kareliya*, G. Pandey, R. P. Singh, Oklahoma State University, USA; J. Hinkley, NASA Langley Research Center, USA

4:00 PM

Analysis of the Fracture Process in Epoxy Reinforced Composites Under Different Loading Conditions

A. A. Mazen*, El-Menia University, Egypt; M. A. Metwalli, Ain Shams University, Egypt; N. A. El-Mahallawy, The German University in Cairo, Egypt

4:20 PM

Performance Analysis on Glass fiber-epoxy used for applications in Marine and Slurry environment

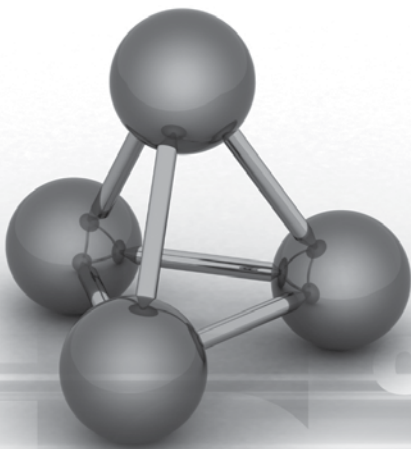
Z. E. Kennedy*, NIT Trichy, India; A. Chatterjee, SRM University, India; S. Natarajan, NIT Trichy, India; T. Mishra, SRM University, India

October 25-29, 2009 • David L. Lawrence Convention Center • Pittsburgh, Pennsylvania

MS&T'09[®]

**Materials Science & Technology
2009 Conference & Exhibition**

*The leading forum addressing structure,
properties, processing and performance
across the materials community*



www.matscitech.org

Call for Papers

collaboration
research

Abstract Deadline:
March 15, 2009

***MS&T'09 focuses on the following nine theme areas covering
the breadth of materials science and engineering:***

- Ceramic and Glass Materials
- Electronic and Magnetic Materials
- Environmental and Energy Issues
- Fundamentals and Characterization
- Iron and Steel
- Materials and Systems
- Nanotechnology
- Processing and Product Manufacturing
- Special Topics

Submit your abstract on one of these topics at www.matscitech.org.

Organized by:

ACerS
The American
Ceramic Society

AIST
Association for Iron
& Steel Technology

ASM
ASM International

TMS
The Minerals, Metals
& Materials Society