

ceramics.org/ema2017

ELECTRONIC MATERIALS AND APPLICATIONS 2017

January 18 – 20, 2017 | DoubleTree by Hilton Orlando at Sea World Conference Hotel | Orlando, Fla. USA

conference program

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Welcome



Geoff Brennecka
Electronics Division



Rick Ubic
Electronics Division



Ming Tang
Basic Science Division



Yiquan Wu
Basic Science Division

Welcome to Electronic Materials and Applications 2017! Jointly programmed by the Electronics Division and Basic Science Division of The American Ceramic Society, EMA 2017 is the eighth in a series of annual international meetings focused on the fundamental science and applications of electroceramic materials, including dielectric, electronic, magnetic, optical, electromechanical, and electrochemical phenomena.

The 2017 meeting features symposia focused on optoelectronic, magnetoelectronic, and photonic ceramics; thermal energy conversion; multifunctional nanocomposites; superconductors; ion-conducting ceramics; and materials for millimeter wave applications. Other symposia emphasize broader themes covering processing, microstructure evolution, and integration; effects of surfaces and interfaces on processing, transport, and properties; mesoscale phenomena; and computational design of electronic materials.

In addition to the technical symposia, EMA 2017 includes several supplemental activities and events. For example, the poster and networking session (Wed, 5:30-7:30 p.m., Arctic/Atlantic) this year features a selection of invited interactive posters for an even more lively session. The Basic Science Division is sponsoring a tutorial on “Ceramic Microstructure Evolution: Fundamentals and Characterization Techniques” (Wed evening, 7:45-9:45 p.m., Coral A) that will include pizza. Our lunchtime sessions will have boxed lunches for the first 36 attendees each day and will feature the finalists for the best student presentation awards (Wed and Thurs 12:40- 1:50 p.m., Coral A). Cash prizes provided by our generous sponsors (3M and Radiant Technologies) will be announced for student poster and presentation award winners at the conference dinner and awards banquet (Thurs, 7:00-9:00 p.m., Arctic/Atlantic). The grand finale of the meeting will again be a light-hearted session entitled “Failure: the Greatest Teacher” (Fri, 5:15-6:15 p.m., Indian). All of these activities are included in the meeting registration, and everyone is strongly encouraged to attend!

The meeting also features plenary lectures by distinguished scientists Sossina Haile from Northwestern University and Neil Alford from Imperial College London. The technical program, which includes invited lectures, contributed papers, and poster presentations, will provide ample opportunity for the exchange of information and ideas on the latest developments in the theory, experimental investigation and applications of electroceramic materials. The participants represent an international mix of industrial, university, and federal laboratory researchers, engineers, technologists and leaders.

We are pleased to build on the previous successes of this conference series in providing a distinctive forum to address emerging needs, opportunities and key challenges in the field of electronic materials and applications. We anticipate that this year’s meeting will continue to highlight the most recent scientific advances and technological innovations in the field, and to facilitate the interactions and collaborations that will help to shape its future.

The Electronics Division, Basic Science Division, symposium organizers, and staff from The American Ceramic Society thank you for joining us for EMA 2017. We hope you have a rewarding and beneficial meeting experience and very much look forward to your continued participation in future EMA meetings.

P.S. Please be reminded that **no** photography, audio recording, or videotaping of presenters in oral sessions is permitted. See policy on pg iv.

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Basic Science Division Officers:

Chair: **Xingbo Liu**, West Virginia University, USA
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Vice Chair: **Paul Salvador**, Carnegie Mellon University, USA
Secretary: **John Blendell**, Purdue University, USA

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Secretary: **Jon Ihlefeld**, Sandia National Laboratories, USA
Secretary-Elect: **Alp Sehirlioglu**, Case Western Reserve University, USA
Trustee: **Steven Tidrow**, Alfred University, USA

Schedule at a glance

TUESDAY, JANUARY 17, 2017

Conference registration	5:00 – 6:30 p.m.	Oceans Ballroom Foyer
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WEDNESDAY, JANUARY 18, 2017

Conference registration	7:30 a.m. – 6:00 p.m.	Oceans Ballroom Foyer
Plenary session I – Sossina Haile, Northwestern University	8:30 – 9:30 a.m.	Indian
Coffee break	9:30 – 10:00 a.m.	Atlantic
Concurrent technical sessions	10:00 a.m. – 12:30 p.m.	Indian, Pacific; Coral A & B; Mediterranean A, B, C; Caribbean B & C
Poster session Set up	12:00 – 5:00 p.m.	Arctic/Atlantic
Lunch on own	12:30 – 2:00 p.m.	
Student talk award finalist presentations	12:45 – 1:50 p.m.	Coral A
Concurrent technical sessions	2:00 – 5:30 p.m.	Indian, Pacific, Coral A & B; Mediterranean A, B, C; Caribbean B & C
Coffee break	3:30 – 4:00 p.m.	Atlantic
Poster session & reception	5:30 – 7:30 p.m.	Arctic/Atlantic
Basic Science Division Tutorial	7:45 – 9:45 p.m.	Coral A

THURSDAY, JANUARY 19, 2017

Conference registration	7:30 a.m. – 6:00 p.m.	Oceans Ballroom Foyer
Plenary session II – Neil McN. Alford, IC London	8:30 – 9:30 a.m.	Indian
Coffee break	9:30 – 10:00 a.m.	Atlantic
Concurrent technical sessions	10:00 a.m. – 12:30 p.m.	Indian, Pacific, Coral A & B; Mediterranean A, B, C; Caribbean B & C
Lunch on own	12:30 – 2:00 p.m.	
Student talk award finalist presentations	12:45 – 1:45 p.m.	Coral A
Concurrent technical sessions	2:00 – 5:30 p.m.	Indian, Pacific, Coral A & B; Mediterranean A, B, C; Caribbean B & C
Coffee Break	3:30 – 4:00 p.m.	Atlantic
Student & Young Professionals reception	5:30 – 6:30 p.m.	Barefoot Bar
Conference Dinner	7:00 – 9:00 p.m.	Arctic/Atlantic

FRIDAY, JANUARY 20, 2017

Conference registration	7:30 a.m. – 5:30 p.m.	Oceans Ballroom Foyer
Concurrent technical sessions	8:30 a.m. – 12:30 p.m.	Indian, Pacific, Coral A & B; Mediterranean A, B, C; Caribbean B & C
Coffee break	9:30 – 10:00 a.m.	Atlantic
Lunch on own	12:30 – 2:00 p.m.	
Concurrent technical sessions	2:00 – 5:30 p.m.	Indian, Pacific, Coral A & B; Mediterranean A, B, C; Caribbean B & C
Coffee break	3:30 – 4:00 p.m.	Atlantic
Failure – the greatest teacher	5:15 – 6:15 p.m.	Indian

Conference Sponsors

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M^eeeting Regulations



No photography/recording

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Note: The Society may engage photographers to photograph sessions for marketing and promotional purposes.

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Plenary Speakers

8:30 – 9:30 a.m | Indian | Wednesday, January 18, 2017

Sossina Haile, Walter P. Murphy professor of materials science and engineering, Northwestern University

Title: ***Thermochemistry of redox active oxides and its relevance to solar fuel generation***

Biography: Sossina M. Haile is the Walter P. Murphy professor of materials science and engineering at Northwestern University, a position she assumed in 2015 after serving 18 years on the faculty at the California Institute of Technology. She earned her Ph.D. in materials science and engineering from the Massachusetts Institute of Technology in 1992. Haile's research broadly encompasses solid state ionic materials and devices, with particular focus on energy technologies. She has established a new class of fuel cells based on solid acid electrolytes and demonstrated record power densities for solid oxide fuel cells. Her more recent work on water dissociation for solar-fuel generation by thermochemical processes has created new avenues for harnessing sunlight to meet rising energy demands. She has published more than 150 articles and holds more than 15 patents on these and other topics. In 2008, Haile received an American Competitiveness and Innovation (ACI) fellowship from the National Science Foundation in recognition of "her timely and transformative research in the energy field and her dedication to inclusive mentoring, education and outreach across many levels."



Sossina Haile

8:30 – 9:30 a.m | Indian | Thursday, January 19, 2017

Neil McN. Alford, MBE, FREng., professor of physical electronics and thin film materials, Vice-Dean (research) faculty of engineering, Imperial College London

Title: ***From ultra-high Q dielectrics to the room temperature maser***

Biography: Professor Alford works in the field of materials engineering and has established an international reputation for his achievements in development of high strength cements, viscous polymer processing of ceramics, development of superconducting thick films, and latterly for the development of ultra low dielectric loss microwave dielectrics and ferroelectric thin films for communications.

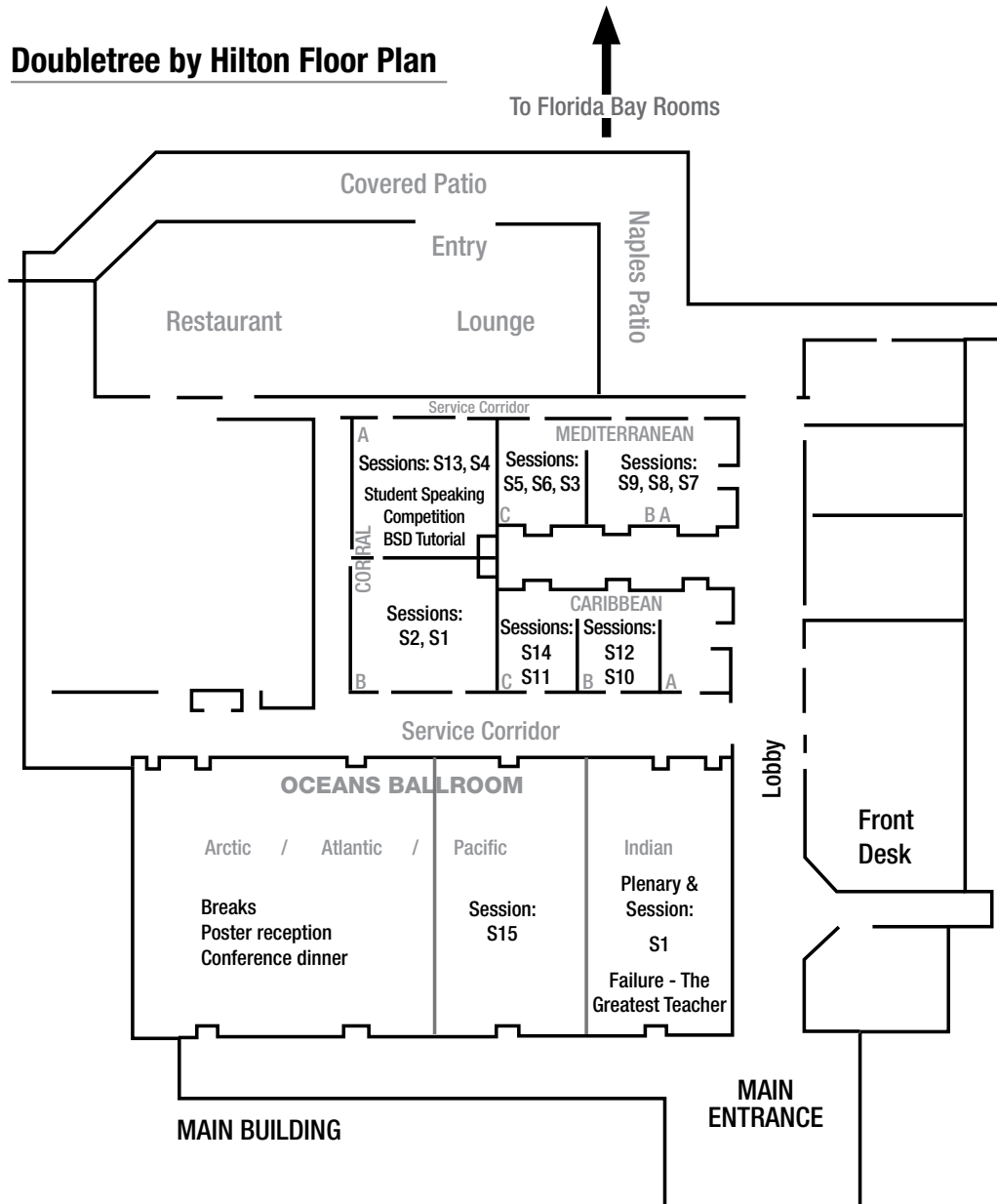
Recent work is targeted at microwave dielectric materials and successes have been the development of ultra low loss alumina resonators and an understanding of the defect chemistry of TiO_2 which has allowed the production of very high Q and high dielectric constant materials. Current activity is in the area of functional thin films for plasmonics and energy materials. His recent work has led to the development of a room temperature, earth's field MASER which was published in *Nature*.

He is a fellow of the Royal Academy of Engineering, the Institute of Physics, the Institute of Materials Minerals and Mining, The American Ceramic Society, and a fellow of the Institution of Engineering and Technology. He is an associate editor for the *Journal of the American Ceramic Society*. In 2012, he was awarded the MBE for services to engineering. He has over 250 journal publications and is the author of 21 patents. He sits on the U.K. government's advanced materials leadership council.



Neil McN. Alford

Floorplan



Symposia

The 2017 Organizing Committee

Geoff Brennecka, Electronics Division
Rick Ubic, Electronics Division

Ming Tang, Basic Science Division
Yiquan Wu, Basic Science Division

S1: Advanced Electronic Materials: Processing, Structures, Properties and Applications

Shujun Zhang, University of Wollongong, Australia; Xiaoli Tan, Iowa State University; Kyle Webber, Technische Universität Darmstadt, Germany; Satoshi Wada, University of Yamanashi, Japan; Rudeger (Derek) Wilke, Sandia National Laboratories, USA

S2: Advanced Processing for Electronic and Electrochemical Systems: Crystals, Films and Devices

Elizabeth Paisley, Sandia National Laboratories, Albuquerque, NM USA; Mark D. Losego, Georgia Institute of Technology; Jon Ihlefeld, Sandia National Laboratories; Jon-Paul Maria, North Carolina State University; Ronald Polcawich, U.S. Army Research Laboratory

S3: Ceramic Photonic Materials and Applications

Yiquan Wu, Alfred University, USA; Haiyan Wang, Texas A&M University, USA; Changzhi Gu, Institute of Physics, Chinese Academy of Sciences, China; Liangbi Su, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China; Akio Ikeshue, World-lab Corp, Japan

S4: Computational Design of Electronic Materials

Mina Yoon, Oak Ridge National Laboratory, USA; Ghanshyam Pilania, Los Alamos National Laboratory, USA; Chul Hong Park, Pusan National University, Korea; Emmanouil Kioupakis, University of Michigan, USA; Lan Li, Boise State University, USA

S5: Energy Sustainable Optoelectronics and Magnetoelectronics

Jennifer Andrew, University of Florida, USA; Jian Shi, Rensselaer Polytechnic Institute, USA; Jiamian Hu, Pennsylvania State University, USA; John Heron, University of Michigan, USA; Xavier Moya, University of Cambridge, UK

S6: Fundamentals to Applications for the Use of Thermal Energy for Power Generation and Refrigeration

Alp Sehrioglu, Case Western Reserve University; David Singh, University of Missouri, USA; Anke Weidenkaff, University of Stuttgart, Germany; Patrick Hopkins, University of Virginia, USA; Karl Sandeman, Brooklyn College of The City University of New York, USA; Brian Donovan, USNA, USA

S7: In-Situ Experiments of Microstructure Evolution and Properties

Shen Dillon, University of Illinois at Urbana Champaign, USA; Wayne D. Kaplan, Technion Israel Institute of Technology, Israel

S8: Interfaces and Surfaces in Energy-Related Ceramic Materials

R. Edwin Garcia, Purdue University, USA; Shuo Chen, University of Houston, USA; Ming Tang, Rice University, USA

S9: Interfaces in Microstructural Evolution: Structure, Properties, Anisotropy and Motion

Wolfgang Rheinheimer, Karlsruhe Institute of Technology, Germany; Michael Hoffmann, Karlsruhe Institute of Technology, Germany; John Blendell, Purdue University, USA

S10: Interfacial Phenomena in Multifunctional Heterostructures: From Theory to Transport Processes

Jayakanth Ravichandran, University of Southern California, USA; Bharat Jalan, University of Minnesota, USA; Dillon Fong, Argonne National Laboratory, USA; Anderson Janotti, University of Delaware, USA; Roger De Souza, RWTH Aachen, Germany

S11: Ion Conducting Ceramics

Fanglin (Frank) Chen, University of South Carolina, USA; Jon Ihlefeld, Sandia National Laboratories, USA; Jeff Sakamoto, University of Michigan, USA; Erik Spörke, Sandia National Laboratories, USA; Hui (Claire) Xiong, Boise State University, USA

S12: 5G Materials for the Millimeter Wave Revolution

Nate Orloff, National Institute of Standards and Technology, USA; Jim Booth, National Institute of Standards and Technology, USA; Rick Ubic, Boise State University, USA; Geoff Brennecka, Colorado School of Mines, USA

S13: Mesoscale Phenomena in Ceramic Materials, Nano- and Microstructures

Serge M. Nakhmanson, University of Connecticut, USA; Olle Heinonen, Argonne National Laboratory, USA; Edward Gorzkowski, Naval Research Laboratory, USA

S14: Multifunctional Nanocomposites

Aiping Chen, Los Alamos National Laboratory, USA; James Rondinelli, Northwestern University, USA; Junwoo Son, Pohang University of Science and Technology, Republic of Korea; Judith L. MacManus-Driscoll, University of Cambridge, UK; Roman Engel-Herbert, The Pennsylvania State University, USA

S15: Superconducting Materials and Applications

Gang Wang, Institute of Physics, Chinese Academy of Sciences, China; Haiyan Wang, Texas A&M University, USA; Timothy Haugan, Air Force Research Laboratory, USA; Charles Rong, US Army Research Lab, USA

S16: Failure: The Greatest Teacher

Geoff Brennecka, Colorado School of Mines, USA; JP Maria, North Carolina State University, USA

Student Events

Best Student Talk Award Finalist Presentations

In recognition of their outstanding contributions to our field, each year the ACerS Electronics Division presents awards to the top three presentations and top three posters presented by students at EMA. While all of the student posters are judged during the poster session as part of this competition, logistical restraints dictate that only a subset of the oral presentations be fully judged. Thus, the Awards Committee of the ACerS Electronics Division pores over all submitted student abstracts and selects 8 finalists for the best presentation awards. These finalists are then given the opportunity to speak in the special lunchtime sessions to compete for this award in addition to or in place of speaking in the regular symposium to which they submitted their abstract. Only those students who speak during the lunchtime sessions are eligible for the awards. Please join us over lunch on Wednesday and Thursday to celebrate these students and their work.

Boxed lunches for the first 36 attendees each day are provided.

WEDNESDAY

12:50 - 1:05 p.m.	Dong Hou	North Carolina State University
1:05 - 1:20 p.m.	Richard Floyd	North Carolina State University
1:20 - 1:35 p.m.	Xiaorui Tong	West Virginia University
1:35 - 1:50 p.m.	Nikola Tasić	Institute for Multidisciplinary Research, University of Belgrade

THURSDAY

12:45 - 1:00 p.m.	Eva Smith	Cornell University
1:00 - 1:15 p.m.	Ching-Yen Tang	University of Illinois at Urbana-Champaign
1:15 - 1:30 p.m.	Soumitra Sulekar	University of Florida
1:30 - 1:45 p.m.	Ran Gao	University of California, Berkeley

Basic Science Division Tutorial Wednesday | 7:45 p.m. | Coral A

Ceramic Microstructure Evolution: Fundamentals and Characterization Techniques

Wayne Kaplan, Yiquan Wu, Ming Tang

Failure: The Greatest Teacher Friday | 5:15 p.m. | Indian room

Come hear recognized leaders in the field discuss failure—and perhaps recount some of their most spectacular learning experiences—during a frank and friendly discussion in a relaxed atmosphere.

- 5:15 p.m. **JP Maria**, NC State University – ***Liquid phase assisted thin film growth of BaTiO₃: Unrealized expectations for low temperature processing***
- 5:25 p.m. **Javier Garay**, UC San Diego – ***Transparent Failures***
- 5:35 p.m. **Mark Losego**, Georgia Tech – ***Intuition vs. Thermodynamics (or Maybe We Should Have Calculated That First!)***
- 5:45 p.m. **Joe Evans**, Radiant Technologies, Inc. – ***The First FRAM - Extraordinary Success, Painful Failure***

Marketing for Manufacturers Forum at

THE AMERICAN CERAMIC SOCIETY'S

6TH CERAMIC BUSINESS AND LEADERSHIP SUMMIT

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Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
A									
Ahn, C.	19-Jan	2:30PM	Caribbean B	18	Evans, J.T.	19-Jan	4:45PM	Indian	16
Alford, N.McN.	19-Jan	8:40AM	Indian	13	Evans, J.T.	20-Jan	5:45PM	Indian	26
Alkoy, S.	19-Jan	12:15PM	Indian	13	Evans, P.G.	18-Jan	11:00AM	Coral A	6
Altermann, F.J.	18-Jan	11:15AM	Mediterranean A/B	6	F				
Alvandi-Tabrizi, Y.	20-Jan	11:00AM	Coral A	21	Fan, M.	19-Jan	10:30AM	Caribbean C	15
Andersen, T.K.	19-Jan	5:00PM	Mediterranean A/B	18	Fan, R.	20-Jan	3:00PM	Mediterranean C	24
Aoyagi, R.	20-Jan	11:00AM	Coral B	21	Feng, P.	18-Jan	12:00PM	Coral B	5
Augustyn, V.	19-Jan	3:45PM	Coral B	17	Ferreira, P.	20-Jan	8:30AM	Mediterranean A/B	22
B					Ferri, K.	18-Jan	2:45PM	Coral B	8
Balachandran, P.	19-Jan	12:00PM	Coral A	14	Finkel, P.	19-Jan	11:00AM	Indian	13
Bando, Y.	20-Jan	2:00PM	Mediterranean C	24	Fleig, J.	19-Jan	4:30PM	Caribbean B	19
Bauer, M.J.	19-Jan	5:30PM	Coral B	17	Floyd, R.	18-Jan	11:00AM	Coral B	5
Bayer, T.J.	19-Jan	5:30PM	Indian	16	Floyd, R.	18-Jan	1:05PM	Coral A	7
Bell, A.J.	18-Jan	2:30PM	Indian	8	Foley, B.	19-Jan	5:15PM	Mediterranean C	18
Birol, T.	18-Jan	2:00PM	Caribbean B	10	Folkes, P.A.	18-Jan	3:00PM	Pacific	11
Blom, A.	19-Jan	12:00PM	Caribbean B	15	Fong, D.	18-Jan	2:30PM	Caribbean C	10
Borman, T.M.	19-Jan	10:30AM	Coral B	13	Furman, E.	19-Jan	3:45PM	Indian	16
Brahlek, M.	18-Jan	2:00PM	Caribbean C	10	G				
Brant, J.	18-Jan	11:30AM	Pacific	7	Gabriel, J.J.	20-Jan	3:45PM	Coral A	25
Browning, N.	20-Jan	12:00PM	Mediterranean A/B	22	Galstyan, E.	19-Jan	12:00PM	Pacific	16
Bud'ko, S.L.	18-Jan	11:00AM	Pacific	7	Ganesh, P.	20-Jan	12:00PM	Coral A	22
Bulmer, J.	20-Jan	9:00AM	Pacific	23	Ganesh, P.	20-Jan	3:00PM	Caribbean C	26
C					Gao, H.	18-Jan	12:00PM	Mediterranean C	6
Cabral, M.J.	18-Jan	5:15PM	Indian	8	Gao, P.	19-Jan	11:30AM	Mediterranean C	14
Cao, G.	18-Jan	10:30AM	Pacific	7	Gao, R.	19-Jan	11:00AM	Coral B	13
Cen, C.	19-Jan	11:45AM	Caribbean C	15	Gao, R.	19-Jan	1:30PM	Coral A	16
Cezário, I.C.	19-Jan	5:00PM	Coral A	17	Gao, X.	19-Jan	4:00PM	Caribbean C	19
Chambers, S.	20-Jan	8:30AM	Caribbean B	22	Gao, X.	20-Jan	12:00PM	Caribbean B	23
Chan, C.K.	20-Jan	8:30AM	Caribbean C	23	Garay, J.E.	18-Jan	11:15AM	Coral B	5
Char, K.	19-Jan	5:30PM	Caribbean B	19	Garner, S.	20-Jan	10:00AM	Indian	20
Chatain, D.	19-Jan	10:00AM	Mediterranean A/B	14	Gheorghiu, N.	20-Jan	11:00AM	Pacific	23
Chen, F.	20-Jan	4:00PM	Caribbean C	26	Gorzowski, E.	20-Jan	11:45AM	Indian	20
Chen, S.	20-Jan	3:00PM	Coral B	24	Green, R.	19-Jan	10:30AM	Caribbean B	15
Chen, X.	18-Jan	10:00AM	Pacific	7	Gregg, M.	18-Jan	10:30AM	Coral A	6
Cheng, J.	18-Jan	4:30PM	Pacific	11	Grimley, C.	19-Jan	12:15PM	Pacific	16
Choi, W.	20-Jan	2:30PM	Caribbean B	25	Grimley, E.D.	18-Jan	4:45PM	Indian	8
Chou, Y.	18-Jan	2:45PM	Mediterranean C	9	Gross, M.D.	20-Jan	10:30AM	Caribbean C	23
Chu, Y.	19-Jan	10:00AM	Caribbean C	15	Gruber, M.	19-Jan	12:00PM	Indian	13
Comes, R.	20-Jan	9:00AM	Caribbean B	22	Gu, H.	18-Jan	4:00PM	Mediterranean A/B	9
Cooper, V.R.	19-Jan	10:45AM	Coral A	14	Gulgun, M.A.	18-Jan	2:30PM	Mediterranean A/B	9
Creange, N.	18-Jan	5:00PM	Mediterranean A/B	9	Guo, E.	19-Jan	11:30AM	Caribbean C	15
D					Guo, J.	18-Jan	4:15PM	Mediterranean A/B	9
Damjanovic, D.	18-Jan	10:00AM	Indian	5	Gupta, A.	19-Jan	4:30PM	Caribbean C	19
Dawley, N.M.	18-Jan	10:30AM	Caribbean B	6	Gurevich, A.	19-Jan	10:00AM	Pacific	15
De Souza, R.A.	19-Jan	11:15AM	Mediterranean A/B	14	H				
Dehm, G.	20-Jan	3:00PM	Mediterranean A/B	25	Hagerstrom, A.M.	18-Jan	11:00AM	Caribbean B	6
Deluca, M.	19-Jan	11:30AM	Coral B	13	Haile, S.	18-Jan	8:40AM	Indian	5
Deng, H.	20-Jan	9:30AM	Mediterranean C	21	Han, J.	19-Jan	12:15PM	Mediterranean A/B	15
Deng, L.	18-Jan	12:00PM	Pacific	7	Haugan, T.J.	20-Jan	2:00PM	Pacific	26
Deshpande, V.V.	20-Jan	3:00PM	Caribbean B	25	Hayashi, K.	19-Jan	5:30PM	Pacific	20
Dillon, S.	18-Jan	3:00PM	Mediterranean A/B	9	Herisson de Beauvoir, T.	18-Jan	12:00PM	Indian	5
Dittmann, R.	20-Jan	4:30PM	Caribbean B	25	Hikita, Y.	19-Jan	3:00PM	Caribbean B	18
Dkhil, B.	18-Jan	10:00AM	Coral A	6	Hill, M.D.	18-Jan	3:15PM	Indian	8
Dolgos, M.	20-Jan	11:30AM	Coral B	21	Holcomb, M.B.	19-Jan	5:00PM	Coral B	17
Donovan, B.	19-Jan	4:15PM	Mediterranean C	18	Hong, X.	18-Jan	5:00PM	Caribbean C	11
Dorr, K.	18-Jan	4:30PM	Caribbean C	11	Hopkins, P.	18-Jan	2:30PM	Coral B	8
Du, Y.	20-Jan	10:45AM	Mediterranean A/B	22	Hopkins, P.	19-Jan	3:15PM	Mediterranean C	18
E					Hopkins, P.	19-Jan	4:00PM	Mediterranean C	18
Einarsrud, M.	20-Jan	11:00AM	Caribbean C	23	Hou, D.	18-Jan	12:50PM	Coral A	7
Engel-Herbert, R.	20-Jan	4:30PM	Coral B	24	Hou, D.	18-Jan	4:30PM	Indian	8
Enriquez, E.	18-Jan	11:30AM	Caribbean C	7	Hu, J.	20-Jan	9:00AM	Mediterranean C	21
Espinal, Y.	20-Jan	9:00AM	Indian	20	Huang, J.	18-Jan	4:00PM	Caribbean C	11
					Huband, S.	20-Jan	12:00PM	Coral B	21
					Huey, B.D.	18-Jan	11:45AM	Caribbean C	7

Presenting Author List

Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Huey, B.D.	19-Jan	10:45AM	Coral B	13			M		
Huey, B.D.	20-Jan	11:00AM	Mediterranean A/B	22	Ma, B.	18-Jan	11:00AM	Mediterranean C	6
Hwang, J.	18-Jan	2:00PM	Mediterranean C	9	Ma, C.	19-Jan	5:00PM	Caribbean C	19
		I			MacManus-Driscoll, J.	19-Jan	5:00PM	Caribbean B	19
Ichihara, Y.	20-Jan	3:45PM	Pacific	26	Mahadevegowda, A.	20-Jan	12:00PM	Indian	20
Ihlefeld, J.	19-Jan	5:00PM	Mediterranean C	18	Maier, R.A.	20-Jan	4:15PM	Caribbean C	26
		J			Mangeri, J.	18-Jan	3:45PM	Coral A	10
Jalan, B.	18-Jan	11:45AM	Caribbean B	6	Marder, R.	19-Jan	11:00AM	Mediterranean A/B	14
Jalan, B.	18-Jan	3:00PM	Caribbean C	10	Marksz, E.	18-Jan	12:15PM	Caribbean B	6
Jankowski, E.	19-Jan	11:15AM	Coral A	14	Martin, L.W.	18-Jan	11:00AM	Caribbean C	7
Janotti, A.	20-Jan	9:30AM	Coral A	21	May, S.	20-Jan	10:30AM	Caribbean B	22
Jaramillo, R.	18-Jan	10:00AM	Mediterranean C	5	McIntyre, P.	18-Jan	4:15PM	Coral B	8
Jia, J.	18-Jan	2:30PM	Pacific	11	Mebane, D.S.	18-Jan	4:30PM	Coral A	10
Jia, Q.	19-Jan	10:45AM	Caribbean C	15	Mensur-Alkoy, E.	20-Jan	3:00PM	Indian	24
Jian, J.	18-Jan	4:00PM	Coral B	8	Meyer, K.E.	19-Jan	5:30PM	Mediterranean C	18
Jin, S.	18-Jan	5:00PM	Pacific	11	Milne, S.J.	20-Jan	10:30AM	Coral B	21
Jinschek, J.R.	20-Jan	2:00PM	Mediterranean A/B	25	Mishra, R.	19-Jan	4:00PM	Coral A	17
Jones, J.L.	20-Jan	2:00PM	Indian	23	Misture, S.	20-Jan	9:00AM	Mediterranean A/B	22
		K			Mitic, V.	18-Jan	11:45AM	Mediterranean A/B	6
Kakimoto, K.	20-Jan	2:00PM	Coral B	24	Mkhoyan, K.	19-Jan	11:30AM	Caribbean B	15
Kalem, V.	20-Jan	4:15PM	Coral B	24	Mo, Y.	20-Jan	2:00PM	Caribbean C	25
Kaliyaperumal Veerapandian, V.	20-Jan	11:00AM	Indian	20	Morelli, D.	19-Jan	4:30PM	Mediterranean C	18
Kang, S.L.	18-Jan	10:30AM	Mediterranean A/B	6	Mori, T.	19-Jan	2:00PM	Mediterranean C	17
Kang, X.	18-Jan	10:30AM	Coral B	5	Mundy, J.	20-Jan	4:00PM	Caribbean B	25
Kelley, K.	18-Jan	2:00PM	Coral B	8			N		
Khassaf, H.	19-Jan	11:45AM	Coral B	14	Nair, H.	19-Jan	4:15PM	Coral B	17
Kitamura, T.	19-Jan	5:15PM	Pacific	20	Nakhmanson, S.	18-Jan	2:30PM	Coral A	10
Kittel, T.	18-Jan	4:00PM	Caribbean B	10	Nayak, S.	18-Jan	11:30AM	Indian	5
Ko, Y.	20-Jan	11:45AM	Coral B	21	Nayak, S.K.	19-Jan	11:45AM	Coral A	14
Kolluru, V.	20-Jan	4:15PM	Coral A	25	Nemanich, R.	19-Jan	2:45PM	Coral B	17
Kotsonis, G.N.	18-Jan	2:15PM	Coral B	8	Nijhuis, A.	19-Jan	10:30AM	Pacific	15
Kowalski, B.	20-Jan	2:45PM	Indian	24			O		
Kumar, A.	19-Jan	2:30PM	Coral B	17	Ogino, H.	20-Jan	11:30AM	Pacific	23
		L			Okada, Y.	20-Jan	4:45PM	Coral A	25
Larkins, G.	20-Jan	9:30AM	Pacific	23	Orloff, N.	18-Jan	2:30PM	Caribbean B	10
LeBeau, J.M.	18-Jan	12:00PM	Caribbean C	7			P		
LeBeau, J.M.	18-Jan	4:00PM	Indian	8	Pandey, S.C.	19-Jan	10:15AM	Coral A	14
Lee, D.	19-Jan	6:00PM	Caribbean B	19	Patterson, E.	18-Jan	11:00AM	Indian	5
Lee, H.	18-Jan	10:00AM	Caribbean C	7	Paul, J.T.	20-Jan	4:30PM	Coral A	25
Lee, H.	19-Jan	4:00PM	Caribbean B	19	Pitike, K.C.	18-Jan	3:00PM	Coral A	10
Lee, K.	20-Jan	9:15AM	Coral B	20	Polcawich, R.G.	19-Jan	10:00AM	Coral B	13
Lee, S.	18-Jan	4:15PM	Caribbean C	11	Pramanick, A.	20-Jan	4:45PM	Mediterranean A/B	25
Lee, S.	20-Jan	3:00PM	Coral A	24	Proffen, T.	19-Jan	2:00PM	Coral A	17
Lekawa-Raus, A.E.	20-Jan	8:30AM	Pacific	23	Pryds, N.	20-Jan	2:00PM	Caribbean B	25
Li, F.	18-Jan	2:00PM	Indian	7			Q		
Li, L.	20-Jan	12:30PM	Coral A	22	Qi, Y.	19-Jan	4:00PM	Mediterranean A/B	18
Li, L.	20-Jan	2:30PM	Mediterranean C	24	Quinlan, F.	18-Jan	2:45PM	Caribbean B	10
Li, M.	20-Jan	4:00PM	Coral A	25			R		
Li, W.	20-Jan	10:30AM	Mediterranean C	21	Rabe, K.M.	20-Jan	8:30AM	Coral A	21
Li, Y.	20-Jan	11:30AM	Mediterranean C	21	Radovic, M.	20-Jan	11:30AM	Caribbean B	23
Lin, J.	20-Jan	8:30AM	Mediterranean C	21	Ramanathan, S.	19-Jan	10:00AM	Mediterranean C	14
Liu, M.	19-Jan	12:15PM	Caribbean C	15	Ramanathan, S.	19-Jan	3:00PM	Caribbean C	19
Liu, Y.	20-Jan	4:00PM	Mediterranean C	24	Ramprasad, R.	19-Jan	9:45AM	Coral A	14
Long, C.J.	18-Jan	11:15AM	Caribbean B	6	Randall, C.	18-Jan	10:00AM	Coral B	5
Long, D.	19-Jan	5:00PM	Indian	16	Ranjan, R.	20-Jan	8:30AM	Coral B	20
Lookman, T.	19-Jan	2:30PM	Coral A	17	Reimanis, I.	18-Jan	11:45AM	Indian	5
Losego, M.	18-Jan	5:15PM	Coral B	9	Ren, Z.	19-Jan	3:00PM	Mediterranean A/B	18
Losego, M.	20-Jan	5:35PM	Indian	26	Rettie, A.J.	18-Jan	5:30PM	Coral B	9
Lowing, D.	18-Jan	11:00AM	Mediterranean A/B	6	Rheinheimer, W.	18-Jan	11:30AM	Mediterranean A/B	6
Lu, P.	20-Jan	2:30PM	Caribbean C	25	Rijal, B.	20-Jan	12:15PM	Coral A	22
Lu, X.	19-Jan	4:15PM	Caribbean C	19	Riva, M.	20-Jan	11:00AM	Caribbean B	23
Luo, J.	19-Jan	10:30AM	Indian	13	Rivas, M.	19-Jan	5:15PM	Indian	16

Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Rodriguez, J.P.	19-Jan	3:00PM	Pacific	19			V		
Rohrer, G.	18-Jan	10:00AM	Mediterranean A/B	6	van Benthem, K.	18-Jan	2:00PM	Mediterranean A/B	9
Rosseinsky, M.	19-Jan	2:30PM	Indian	16	van Benthem, K.	20-Jan	4:00PM	Mediterranean A/B	25
Rost, C.M.	20-Jan	2:30PM	Indian	24	Vaney, J.S.	19-Jan	3:00PM	Mediterranean C	17
		S			Varley, J.B.	19-Jan	3:00PM	Coral A	17
Sadhu, J.	18-Jan	10:00AM	Caribbean B	6	Vögler, M.	20-Jan	3:15PM	Coral B	24
Sanchez, F.	19-Jan	12:00PM	Coral B	14	Voyles, P.	18-Jan	4:15PM	Mediterranean C	9
Sanchez, F.	19-Jan	2:00PM	Caribbean C	19			W		
Saremi, S.	18-Jan	3:45PM	Coral B	8	Wada, S.	18-Jan	10:30AM	Indian	5
Sayyadishahraki, A.	20-Jan	3:15PM	Indian	24	Wahnon, P.	19-Jan	5:30PM	Coral A	17
Scheu, C.	20-Jan	2:30PM	Mediterranean A/B	25	Wang, C.	20-Jan	10:30AM	Indian	20
Schmidt, W.L.	18-Jan	11:15AM	Indian	5	Wang, F.	19-Jan	4:45PM	Mediterranean A/B	18
Sebastian, M.P.	19-Jan	11:30AM	Pacific	16	Wang, G.	19-Jan	5:00PM	Pacific	19
Sefat, A.S.	19-Jan	2:30PM	Pacific	19	Wang, H.	18-Jan	10:30AM	Caribbean C	7
Sharan, A.	20-Jan	11:15AM	Coral A	21	Wang, H.	18-Jan	4:15PM	Caribbean B	10
Sheldon, B.W.	20-Jan	10:15AM	Mediterranean A/B	22	Wang, H.	19-Jan	2:00PM	Mediterranean A/B	18
Shen, L.	19-Jan	11:15AM	Caribbean C	15	Wang, J.	20-Jan	9:45AM	Mediterranean A/B	22
Shin, Y.	20-Jan	10:45AM	Coral A	21	Wang, K.	20-Jan	10:00AM	Coral B	20
Shreiber, D.	18-Jan	3:45PM	Caribbean B	10	Wang, X.	19-Jan	11:00AM	Mediterranean C	14
Shvartsman, V.	19-Jan	2:00PM	Indian	16	Wang, Y.	18-Jan	2:30PM	Mediterranean C	9
Sievers, D.E.	20-Jan	3:30PM	Pacific	26	Wang, Y.	20-Jan	12:15PM	Caribbean B	23
Sivaramakrishnan, M.	19-Jan	10:15AM	Coral B	13	Wary, M.	19-Jan	5:45PM	Coral A	17
Smith, E.	18-Jan	3:00PM	Coral B	8	Wen, H.	18-Jan	2:00PM	Pacific	11
Smith, E.	19-Jan	12:45PM	Coral A	16	Wen, H.	19-Jan	2:30PM	Caribbean C	19
Smith, K.A.	20-Jan	9:30AM	Caribbean C	23	Weng, H.	18-Jan	4:00PM	Pacific	11
Smith, S.W.	19-Jan	11:15AM	Coral B	13	Whatmore, R.	19-Jan	3:15PM	Indian	16
Sodano, H.A.	19-Jan	10:30AM	Mediterranean C	14	Wilke, R.	20-Jan	11:15AM	Indian	20
Soon, A.	20-Jan	10:15AM	Coral A	21	Wollmershauser, J.A.	18-Jan	11:30AM	Coral A	6
Spoerke, E.D.	20-Jan	9:45AM	Caribbean C	23	Woo, S.	19-Jan	4:30PM	Coral A	17
Stach, E.	20-Jan	11:30AM	Mediterranean A/B	22	Wu, J.	19-Jan	11:00AM	Pacific	15
Staruch, M.	18-Jan	5:30PM	Mediterranean C	9	Wu, J.	20-Jan	2:30PM	Coral B	24
Staruch, M.	19-Jan	3:00PM	Indian	16	Wu, L.	20-Jan	8:45AM	Indian	20
Steffes, J.	18-Jan	4:45PM	Mediterranean C	9	Wu, T.	18-Jan	10:30AM	Mediterranean C	5
Sternlicht, H.	19-Jan	11:45AM	Mediterranean A/B	14	Wu, W.	19-Jan	12:00PM	Mediterranean C	14
Stewart, D.	20-Jan	2:30PM	Coral A	24			Y		
Straka, W.	18-Jan	11:45AM	Coral B	5	Yan, F.	18-Jan	11:30AM	Mediterranean C	6
Straka, W.	18-Jan	12:15PM	Indian	5	Yan, J.	19-Jan	4:30PM	Pacific	19
Strandwitz, N.C.	19-Jan	2:00PM	Coral B	16	Yan, Q.	20-Jan	11:30AM	Coral A	22
Sulekar, S.	19-Jan	1:15PM	Coral A	16	Yan, Y.	19-Jan	11:45AM	Indian	13
Sulekar, S.	20-Jan	3:15PM	Caribbean C	26	Yang, C.	19-Jan	5:15PM	Caribbean C	19
Sumption, M.	20-Jan	10:30AM	Pacific	23	Yang, K.	19-Jan	4:30PM	Mediterranean A/B	18
Sumption, M.	20-Jan	2:30PM	Pacific	26	Yang, K.	20-Jan	9:00AM	Coral A	21
Sushko, P.	19-Jan	10:00AM	Caribbean B	15	Yang, R.	20-Jan	2:00PM	Coral A	24
Sushko, P.	19-Jan	12:15PM	Coral A	14	Yang, Y.	19-Jan	4:00PM	Pacific	19
Sushko, P.	19-Jan	4:45PM	Coral B	17	Ye, H.	20-Jan	12:00PM	Mediterranean C	21
Susner, M.A.	20-Jan	3:00PM	Pacific	26	Ye, J.	19-Jan	2:30PM	Mediterranean A/B	18
		T			Ye, Z.	19-Jan	10:00AM	Indian	13
Talley, K.R.	19-Jan	11:30AM	Indian	13	Yesner, G.	20-Jan	11:30AM	Indian	20
Tan, G.	18-Jan	4:00PM	Mediterranean C	9	Yesner, G.	20-Jan	4:00PM	Coral B	24
Tan, X.	20-Jan	8:30AM	Indian	20	Yildiz, B.	19-Jan	2:00PM	Caribbean B	18
Tandon, R.	19-Jan	4:15PM	Indian	16	Yuk, S.F.	18-Jan	2:45PM	Coral A	10
Tang, C.	19-Jan	1:00PM	Coral A	16	Yun, J.	19-Jan	5:15PM	Coral A	17
Tang, C.	20-Jan	4:30PM	Mediterranean A/B	25			Z		
Tang, M.	18-Jan	4:30PM	Mediterranean A/B	9	Zeng, L.	18-Jan	5:00PM	Indian	8
Tao, G.	20-Jan	11:00AM	Mediterranean C	21	Zevalkink, A.	19-Jan	2:30PM	Mediterranean C	17
Tarancón, A.	19-Jan	11:00AM	Caribbean B	15	Zhang, S.	20-Jan	9:00AM	Coral B	20
Tasić, N.	18-Jan	1:35PM	Coral A	7	Zheng, T.	20-Jan	12:15PM	Coral B	21
Tasić, N.	18-Jan	3:15PM	Mediterranean C	9	Zhou, H.	20-Jan	9:30AM	Caribbean B	22
Taylor, N.J.	20-Jan	9:00AM	Caribbean C	23	Zhou, X.	19-Jan	2:00PM	Pacific	19
Tidrow, S.C.	18-Jan	3:00PM	Indian	8	Zollner, S.	19-Jan	12:15PM	Caribbean B	15
Tong, X.	18-Jan	1:20PM	Coral A	7	Zucker, R.V.	19-Jan	10:30AM	Mediterranean A/B	14
Tong, X.	18-Jan	4:15PM	Coral A	10					
Tonks, M.R.	18-Jan	2:00PM	Coral A	10					
Trassin, M.	18-Jan	5:00PM	Mediterranean C	9					
Trevey, J.	18-Jan	4:45PM	Coral B	8					

Poster Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Aimi, A.	18-Jan	5:30PM	Atlantic/Arctic	12	Lee, H.	18-Jan	5:30PM	Atlantic/Arctic	12
Andersen, T.K.	18-Jan	5:30PM	Atlantic/Arctic	11	Lee, J.	18-Jan	5:30PM	Atlantic/Arctic	12
Angadi, B.	18-Jan	5:30PM	Atlantic/Arctic	12	Li, Y.	18-Jan	5:30PM	Atlantic/Arctic	12
Barbi, S.	18-Jan	5:30PM	Atlantic/Arctic	12	Liu, Y.	18-Jan	5:30PM	Atlantic/Arctic	12
Ben Ayoun, D.	18-Jan	5:30PM	Atlantic/Arctic	12	Manjón Sanz, A.M.	18-Jan	5:30PM	Atlantic/Arctic	11
Beuerlein, M.A.	18-Jan	5:30PM	Atlantic/Arctic	12	MI, S.	18-Jan	5:30PM	Atlantic/Arctic	11
Cezário, I.C.	18-Jan	5:30PM	Atlantic/Arctic	12	Michie, M.J.	18-Jan	5:30PM	Atlantic/Arctic	12
Chefranov, E.	18-Jan	5:30PM	Atlantic/Arctic	12	Mitic, V.	18-Jan	5:30PM	Atlantic/Arctic	12
Chen, S.	18-Jan	5:30PM	Atlantic/Arctic	11	Mooney, C.	18-Jan	5:30PM	Atlantic/Arctic	12
Chen, Z.	18-Jan	5:30PM	Atlantic/Arctic	12	Nam, C.	18-Jan	5:30PM	Atlantic/Arctic	12
Cook, S.	18-Jan	5:30PM	Atlantic/Arctic	12	Pachuta, K.G.	18-Jan	5:30PM	Atlantic/Arctic	11
Fancher, C.	18-Jan	5:30PM	Atlantic/Arctic	11	Rambo, C.R.	18-Jan	5:30PM	Atlantic/Arctic	11
Farghadany, E.	18-Jan	5:30PM	Atlantic/Arctic	11	Rong, C.	18-Jan	5:30PM	Atlantic/Arctic	13
Gangwar, A.	18-Jan	5:30PM	Atlantic/Arctic	12	Ryu, J.	18-Jan	5:30PM	Atlantic/Arctic	12
Gheorghiu, N.	18-Jan	5:30PM	Atlantic/Arctic	12	Sebastian, M.P.	18-Jan	5:30PM	Atlantic/Arctic	11
Gluhovic, D.	18-Jan	5:30PM	Atlantic/Arctic	12	Sharma, S.	18-Jan	5:30PM	Atlantic/Arctic	11
Gorzkowski, E.	18-Jan	5:30PM	Atlantic/Arctic	12	Straka, W.	18-Jan	5:30PM	Atlantic/Arctic	13
Gwon, H.	18-Jan	5:30PM	Atlantic/Arctic	12	Susner, M.A.	18-Jan	5:30PM	Atlantic/Arctic	13
Haugan, T.J.	18-Jan	5:30PM	Atlantic/Arctic	13	Uhl, A.M.	18-Jan	5:30PM	Atlantic/Arctic	12
Hemasiri, B.N.	18-Jan	5:30PM	Atlantic/Arctic	12	Usher, T.	18-Jan	5:30PM	Atlantic/Arctic	12
Huddleston, W.	18-Jan	5:30PM	Atlantic/Arctic	11	Wang, J.	18-Jan	5:30PM	Atlantic/Arctic	12
Israni, M.V.	18-Jan	5:30PM	Atlantic/Arctic	12	Wimalananda, M.S.	18-Jan	5:30PM	Atlantic/Arctic	12
Kim, K.	18-Jan	5:30PM	Atlantic/Arctic	12	Wu, R.	18-Jan	5:30PM	Atlantic/Arctic	12
Kim, T.	18-Jan	5:30PM	Atlantic/Arctic	12	Zhao, C.	18-Jan	5:30PM	Atlantic/Arctic	11
Konishi, H.	18-Jan	5:30PM	Atlantic/Arctic	12					

Wednesday, January 18, 2017

Plenary I

Room: Indian

Session Chair: Geoff Brennecke, Colorado School of Mines

8:30 AM

Introduction

8:40 AM

(EMA-PLEN- 001-2017) Thermochemistry of Redox Active Oxides and its Relevance to Solar Fuel Generation

S. Haile^{*1}; 1. Northwestern University, USA

9:30 AM

Break

S1: Advanced Electronic Materials: Processing, Structures, Properties, and Applications

Material Design, Fabrication and Applications I

Room: Indian

Session Chairs: Satoshi Wada, University of Yamanashi;
Dragan Damjanovic, Swiss Federal Institute of Technology in Lausanne

10:00 AM

(EMA-S1-001-2017) Can conductivity have beneficial effect on electro-mechanical response? (Invited)

T. Rojac²; D. Damjanovic^{*1}; 1. Swiss Federal Institute of Technology in Lausanne, Switzerland; 2. Jozef Stefan Institute, Slovenia

10:30 AM

(EMA-S1-002-2017) Preparation of New Barium Titanate-based Nano-complex Ceramics with High-density Heteroepitaxial Interfaces by Solvothermal Solidification Method and Their Dielectric and Piezoelectric Enhancement (Invited)

S. Wada^{*1}; 1. University of Yamanashi, Japan

11:00 AM

(EMA-S1-003-2017) Thick Film Dielectrics Produced via Aerosol Deposition

E. Patterson^{*1}; E. Gorzkowski¹; S. D. Johnson¹; 1. Naval Research Lab, USA

11:15 AM

(EMA-S1-004-2017) Physical properties of methylammonium lead iodide prepared via a bulk synthesis route

W. L. Schmidt^{*1}; J. Passarelli¹; C. D. Kennedy¹; H. Chen¹; D. C. Sinclair¹; I. M. Reaney¹; 1. The University of Sheffield, United Kingdom

11:30 AM

(EMA-S1-005-2017) Synthesis of High Surface Area Molybdenum Carbide as a Catalyst

S. Nayak^{*1}; A. Benavidez¹; F. Garzon²; 1. University of New Mexico, USA; 2. University of New Mexico/ Sandia National Laboratories, USA

11:45 AM

(EMA-S1-006-2017) Nickel oxide doped barium yttrium zirconate nanostructures

I. Reimanis^{*1}; A. Morrissey¹; J. R. O'Brien¹; 1. Colorado School of Mines, USA; 2. CoorsTek, Inc., USA; 3. Off Grid Research, USA

12:00 PM

(EMA-S1-007-2017) Densification of fragile ferroic phases through high pressure low temperature spark plasma sintering (SPS)

T. Herisson de Beauvoir^{*1}; U. Chung Seu¹; F. Molinari¹; M. Josse¹; 1. ICMCB-CNRS, France

12:15 PM

(EMA-S1-008-2017) Chemical solution deposition of orthorhombic/tetragonal phase hafnium oxide

W. Straka^{*1}; J. Schwartz¹; 1. North Carolina State University, USA

S2: Advanced Processing for Electronic and Electrochemical Systems: Crystals, Films and Devices

Refined Synthesis Routes to Advance and Enable Properties I

Room: Coral B

Session Chair: Elizabeth Paisley, Sandia National Laboratories

10:00 AM

(EMA-S2-001-2017) New Routes for Designing Next Generation Dielectrics and Capacitors (Invited)

C. Randall^{*1}; D. S. Heidary¹; L. Gao¹; J. Guo²; H. Guo¹; S. Dixit³; R. Dixit³; A. Baker¹; 1. Penn State University, USA; 2. The Pennsylvania State University, USA; 3. DRS Research, USA

10:30 AM

(EMA-S2-002-2017) Hydrothermal sintering at near room temperature (Invited)

X. Kang^{*1}; R. Floyd¹; E. C. Dickey¹; C. Randall²; J. Maria¹; 1. North Carolina State University, USA; 2. Pennsylvania State University, USA

11:00 AM

(EMA-S2-003-2017) Electrical properties and applications of pressure-assisted hydrothermal densified (PAHD) ZnO

R. Floyd^{*1}; X. Kang¹; J. Maria¹; 1. North Carolina State University, USA

11:15 AM

(EMA-S2-004-2017) Processing and properties of transparent anisotropic ceramics (Invited)

A. Dupuy²; A. Wieg¹; E. Penilla²; Y. Kodera²; J. E. Garay^{*1}; 1. UC San Diego, USA; 2. UC Riverside, USA

11:45 AM

(EMA-S2-005-2017) Flash sintering of thorium dioxide

W. Straka^{*1}; J. Schwartz¹; 1. North Carolina State University, USA

12:00 PM

(EMA-S2-006-2017) Use of oriented 2-dimensional BN ceramic arrays to achieve controllable bandgap for tunable electronics

M. Rivera¹; R. Velazquez¹; P. Feng^{*1}; 1. UPR, USA

S5: Energy Sustainable Optoelectronics and Magnetoelectronics

Materials for Optoelectronics and Electro-Optics I

Room: Mediterranean C

Session Chairs: Jian Shi, Rensselaer Polytechnic Institute;
Jennifer Andrew, University of Florida

10:00 AM

(EMA-S5-001-2017) Advanced metrology for early-stage photovoltaic materials: Transient THz photoconductivity measurements of minority-carrier lifetime in tin sulfide (Invited)

R. Jaramillo^{*1}; M. Sher²; B. Ofori-Okai¹; V. Steinmann¹; C. Yang³; K. Hartman¹; K. Nelson¹; A. Lindenberg³; R. Gordon³; T. Buonassisi¹; 1. Massachusetts Institute of Technology, USA; 2. Wesleyan University, USA; 3. Harvard University, USA; 4. Stanford University, USA

10:30 AM

(EMA-S5-002-2017) Hybrid Perovskite Photodetectors (Invited)

T. Wu^{*1}; 1. KAUST, Saudi Arabia

11:00 AM

(EMA-S5-003-2017) Nanostructured Organometal Halide Perovskites for Light Emitting Diodes (Invited)

B. Ma^{*1}; 1. Florida State University, USA

11:30 AM

(EMA-S5-004-2017) CdTe thin film solar cells: Bandgap Engineering via alloying (Invited)

F. Yan^{*1}; 1. First Solar, USA

12:00 PM

(EMA-S5-005-2017) Halide Perovskites for Light Emitting Diodes (Invited)

H. Gao^{*1}; 1. Florida State University, USA

S9: Interfaces in Microstructural Evolution: Structure, Properties, Anisotropy, and Motion

Grain Growth: Impact of Anisotropy and Other Interfacial Properties

Room: Mediterranean A/B

Session Chairs: John Blendell, Purdue University; Wolfgang Rheinheimer, Karlsruhe Institute of Technology

10:00 AM

(EMA-S9-001-2017) The Five-Parameter Grain Boundary Curvature Distribution in Strontium Titanate (Invited)

X. Zhong¹; M. N. Kelly¹; G. Rohrer^{*1}; 1. Carnegie Mellon University, USA

10:30 AM

(EMA-S9-003-2017) An explanation for the maintenance of the polyhedral shape of abnormal grains during their growth (Invited)

S. L. Kang^{*1}; S. Jung²; 1. Korea Institute of Ceramic Engineering and Technology (KICET), Republic of Korea; 2. Agency for Defence Development, Republic of Korea

11:00 AM

(EMA-S9-004-2017) Faceted Grain Growth in the NiO-MgO System

D. Lowing^{*1}; J. Blendell¹; 1. Purdue University, USA

11:15 AM

(EMA-S9-005-2017) Grain growth transitions in Barium Strontium Titanate

F. J. Altermann^{*1}; W. Rheinheimer¹; M. J. Hoffmann¹; 1. Karlsruhe Institute of Technology, Germany

11:30 AM

(EMA-S9-006-2017) Grain growth in perovskites: Observation and modelling of bimodal microstructure evolution

W. Rheinheimer^{*1}; E. Schoof¹; M. Selzer¹; B. Nestler¹; M. J. Hoffmann¹; 1. Karlsruhe Institute of Technology, Germany

11:45 AM

(EMA-S9-007-2017) Application of Minkowski Hull to Ceramics Intergranular Phenomena

V. Mitic^{*1}; L. Kocić¹; V. Paunovic¹; 1. University of Nis, Serbia

S12: 5G Materials for the Millimeter Wave Revolution

5G Materials for the Millimeter Wave Revolution I

Room: Caribbean B

Session Chair: Nate Orloff, NIST

10:00 AM

(EMA-S12-001-2017) Enhanced Materials in Bulk Acoustic Wave Filters for 4G and 5G Wireless (Invited)

J. Sadhu^{*1}; J. Modarres¹; M. Wang¹; F. Dumont¹; R. Kraft¹; 1. Qorvo, USA

10:30 AM

(EMA-S12-002-2017) Designer (SrTiO₃)_n(BaTiO₃)_mSrO Superlattices for mmWave Tunable Dielectrics (Invited)

N. M. Dawley^{*1}; X. Lu¹; N. Orloff¹; M. E. Holtz²; C. Lee³; J. Zhang³; D. A. Muller²; J. C. Booth¹; D. G. Schlom²; 1. NIST, USA; 2. Cornell University, USA; 3. Massachusetts Institute of Technology, USA; 4. Cornell University, USA

11:00 AM

(EMA-S12-003-2017) Nanosecond tuning in microwave resonators fabricated on Ruddlesden-Popper thin films

A. M. Hagerstrom^{*1}; X. Lu¹; N. M. Dawley²; H. Nair²; J. Mateu³; J. C. Booth¹; C. J. Long¹; D. G. Schlom²; N. Orloff¹; 1. National Institute of Standards and Technology, USA; 2. Cornell University, USA; 3. Universitat Politècnica de Catalunya, Spain

11:15 AM

(EMA-S12-004-2017) Flip-chip methods for materials characterization from 10 kHz to 110 GHz (Invited)

C. J. Long^{*1}; N. Orloff¹; A. Sahu²; C. Little³; I. Hanemann³; A. M. Hagerstrom¹; X. Lu¹; R. Chamberlin¹; V. Devabhaktuni²; T. Wallis³; J. C. Booth¹; 1. NIST, USA; 2. University of Toledo, USA; 3. University of Colorado, USA; 4. University of Colorado, USA; 5. NIST, USA

11:45 AM

(EMA-S12-005-2017) Chemistry, Growth kinetics and Epitaxial Stabilization of Sn²⁺ in Sn-doped SrTiO₃ using (CH₃)₆Sn₂ precursor (Invited)

T. Wang²; K. C. Pitike¹; Y. Yuan³; S. Nakhmanson¹; V. Gopalan³; B. Jalan^{*2}; 1. University of Connecticut, USA; 2. University of Minnesota, USA; 3. Pennsylvania State University, USA

12:15 PM

(EMA-S12-006-2017) Combinatorial Methods for Rapid 5G Materials Discovery Demonstrated in Ba_{1-x}Sr_xTiO₃

E. Marks^{*1}; N. Orloff¹; Y. Liang¹; X. Zhang¹; A. M. Hagerstrom²; X. Lu²; C. J. Long²; J. C. Booth²; I. Takeuchi¹; 1. University of Maryland, USA; 2. National Institute of Standards and Technology, USA

S13: Mesoscale Phenomena in Ceramic Materials, Nano- and Microstructures

Synthesis, Characterization and Processing

Room: Coral A

Session Chairs: Serge Nakhmanson, University of Connecticut; Edward Gorzkowski, Naval Research Lab

10:00 AM

(EMA-S13-001-2017) Caloric responses using ferroelectrics (Invited)

B. Dkhil^{*1}; 1. CentraleSupélec-CNRS, France

10:30 AM

(EMA-S13-002-2017) Complex Domain and Domain Wall Behaviour in Ferroelectrics (Invited)

M. Gregg^{*1}; 1. Queens University Belfast, United Kingdom

11:00 AM

(EMA-S13-003-2017) Mesoscopic domain manipulation in ferroelectric/dielectric superlattices (Invited)

J. Park¹; Y. Ahn²; A. Pateras²; Q. Zhang³; M. Holt³; J. Mangeri¹; O. Heinonen³; M. Yusuf⁴; M. Dawber¹; S. Nakhmanson¹; P. G. Evans^{*2}; 1. University of Connecticut, USA; 2. University of Wisconsin, USA; 3. Argonne National Lab, USA; 4. Stony Brook University, USA

11:30 AM

(EMA-S13-004-2017) Nano to Micro Size Effects in the Mechanical Behavior of Ceramics (Invited)

J. A. Wollmershauser^{*1}; B. N. Feigelson²; H. Ryou³; J. W. Drazin³; E. Gorzkowski¹; K. J. Wahl⁴; 1. U.S. Naval Research Laboratory, USA; 2. U.S. Naval Research Laboratory, USA; 3. American Society for Engineering Education, USA; 4. U.S. Naval Research Laboratory, USA

S14: Multifunctional Nanocomposites

Multifunctional Nanocomposites: Functionality by Design I

Room: Caribbean C

Session Chair: Aiping Chen, Los Alamos National Lab

10:00 AM

(EMA-S14-001-2017) Colossal ionic conductivity discovered in interfacial quantum oxide nanostructures (Invited)

H. Lee*; 1. Oak Ridge National Laboratory, USA

10:30 AM

(EMA-S14-002-2017) Novel Vertically Aligned Nanocomposite (VAN) Designs: Oxide-oxide systems and beyond (Invited)

H. Wang*; L. Li; W. Zhang; J. Huang; J. Jian; M. Fan; Q. Su; X. Sun; X. Wang; J. MacManus-Driscoll; Q. Jia; 1. Purdue University, USA; 2. Purdue University, USA; 3. Texas A&M University, USA; 4. Texas A&M University, USA; 5. Texas A&M University, USA; 6. Texas A&M University, USA; 7. University of Cambridge, United Kingdom; 8. SUNY Buffalo, USA

11:00 AM

(EMA-S14-003-2017) Emergent Phenomena at Oxide Interfaces: Electronic Reconstruction Induced Ferromagnetism in a Polar Antiferromagnetic Insulator (Invited)

L. W. Martin*; 1. University of California, Berkeley, USA

11:30 AM

(EMA-S14-004-2017) Interfacial Tuning of Leakage Current and Hysteresis Behavior in Vertically Aligned Nanocomposite Thin Films

E. Enriquez*; A. Chen; P. C. Dowden; Z. Harrell; L. Li; D. Xue; N. Koskela; J. Roback; J. MacManus-Driscoll; H. Wang; C. Chen; Q. Jia; 1. Los Alamos National Lab, USA; 2. University of Texas at San Antonio, USA; 3. Texas A&M University, USA; 4. University of Cambridge, United Kingdom; 5. University at Buffalo, State University of New York, USA

11:45 AM

(EMA-S14-005-2017) Sub-Surface Grain and Domain Boundary Imaging for Functional Thin Films

B. D. Huey*; J. Steffes; T. Green; L. Ye; 1. University of Connecticut, USA

12:00 PM

(EMA-S14-006-2017) Uncovering the atomic scale origins of functionality in oxide nano composites via scanning transmission electron microscopy (Invited)

J. M. LeBeau*; E. D. Grimley; T. Schenk; U. Schroeder; X. Sang; 1. North Carolina State University, USA; 2. North Carolina State University, USA; 3. Namlab, Germany; 4. NaMLab, Germany

S15: Superconducting Materials and Applications

New Superconducting Materials and Phenomena I

Room: Pacific

Session Chairs: Xingjiang Zhou, Chinese Academy of Sciences; Jin-Feng Jia, Shanghai Jiao Tong University

10:00 AM

(EMA-S15-001-2017) Tuning phase transitions of FeSe thin flakes by field effect transistor with solid ion conductor as gate dielectric (Invited)

X. Chen*; 1. University of Science and Technology of China, China

10:30 AM

(EMA-S15-002-2017) Strategy and progress on exploration of new superconductors (Invited)

G. Cao*; 1. Zhejiang University, China

11:00 AM

(EMA-S15-003-2017) Single crystal growth and basic thermodynamic and transport properties of 1144 superconducting compounds (Invited)

S. L. Bud'ko*; 1. Ames Laboratory / Iowa State University, USA

11:30 AM

(EMA-S15-004-2017) Searching for Superconductors in Complex Mixtures: Solid-state Synthesis, Structural Analysis, and Physicochemical Characterization (Invited)

J. Brant*; D. C. Vier; T. Bullard; T. J. Haugan; 1. Air Force Research Lab, USA; 2. University of California, San Diego, USA

12:00 PM

(EMA-S15-005-2017) Interface superconductivity in undoped CaFe_2As_2 and rare earth doped CaFe_2As_2

L. Deng*; K. Zhao; B. Lv; Z. Wu; S. Huan; Y. Xue; C. Chu; 1. Texas Center for Superconductivity at the University of Houston, USA; 2. University of Texas at Dallas, USA

Student Speaking Competition Presentations I

Room: Coral A

12:45 PM

(EMA-SF-01-2017) Introduction

12:50 PM

(EMA-SF-02-2017) In situ X-ray investigation of $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3\text{-PbTiO}_3$ polycrystalline ceramics in an external electric field

D. Hou*; T. Usher; M. Vrabelj; L. Fulanovic; H. Ursic; B. Malic; I. Levin; J. L. Jones; 1. North Carolina State University, USA; 2. Oak Ridge National Laboratory, USA; 3. Jozef Stefan Institute, Slovenia; 4. National Institute of Standards and Technology, USA

1:05 PM

(EMA-SF-03-2017) Electrical properties and applications of pressure-assisted hydrothermal densified (PAHD) ZnO

R. Floyd*; X. Kang; J. Maria; 1. North Carolina State University, USA

1:20 PM

(EMA-SF-04-2017) Kinetic Poisson-Cahn Model of Defect Segregation Near Grain Boundaries During Thermal Annealing in Oxygen-Conducting Solid Electrolytes

X. Tong*; D. S. Mebane; 1. West Virginia University, USA

1:35 PM

(EMA-SF-05-2017) 3D and uniform mesoporous TiO_2 films for application in Dye-Sensitized Solar Cells (DSSCs)

N. Tasic*; Z. Marinkovic Stanojevic; Z. Brankovic; U. Lacnjevac; M. Zunic; G. Brankovic; 1. Institute for Multidisciplinary Research, University of Belgrade, Serbia, Serbia; 2. College of Engineering and Information Technology, University of Business and Technology, Saudi Arabia

S1: Advanced Electronic Materials: Processing, Structures, Properties, and Applications

Material Design, Fabrication and Applications II

Room: Indian

Session Chairs: Andrew Bell, University of Leeds; Fei Li, Xi'an Jiaotong University

2:00 PM

(EMA-S1-009-2017) Relaxor-based Ferroelectrics: Ultrahigh Piezoelectric Activity from Polar Nanoregions (Invited)

F. Li*; S. Zhang; L. Chen; T. Shrout; 1. University of Wollongong, Australia; 2. Xi'an Jiaotong University, China; 3. Pennsylvania State University, USA

2:30 PM

(EMA-S1-010-2017) Mechanisms for the Low Temperature Dielectric Relaxation in Lead Titanate-Relaxor Single Crystals (Invited)

A. J. Bell^{*1}; 1. University of Leeds, United Kingdom

3:00 PM

(EMA-S1-011-2017) Comparing “Simple” Perovskites: NSMM Versus Goldschmidt’s Tolerance Formalism

S. C. Tidrow^{*1}; 1. Alfred University, USA

3:15 PM

(EMA-S1-012-2017) Enhanced Q, Dielectric Constant 80 Microwave Dielectric Materials for LTE Applications

M. D. Hill^{*1}; 1. Trans-Tech Inc., USA

3:30 PM

Break

Characterization of Materials: Crystal Structure and Properties I

Room: Indian

Session Chair: Jacob Jones, North Carolina State University

4:00 PM

(EMA-S1-013-2017) Capturing Quantitative Static and Dynamic Local Structure with Scanning Transmission Electron Microscopy (Invited)

J. M. LeBeau^{*1}; 1. North Carolina State University, USA

4:30 PM

(EMA-S1-014-2017) In situ X-ray investigation of Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃ polycrystalline ceramics in an external electric field

D. Hou^{*1}; T. Usher²; M. Vrabelj³; L. Fulanovic³; H. Ursic³; B. Malic³; I. Levin⁴; J. L. Jones¹; 1. North Carolina State University, USA; 2. Oak Ridge National Laboratory, USA; 3. Jozef Stefan Institute, Slovenia; 4. National Institute of Standards and Technology, USA

4:45 PM

(EMA-S1-015-2017) Evidence of Structural Changes that Drive Wake-up and Fatigue in Ferroelectric Hafnia

E. D. Grimley^{*1}; T. Schenk²; X. Sang³; M. Pešić²; U. Schroeder²; T. Mikolajick⁴; J. M. LeBeau¹; 1. North Carolina State University, USA; 2. NaMLab gGmbH, Germany; 3. Oak Ridge National Laboratory, USA; 4. NaMLab gGmbH / TU Dresden, Germany

5:00 PM

(EMA-S1-016-2017) X-ray Study of Amorphous to Crystalline Transition of In-M-O (M: Sn, Zn, Ga) Thin Films

L. Zeng^{*1}; M. M. Moghadam²; D. B. Buchholz²; R. Chang²; P. W. Voorhees²; T. J. Marks³; M. J. Bedzyk²; 1. Northwestern University, USA; 2. Northwestern University, USA; 3. Northwestern University, USA

5:15 PM

(EMA-S1-017-2017) Direct observation of local chemistry and local cation displacements in the relaxor ferroelectric Pb(Mg_{1/3}Nb_{2/3})O₃ (PMN)

M. J. Cabral^{*1}; S. Zhang²; E. C. Dickey¹; J. M. LeBeau¹; 1. North Carolina State University, USA; 2. University of Wollongong, Australia

S2: Advanced Processing for Electronic and Electrochemical Systems: Crystals, Films and Devices

Refined Synthesis Routes to Advance and Enable Properties II

Room: Coral B

Session Chair: Jon-Paul Maria, North Carolina State University

2:00 PM

(EMA-S2-008-2017) Doping control in epitaxial CdO thin films by RF and pulsed-DC reactive co-sputtering

K. Kelley^{*1}; J. Maria¹; E. Sachet¹; 1. North Carolina State University, USA

2:15 PM

(EMA-S2-009-2017) Structural Distortions and Composition Trends in Entropy-Stabilized Thin Films

G. N. Kotsonis^{*1}; D. Brenner¹; D. Harris¹; Z. Rak¹; C. M. Rost¹; J. Maria¹; 1. North Carolina State University, USA

2:30 PM

(EMA-S2-010-2017) Thermal Properties of Entropy-Stabilized Oxides

J. Braun³; A. Giri⁴; C. M. Rost¹; D. Brenner⁵; J. Maria⁵; P. Hopkins^{*2}; 1. University of Virginia, USA; 2. University of Virginia, USA; 3. University of Virginia, USA; 4. University of Virginia, USA; 5. North Carolina State University, USA

2:45 PM

(EMA-S2-011-2017) Structure-Process-Property Relationships in HfN thin films on sapphire

K. Ferri^{*1}; C. M. Rost²; P. Hopkins²; E. D. Grimley¹; J. M. LeBeau¹; J. Maria¹; 1. North Carolina State University, USA; 2. University of Virginia, USA

3:00 PM

(EMA-S2-012-2017) Exploiting kinetics and thermodynamics to grow PbTiO₃ by MBE with continuous codeposition of source elements

E. Smith^{*1}; K. Parrish²; H. Paik¹; J. Schubert⁴; T. Heeg³; J. Grazul³; J. A. Malen²; D. G. Schlom¹; 1. Cornell University, USA; 2. Carnegie Mellon University, USA; 3. Cornell Center for Materials Research, USA; 4. Forschungszentrum Jülich GmbH, Germany; 5. Heeg Vacuum Engineering, Germany

3:15 PM

Break

3:45 PM

(EMA-S2-013-2017) Enhanced Electrical Resistivity and Properties via Ion Bombardment of Ferroelectric Thin Films

S. Saremi^{*1}; R. Xu¹; L. Dedon¹; J. Mundy¹; S. Hsu¹; Z. Chen¹; A. Damodaran¹; S. Chapman²; J. T. Evans²; L. W. Martin¹; 1. University of California, Berkeley, USA; 2. Radiant Technologies Inc., USA

4:00 PM

(EMA-S2-014-2017) Semiconductor-to-metal phase transition of VO₂ thin films on soda-lime glass substrates

J. Jian^{*2}; A. Chen¹; W. Zhang⁴; C. Jacob²; H. Wang³; J. Huang³; H. Wang³; 1. Los Alamos National Lab, USA; 2. Texas A&M University, USA; 3. Purdue University, USA; 4. Brookhaven National Laboratory, USA

Advanced Processing for Photoelectrochemistry

Room: Coral B

Session Chair: Kyle Kelley, North Carolina State University

4:15 PM

(EMA-S2-015-2017) High Performance Metal-Insulator-Semiconductor Photosynthesis Cells (Invited)

P. McIntyre^{*1}; 1. Stanford University, USA

4:45 PM

(EMA-S2-016-2017) High Throughput Atomic Layer Deposition: Interfacial Engineering at Scale (Invited)

J. Trevey^{*1}; D. King¹; A. Dameron¹; P. Lichty¹; 1. Forge Nano, USA

5:15 PM

(EMA-S2-017-2017) Structure and Photophysics of Surface Bound Molecular Species Stabilized with Sub-Nanometer Oxide Coatings for Electrochemical Devices

M. Losego^{*1}; B. Piercy¹; J. Song²; T. Lian²; 1. Georgia Institute of Technology, USA; 2. Emory University, USA

5:30 PM

(EMA-S2-018-2017) Unravelling Small-Polaron Transport in Bismuth Vanadate Photoelectrodes (Invited)

A. J. Rettle^{*1}; 1. Argonne National Lab, USA

S5: Energy Sustainable Optoelectronics and Magnetoelectronics

Materials for Optoelectronics and Electro-Optics II

Room: Mediterranean C

Session Chairs: ~~Jennifer Andrew, University of Florida~~; Jian Shi, Rensselaer Polytechnic Institute; Vojislav Mitic, University of Nis

2:00 PM

(EMA-S5-006-2017) Point defects and nanoscale chemistry in ultra wide band gap semiconductors (Invited)

J. Hwang^{*1}; 1. Ohio State University, USA

2:30 PM

(EMA-S5-007-2017) Van der Waals Epitaxy of Halide Perovskites

Y. Wang^{*1}; Y. Shi¹; J. Shi¹; 1. Rensselaer Polytechnic Institute, USA

2:45 PM

(EMA-S5-008-2017) Lasing characteristics of perovskites thin film assisted by localized surface plasmon (Invited)

T. Lu¹; T. Kao¹; K. Hong¹; F. Chen¹; Y. Chou^{*1}; 1. National Chiao Tung University, Taiwan

3:15 PM

(EMA-S5-009-2017) 3D and uniform mesoporous TiO₂ films for application in Dye-Sensitized Solar Cells (DSSCs)

N. Tasić^{*1}; Z. Marinkovic Stanojević¹; Z. Branković¹; U. Lacnjevac¹; M. Zunic²; G. Branković¹; 1. Institute for Multidisciplinary Research, University of Belgrade, Serbia; 2. College of Engineering and Information Technology, University of Business and Technology, Saudi Arabia

3:30 PM

Break

Magnetoelectrics and Multiferroics

Room: Mediterranean C

Session Chair: Jiamian Hu, University of Wisconsin, Madison

4:00 PM

(EMA-S5-010-2017) Multiferroism and Colossal Magneto-Capacitance of La modified M-type Lead Hexaferrite

G. Tan^{*1}; H. Sheng¹; W. Li¹; Y. Huang¹; 1. Wuhan University of Technology, China

4:15 PM

(EMA-S5-011-2017) Planar Defects in Magnetoelectric Cr₂O₃ Thin Films on Sapphire (Invited)

C. Sun¹; A. Rath¹; Z. Song¹; M. Street²; W. Echtenkamp²; C. Binek²; P. Voyles^{*1}; 1. University of Wisconsin-Madison, USA; 2. University of Nebraska, Lincoln, USA

4:45 PM

(EMA-S5-012-2017) Fixed and Mobile Domain Walls in Multiferroics

J. Steffes^{*1}; P. Ashby¹; L. Ye¹; Z. Thatcher¹; R. Ramesh³; J. Heron²; B. D. Huey¹; 1. University of Connecticut, USA; 2. University of Michigan, USA; 3. UC Berkeley, USA; 4. Lawrence Berkeley National Laboratory, USA

5:00 PM

(EMA-S5-013-2017) Monitoring polar states of growing multiferroic heterostructures (Invited)

M. Trassin^{*1}; 1. ETH Zurich, Switzerland

5:30 PM

(EMA-S5-014-2017) Non-resonant Magnetoelectric Energy Harvester Utilizing Phase Transformation in Relaxor Ferroelectric Single Crystals

M. Staruch^{*1}; R. Perez Moyet²; J. Stace²; A. Amin²; J. Restorff³; M. Wun-Fogle³; P. Finkel¹; 1. U.S. Naval Research Laboratory, USA; 2. Naval Undersea Warfare Center, USA; 3. Naval Surface Warfare Center Carderock, USA

S9: Interfaces in Microstructural Evolution: Structure, Properties, Anisotropy, and Motion

Impact of Interfacial Properties on Materials Properties and Processing

Room: Mediterranean A/B

Session Chairs: Rachel Zucker, University of California, Berkeley; Wolfgang Rheinheimer, Karlsruhe Institute of Technology

2:00 PM

(EMA-S9-008-2017) Electric Field Effects on Grain Boundary Formation and Grain Growth (Invited)

K. van Benthem^{*1}; L. A. Hughes¹; W. Qin¹; 1. University of California, Davis, USA

2:30 PM

(EMA-S9-009-2017) A DoE Approach to Densifying Sodium Potassium Niobate (KNN) by Compositional Variation (Invited)

G. Corapcioglu¹; M. Papila²; M. A. Gulgun^{*1}; 1. Sabanci University, Turkey; 2. Sabanci University, Turkey

3:00 PM

(EMA-S9-010-2017) Characterizing Grain Boundary Chemistry Effects on Strength using Single Boundary Measurements (Invited)

S. Dillon^{*1}; 1. University of Illinois at Urbana-Champaign, USA

3:30 PM

Break

4:00 PM

(EMA-S9-011-2017) Re-partitioning of dopants in intergranular regions to dictate grain growth behaviors in ceramics

H. Gu^{*1}; 1. Shanghai University, China

4:15 PM

(EMA-S9-012-2017) Interfacial Processes in Cold Sintered Ceramics and Ceramic-Based Composites (Invited)

J. Guo^{*1}; H. Guo¹; A. Baker¹; S. Funahashi¹; M. Lanagan¹; C. Randall¹; 1. The Pennsylvania State University, USA

4:30 PM

(EMA-S9-013-2017) Interplay between phase boundary motion, diffusion and surface reaction in ion-insertion compounds (Invited)

M. Tang^{*1}; L. Hong¹; 1. Rice University, USA

5:00 PM

(EMA-S9-014-2017) Interface Stoichiometry and Evolution During Electrical Degradation of Barium Titanate

N. Creange^{*1}; M. J. Cabral¹; E. C. Dickey¹; 1. North Carolina State University, USA

S12: 5G Materials for the Millimeter Wave Revolution

5G Materials for the Millimeter Wave Revolution II

Room: Caribbean B

Session Chair: Nate Orloff, NIST

2:00 PM

(EMA-S12-007-2017) Dimensional Control of Complex Transition Metal Compounds: Insights From First Principles (Invited)

T. Birol^{*}; 1. University of Minnesota, USA

2:30 PM

(EMA-S12-008-2017) A Millimeter-Wave Testbed for 2D Materials Including Transition Metal Dichalcogenides and Graphene

N. Orloff^{*,3}; C. J. Long³; A. Jackson¹; I. Hanemann²; C. Little²; P. Kabos³; S. Berweger³; E. Cobas⁴; T. Palomaki⁵; M. Keller³; J. C. Booth³; 1. Purdue University, USA; 2. University of Colorado, USA; 3. National Institute of Science and Technology, USA; 4. Naval Research Laboratory, USA; 5. University of Washington, USA

2:45 PM

(EMA-S12-009-2017) Optically derived high spectral purity electronic signals from RF to W Band (Invited)

F. Quinlan^{*}; T. Fortier¹; S. Diddams¹; 1. National Institute of Standards and Technology, USA

3:15 PM

Break

3:45 PM

(EMA-S12-010-2017) Extending Transparency of Conductive Oxides into low THz and THz Spectrum (Growth and Characterization) (Invited)

D. Shreiber^{*}; M. P. Ivill¹; M. W. Cole²; 1. US Army Research Laboratory, USA; 2. Central New Mexico College, Univ. of New Mexico, USA

4:00 PM

(EMA-S12-011-2017) Nickel Zinc-based Ferrite Thick Films Created via Tape Casting Method for Wide-bandwidth Conformal Antennae

T. Kittel^{*}; G. Naderi¹; J. Schwartz¹; 1. North Carolina State University, USA

4:15 PM

(EMA-S12-012-2017) Ultralow temperature cofiring ceramic materials for LTCC applications (Invited)

H. Wang^{*}; 1. Xi'an Jiaotong University, China

S13: Mesoscale Phenomena in Ceramic Materials, Nano- and Microstructures

Multiscale Modeling of Mesoscopic and Interfacial Phenomena (Joint session with Symposium 10)

Room: Coral A

Session Chairs: Paul Evans, University of Wisconsin; Marty Gregg, Queens University Belfast

2:00 PM

(EMA-S13-006-2017) Predicting the coevolution of microstructure and properties in ceramic materials with the MOOSE framework (Invited)

M. R. Tonks^{*}; I. Greenquist¹; F. Hilty¹; M. Sessim¹; J. Hirschhorn¹; 1. Pennsylvania State University, USA

2:30 PM

(EMA-S13-007-2017) Ferret: An open-source code for simulating materials thermodynamics at mesoscale

J. Mangeri¹; K. C. Pitike²; L. Kuna¹; A. Jokisaari³; P. S. Alpay²; O. Heinonen⁴; S. Nakhmanson^{*,2}; 1. University of Connecticut, USA; 2. University of Connecticut, USA; 3. Northwestern University, USA; 4. Argonne National Lab, USA

2:45 PM

(EMA-S13-008-2017) Temperature-induced ferroelectric phase transition in ABO₃ perovskites: A Wang-Landau-DFT approach

S. F. Yuk^{*,2}; K. C. Pitike²; S. Nakhmanson²; M. Eisenbach³; Y. W. Li³; V. R. Cooper¹; 1. Oak Ridge National Lab, USA; 2. University of Connecticut, USA; 3. Oak Ridge National Lab, USA

3:00 PM

(EMA-S13-009-2017) First-principles-based Landau energy functionals for perovskite ferroelectrics

K. C. Pitike^{*}; N. Gadigi²; J. Mangeri³; V. R. Cooper¹; S. Nakhmanson¹; 1. University of Connecticut, USA; 2. University of Connecticut, USA; 3. University of Connecticut, USA; 4. Oak Ridge National Laboratory, USA

3:15 PM

Break

3:45 PM

(EMA-S13-010-2017) Intrinsic size effects and topological phase transformations in ferroelectric nanoinclusions embedded in a dielectric matrix (Invited)

J. Mangeri^{*}; Y. Espinal²; A. Jokisaari³; P. S. Alpay²; S. Nakhmanson²; O. Heinonen⁴; 1. University of Connecticut, USA; 2. University of Connecticut, USA; 3. Northwestern University, USA; 4. Argonne National Lab, USA

4:15 PM

(EMA-S13-011-2017) Kinetic Poisson-Cahn Model of Defect Segregation Near Grain Boundaries During Thermal Annealing in Oxygen-Conducting Solid Electrolytes

X. Tong^{*}; D. S. Mebane¹; 1. West Virginia University, USA

4:30 PM

(EMA-S13-012-2017) The Poisson-Cahn space charge theory for concentrated solid electrolytes (Invited)

D. S. Mebane^{*}; 1. West Virginia University, USA

S14: Multifunctional Nanocomposites

Synthesis of Functional Heterostructures

Room: Caribbean C

Session Chair: Erik Enriquez, Los Alamos National Lab

2:00 PM

(EMA-S14-007-2017) Mapping growth windows in strongly-correlated quaternary perovskite oxide systems by hybrid molecular beam epitaxy (Invited)

M. Brahlek^{*}; L. Zhang¹; J. Lapano¹; H. Zhang¹; R. Engel-Herbert¹; 1. Pennsylvania State University, USA

2:30 PM

(EMA-S14-008-2017) On the Growth of Epitaxial SrCoO_x Phases During Oxide Molecular Beam Epitaxy (Invited)

D. Fong^{*}; T. K. Andersen²; S. Cook²; 1. Argonne National Lab, USA; 2. Northwestern University, USA

3:00 PM

(EMA-S14-009-2017) Metal-Insulator Transition, Charge Compensation, and Mobility-Limiting Scattering Mechanisms in MBE Grown La-doped BaSnO₃ Films and Heterostructures (Invited)

A. Prakash¹; P. Xu¹; B. Jalan^{*}; 1. University of Minnesota, USA

3:30 PM

Break

Multifunctional Nanocomposites: The Interface I

Room: Caribbean C

Session Chair: Dillon Fong, Argonne National Lab

4:00 PM

(EMA-S14-010-2017) Self-Assembled Magnetic Metallic Nanopillars in Ceramic Matrix with Anisotropic Magnetic and Electrical Transport Properties

J. Huang^{*1}; Q. Su²; W. Zhang³; P. Lu⁴; F. Chen⁴; X. Zhang¹; J. MacManus-Driscoll⁵; A. Chen⁶; Q. Jia⁶; H. Wang¹; 1. Purdue University, USA; 2. Texas A&M University, USA; 3. Sandia National Laboratories, USA; 4. University of South Carolina, USA; 5. University of Cambridge, United Kingdom; 6. Los Alamos National Laboratory, USA

4:15 PM

(EMA-S14-011-2017) Vertically aligned oxide heteroepitaxy films for fast oxygen ion transport at reduced temperature (Invited)

S. Lee^{*1}; J. MacManus-Driscoll²; 1. Daegu Gyeongbuk Institute of Science and Technology, Republic of Korea; 2. University of Cambridge, United Kingdom

4:30 PM

(EMA-S14-012-2017) Termination control of magnetic order at a complex oxide interface (Invited)

K. Dorr^{*1}; 1. MLU Halle-Wittenberg, Germany

5:00 PM

(EMA-S14-013-2017) Interfacial Charge Engineering for Enhanced Ferroelectric-Control of Strongly Correlated Oxides

X. Chen¹; X. Zhang¹; M. A. Koton²; H. Chen³; Z. Xiao¹; L. Zhang¹; J. E. Shield²; P. Dowben¹; X. Hong^{*1}; 1. University of Nebraska-Lincoln, USA; 2. University of Nebraska-Lincoln, USA; 3. New York University-Shanghai, China

S15: Superconducting Materials and Applications

New Superconducting Materials and Phenomena II

Room: Pacific

Session Chairs: Xianhui Chen, University of Science and Technology of China; Gang Wang, Institute of Physics, Chinese Academy of Sciences

2:00 PM

(EMA-S15-007-2017) Search for Topological Superconductivity in $\text{Sr}_x\text{Bi}_2\text{Se}_3$ (Invited)

H. Wen^{*1}; 1. Nanjing University, China

2:30 PM

(EMA-S15-008-2017) Topological superconductor and Majorana fermions in the vortex (Invited)

J. Jia^{*1}; 1. Shanghai Jiao Tong University, China

3:00 PM

(EMA-S15-009-2017) Exploring unique electronic states at topological insulator-superconductor interfaces (Invited)

P. A. Folkes^{*2}; P. J. Taylor¹; C. Rong¹; B. Nichols¹; H. Hier¹; M. Neupane¹; 1. U.S. Army Research Laboratory, USA; 2. US Army Research Laboratory, USA

3:30 PM

Break

4:00 PM

(EMA-S15-010-2017) Weyl nodes in noncentrosymmetric superconductor (Invited)

H. Wen^{*1}; 1. Institute of Physics, Chinese Academy of Sciences, China

4:30 PM - CANCELLED

(EMA-S15-011-2017) Investigations of unconventional superconductivity under hydrostatic pressure conditions (Invited)

J. Cheng^{*1}; 1. Institute of Physics, Chinese Academy of Sciences, China

5:00 PM

(EMA-S15-012-2017) Molecular intercalated superconducting materials in iron compounds (Invited)

S. Jin^{*1}; 1. Institute of Physics, Chinese Academy of Sciences, China

Poster Session

Room: Atlantic/Arctic

5:30 PM

(EMA-P001-2017) Evolution of Brownmillerite Structure in $\text{SrCOO}_{2.5}$ Under Varying Molecular Beam Epitaxy Growth Conditions

T. K. Andersen^{*1}; S. Cook¹; H. Hong²; D. Fong³; L. D. Marks¹; 1. Northwestern University, USA; 2. Argonne National Lab, USA; 3. Argonne National Lab, USA

(EMA-P002-2017) Characterization of Solution-Based Exfoliated Nanosheets

K. G. Pachuta^{*1}; A. Sehirlioglu¹; E. Pentzer²; 1. Case Western Reserve University, USA; 2. Case Western Reserve University, USA

(EMA-P003-2017) Optimizing Single Crystal Epitaxial $\text{La}_{1-x}\text{La}_{2/3-x}\text{TiO}_3$ Growth on SrTiO_3 Substrate

E. Farghadany^{*1}; A. Sehirlioglu¹; 1. Case Western Reserve University, USA

(EMA-P004-2017) Processing and Performance of Sintered Intercalation Oxide Cathodes for All-Solid-State Structural Lithium Ion Batteries

W. Huddleston^{*1}; F. Dynys²; A. Sehirlioglu¹; 1. Case Western Reserve University, USA; 2. NASA Glenn Research Center, USA

(EMA-P005-2017) Optimizing the Flux Pinning of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Superconductor with $\text{BaHfO}_3+\text{Y}_2\text{O}_3$ Mixed Phase Additions

M. P. Sebastian^{*1}; T. Bullard²; C. B. Ebbing³; J. Huang⁴; H. Wang⁴; J. Wu⁵; T. J. Haugan¹; 1. AFRL, USA; 2. UES, USA; 3. UDRI, USA; 4. Texas A&M University, USA; 5. University of Kansas, USA

(EMA-P006-2017) A Facile Method to Synthesize Highly Conductive Polymer Derived Ceramics with Arbitrary Shapes by Built-in Conductive Networks

S. Chen^{*1}; L. Zhai²; 1. University of Central Florida, USA; 2. University of Central Florida, USA

(EMA-P007-2017) Study of the local structures of $\text{Bi}(\text{Zn}_{2/3}\text{Nb}_{1/3})\text{O}_3$ -based systems

C. Zhao^{*1}; D. Hou¹; A. Paterson²; T. Usher³; I. Levin⁴; Z. Ye²; J. L. Jones¹; 1. North Carolina State University, USA; 2. Simon Fraser University, Canada; 3. Oak Ridge National Laboratory, USA; 4. National Institute of Standards and Technology, USA

(EMA-P008-2017) Structure-property relationship of the piezoelectric system $x\text{BiInO}_3-(1-x)\text{BaTiO}_3$

A. M. Manjón Sanz^{*1}; C. Belger¹; M. Dolgos¹; 1. Oregon State University, USA

(EMA-P009-2017) Nanostructured $\text{Al}^{3+}/\text{Mn}^{2+}$ doped ZnO ambipolar as electrodes for supercapacitors

F. R. Moreira¹; D. Muller¹; L. T. Scarabelot¹; L. V. de Souza¹; D. Hotza²; C. R. Rambo^{*1}; 1. Federal University of Santa Catarina, Brazil; 2. Federal University of Santa Catarina, Brazil

(EMA-P010-2017) Pathways of Polarization Reversal

C. Fancher^{*1}; H. Choe³; S. Gorfman³; H. Simons³; N. Prasertpalichat⁴; C. Chang-Chung²; D. Cann⁴; J. L. Jones²; 1. Oak Ridge National Lab, USA; 2. North Carolina State University, USA; 3. University of Siegen, Germany; 4. Oregon State University, USA; 5. Technical University of Denmark, Denmark

(EMA-P011-2017) Phase stability and B-site ordering in $\text{La}_2\text{NiMnO}_6$ thin films

X. Jin¹; S. Mi^{*2}; L. Lu¹; M. Liu¹; C. Jia³; 1. The School of Electronic and Information Engineering, Xi'an Jiaotong University, Xi'an 710054, PR China, China; 2. State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, Xi'an 710049, People's Republic of China, China; 3. Peter Grünberg Institute and Ernst Ruska Center for Microscopy and Spectroscopy with Electrons, Germany

(EMA-P012-2017) Dielectric relaxation and Impedance spectroscopic studies of $(\text{Li}/\text{Ta}/\text{Sb}) (\text{Na},\text{K})\text{NbO}_3$ ceramics with excess Na

S. Sharma^{*1}; K. Shamim¹; 1. Magadh University, India

(EMA-P013-2017) Electrical and dielectric behaviour of microwave sintered $(\text{K},\text{Na},\text{Li})\text{NbO}_3$ Lead free ceramics

S. Sharma^{*1}; K. Shamim¹; 1. Magadh University, India; 2. A N College, India

(EMA-P014-2017) High-Pressure Synthesis of A-Site Ordered Double Perovskite $\text{CaMnTi}_2\text{O}_6$ and the Origin of its Ferroelectricity

A. Aimi^{*1}; D. Mori²; Y. Inaguma³; Y. Shan²; K. Fujimoto¹; 1. Tokyo University of Science, Japan; 2. Utsunomiya University, Japan; 3. Gakushuin University, Japan

(EMA-P015-2017) Neutron Diffraction and Magnetic Studies on $\text{PbFe}_{0.5}\text{Nb}_{0.5}\text{O}_3$ - BiFeO_3 Solid Solutions

S. T. Dadami¹; S. I¹; S. Mattheppanavar¹; S. Rayaprol²; B. Angadi¹; 1. Bangalore University, India; 2. BARC Campus, India

(EMA-P016-2017) Measuring Energy Density and Dielectric Breakdown in Polymers and Polymer Ceramic Composites

E. Gorzkowski^{*1}; M. Pan¹; 1. Naval Research Lab, USA

(EMA-P017-2017) Growth and Properties of Tin Oxynitride Thin Films

H. Gwon^{*1}; S. Nahm²; C. Park³; J. Kim¹; S. Baek¹; 1. Korea Institute of Science and Technology, Republic of Korea; 2. Korea University, Republic of Korea; 3. Seoul National University, Republic of Korea

(EMA-P018-2017) Towards the rapid synthesis of high-quality monolayer continuous film of graphene on the plasma modified Cu foil with high surface free energy

M. S. Wimalananda^{*1}; J. Kim¹; J. Lee¹; 1. Suncheon National University, Republic of Korea

(EMA-P019-2017) Fabrication of transparent electrode for near UV range applications by using ITO nano dots/ ITO thin film by organic additives-free sol-gel technique

B. N. Hemasiri^{*1}; J. Kim¹; J. Lee¹; 1. Suncheon National University, Republic of Korea

(EMA-P020-2017) Complex Site Occupancy and Mesoscale Chemical Heterogeneity of $(1-x)\text{BaTiO}_3 - x\text{Bi}(\text{M})\text{O}_3$ Dielectrics

M. A. Beuerlein^{*1}; G. L. Brennecke¹; C. Cook¹; E. Arnheiter¹; 1. Colorado School of Mines, USA

(EMA-P021-2017) Prediction of 2D transition metal trihalides

D. Gluhovic^{*1}; 1. University of Florida, USA

(EMA-P022-2017) Technique development for studying origins of microcracking due to inhomogeneous stresses

C. Mooney^{*1}; J. Zhao¹; J. L. Jones¹; E. C. Dickey¹; 1. North Carolina State University, USA

(EMA-P023-2017) Electrolytic Deposition of Copper from Ammonia-Ammonium Sulfate Solution Containing Cu(I)

H. Konishi^{*1}; K. Koyama²; T. Oishi²; H. Ono¹; 1. Osaka University, Japan; 2. National Institute of Advanced Industrial Science and Technology, Japan; 3. Chiba Institute of Technology, Japan

(EMA-P024-2017) Mass Production of High Quality Boron-doped Diamond Thin film by Surface Wave Plasma CVD

T. Kim^{*1}; Y. Park²; J. Kim²; 1. Pusan National University, Republic of Korea; 2. Pusan National University, Republic of Korea

(EMA-P025-2017) Development of radiotransparent ceramic based on composition of the system $\text{BaO-SrO-Al}_2\text{O}_3\text{-SiO}_2$

R. Kryvobok¹; G. Lisachuk¹; E. Chefranov^{*1}; M. Prytkina¹; A. Zakharov¹; 1. National Technical University "Kharkiv Polytechnic Institute", Ukraine

(EMA-P026-2017) Crystalline tellurite optical fiber development for hydrophone

J. Wang^{*1}; 1. NSYSU, Taiwan

(EMA-P027-2017) Study on Field Assisted Sintering of CaLa_2S_4 Powders Processed via High-Energy Ball Milling

Y. Li^{*1}; Y. Wu¹; 1. Alfred University, USA

(EMA-P028-2017) Study of solid-state conversion of non-oxide crystals

Y. Liu^{*2}; Y. Wu¹; 1. Alfred University, USA; 2. New York State College of Ceramics, USA

(EMA-P029-2017) Nanostructured ZnO /Graphene xerogels with photosensing properties

I. C. Cezário^{*1}; D. Muller¹; F. R. Moreira¹; C. R. Rambo¹; 1. Federal University of Santa Catarina, Brazil; 2. Federal University of Santa Catarina, Brazil

(EMA-P030-2017) Rare-earth ions doped heavy metal borate scintillators

S. Barbi^{*1}; C. Mugoni¹; S. Singleton²; M. Affatigato³; C. Siligardi¹; C. Gatto⁴; 1. University of Modena and Reggio Emilia, Italy; 2. Coe College, USA; 3. Coe College, USA; 4. Fermi National Accelerator Laboratory, USA

(EMA-P031-2017) The photo-detecting transistor based on graphene/ BiFeO_3 heterostructure

T. Choi¹; H. Lee^{*1}; C. Youn¹; J. Lee¹; H. Lee¹; M. Jang¹; M. Kang¹; Y. Gill²; j. Nam²; K. Kim²; Y. Kim¹; 1. Nano and advanced material, Republic of Korea; 2. physics, Republic of Korea

(EMA-P032-2017) DFT Prediction and Characterization of Two-Dimensional Group-III Chalcogenides

M. V. Israni^{*1}; J. T. Paul¹; M. Ashton¹; R. G. Hennig¹; 1. University of Florida, USA

(EMA-P033-2017) Synthesis of Magnetoelectric Composites on a Single Nanoparticle

A. M. Uhl^{*1}; M. A. Budi¹; J. S. Andrew¹; 1. University of Florida, USA

(EMA-P034-2017) Van der Waals Epitaxy of Layered Halide Perovskites

Z. Chen^{*1}; Y. Wang¹; J. Shi¹; 1. Rensselaer Polytechnic Institute, USA

(EMA-P035-2017) Thermal stability and brazing of thermoelectric tellurides

D. Ben Ayoun^{*1}; Y. Sadia²; Y. Gelbstein²; 1. Ben-Gurion University of the Negev, Israel; 2. Ben-Gurion University of the Negev, Israel

(EMA-P036-2017) Effect of Pb doping on thermoelectric properties of $\text{Bi}_{1-x}\text{Pb}_x\text{CuOSe}_{0.8}\text{Te}_{0.2}$

T. An¹; J. Ryun^{*1}; Y. Lim²; J. Tak³; S. Shin¹; W. Seo²; C. Park⁴; H. Cho⁵; J. Kim⁶; C. Park¹; 1. Seoul National University, Republic of Korea; 2. Pukyong National University, Republic of Korea; 3. Korea Institute of Ceramic Engineering and Technology, Republic of Korea; 4. LG Chem., Republic of Korea; 5. Sungkyunkwan University, Republic of Korea; 6. Korea Institute of Science and Technology, Republic of Korea

(EMA-P037-2017) High-Thermoelectric Performance of Metal-oxide Coated Bismuth Antimony Telluride Alloys

K. Kim^{*1}; B. Kwon¹; D. Hyun¹; S. Baek¹; S. Kim¹; C. Park¹; J. Kim¹; 1. Korea Institute of Science and Technology, Republic of Korea; 2. Seoul National University, Republic of Korea

(EMA-P038-2017) Nonlinear box-counting dimensions of grain cluster boundary and dielectric permittivity

V. Mitic^{*1}; V. Paunovic²; L. Kocic³; Z. Vosika¹; 1. University of Nis, Serbia; 2. Faculty of Electronic Engineering, Serbia; 3. Faculty of Electronic Engineering, Serbia

(EMA-P039-2017) Grains cluster boundary fractality and micro capacitors

V. Mitic^{*1}; L. Kocic²; V. Paunovic³; 1. University of Nis, Serbia

(EMA-P040-2017) Oxygen partial pressure effect on Wulff Shapes of Barium Titanate/Strontium Titanate Alloys

M. J. Michie^{*1}; W. Rheinheimer²; F. J. Altermann²; C. Handwerker¹; J. Blendell¹; 1. Purdue University, USA; 2. Karlsruhe Institute of Technology, Germany

(EMA-P041-2017) Growth and Electronic Structure Characterization of a $(\text{SrCoO}_x)_{1-x}(\text{SrTiO}_3)_x$ Superlattice

S. Cook^{*1}; T. K. Andersen¹; H. Hong³; R. A. Rosenberg¹; L. D. Marks¹; D. Fong²; 1. Northwestern University, USA; 2. Argonne National Laboratory, USA; 3. Argonne National Laboratory, USA

(EMA-P042-2017) Negative resistance in thin carbon films and graphite samples

N. Gheorghiu^{*3}; C. B. Ebbing⁴; J. P. Murphy⁵; B. T. Pierce²; M. P. Sebastian¹; T. Bullard⁴; T. J. Haugen¹; 1. AFRL, USA; 2. Air Force Research Laboratory, USA; 3. UES, Inc., USA; 4. University of Dayton Research Institute, USA; 5. University of Dayton Research Institute, USA; 6. UES, Inc., USA

(EMA-P043-2017) Synthesis and Charecterization of zircotite magnetic ferrofluid for the application of the hyperthermia treatment

A. Gangwar^{*1}; 1. IIT BHU Varanasi, India

(EMA-P044-2017) Local structure studies of disordered and nanocrystal ferroelectrics

T. Usher^{*1}; D. Olds¹; J. Liu¹; K. Page¹; 1. Oak Ridge National Laboratory, USA

(EMA-P045-2017) Photovoltaic Effect in VO_2 nano-island/ BiFeO_3 heterostructure

T. Choi¹; J. Lee^{*1}; H. Lee¹; C. Youn¹; M. Jang¹; H. Lee¹; M. Kang¹; Y. Gill¹; Y. Kim¹; 1. Sejong University, Republic of Korea

(EMA-P046-2017) Nanostructured ZnO /graphene for hybrid supercapacitor devices

I. C. Cezário^{*1}; F. R. Moreira¹; D. Muller²; C. R. Rambo¹; 1. Federal University of Santa Catarina, Brazil; 2. Federal University of Santa Catarina, Brazil

(EMA-P047-2017) WO_3 anstructures synthesized via microwave-assisted hydrothermal methods

S. Yoo¹; S. Park¹; C. Nam^{*1}; 1. Hannam University, Republic of Korea

(EMA-P048-2017) The large room temperature perpendicular exchange bias in the self-assembled $\text{NiO-NiFe}_2\text{O}_4$ nanocomposites

R. Wu^{*1}; C. Yun¹; Y. Lin¹; E. Choi¹; H. Wang²; J. MacManus-Driscoll¹; 1. University of Cambridge, United Kingdom; 2. Purdue University, USA

(EMA-P049-2017) Electrophoretic deposition of magnesium diboride

W. Straka*; J. Schwartz¹; 1. North Carolina State University, USA

(EMA-P050-2017) Calorimetric Measurements of AC Loss of YBCO Conductors and Cables at High dB/dt in a Stator Environment

T. J. Haugan*; J. P. Murphy²; M. Sumption³; T. Bullard⁴; N. Gheorghiu⁴; 1. U.S. Air Force Research Laboratory, USA; 2. University of Dayton Research Institute, USA; 3. The Ohio State University, USA; 4. UES Inc., USA

(EMA-P051-2017) Investigation of Hetero-structure Formation and Interface Property of Bi2212 and Topological Insulator

C. Rong*; P. J. Taylor¹; P. A. Folkers¹; D. M. Potrepka¹; P. N. Barnes¹; 1. U.S. Army Research Laboratory, USA

(EMA-P052-2017) An Investigation of the Superconducting Properties of the beta-Mn (T_{1-x}R_x)₂Al₂C solid solutions

M. A. Susner*; T. Bullard²; M. Sumption¹; T. J. Haugan¹; 1. The Ohio State University, USA; 2. U.S. Air Force Research Laboratory, USA; 3. UES, Inc., USA

Thursday, January 19, 2017

Plenary II

Room: Indian

Session Chair: Rick Uvic, Boise State University

8:30 AM

Opening Remarks

8:40 AM

(EMA-PLEN- 002-2017) From Ultra-High Q dielectrics to the room temperature MASER

N. McN. Alford*; 1. Imperial College, United Kingdom

9:30 AM

Break

S1: Advanced Electronic Materials: Processing, Structures, Properties, and Applications

Advanced Electronic Materials: Piezoelectric

Room: Indian

Session Chairs: Zuo-Guang Ye, Simon Fraser University; Jun Luo, TRS Technologies, Inc.

10:00 AM

(EMA-S1-018-2017) Exploring the Structures and Properties of Novel Piezo-/ferroelectric Single Crystals (Invited)

Z. Ye*; 1. Simon Fraser University, Canada

10:30 AM

(EMA-S1-019-2017) Relaxor-PT ferroelectric crystals and their applications in diagnostic medical ultrasound imaging (Invited)

J. Luo*; S. Taylor¹; S. Zhang²; 1. TRS Technologies, Inc., USA; 2. University of Wollongong, Australia

11:00 AM

(EMA-S1-020-2017) Simultaneous Field and Stress Control of Ferroelectric Phases in PIN-PMN-PT (Invited)

P. Finkel*; M. Staruch¹; M. Ahart¹; A. Amin²; S. Lofland³; 1. U.S. Naval Research Laboratory, USA; 2. Naval Undersea Warfare Center, USA; 3. Rowan University, USA; 4. Carnegie Institute of Washington, USA

11:30 AM

(EMA-S1-021-2017) Investigation of the aluminum nitride - scandium nitride alloy system for piezoelectric applications

K. R. Talley*; G. L. Brenneke¹; A. Zakutayev¹; A. Holder²; S. Millet³; 1. Colorado School of Mines, USA; 2. National Renewable Energy Laboratory, USA; 3. University of Colorado, Boulder, USA

11:45 AM

(EMA-S1-022-2017) Giant piezoelectric voltage coefficient in grain oriented modified-PbTiO₃ material

Y. Yan*; J. Zhou¹; D. Maurya²; Y. Wang³; S. Priya⁴; 1. Michigan Tech, USA; 2. Virginia Tech, USA

12:00 PM

(EMA-S1-023-2017) Mechanical characterization of LiTaO₃ and LiNbO₃ single crystals for application as surface acoustic wave filters

M. Gruber*; D. Kiener²; P. Supancic¹; R. Danzer¹; R. Bermejo¹; 1. Montanuniversitaet Leoben, Austria; 2. Montanuniversitaet Leoben, Austria

12:15 PM

(EMA-S1-024-2017) Development of Texture in PMN-PZT Piezoelectric Ceramics and Their Ultrasonic Motor Applications

S. Alkoy*; S. Dursun¹; E. Mensur-Alkoy²; 1. Gebze Technical University, Turkey; 2. Maltepe University, Turkey

S2: Advanced Processing for Electronic and Electrochemical Systems: Crystals, Films and Devices

Functional Materials: Synthesis Science, Properties, Integration

Room: Coral B

Session Chair: Jon Ihlefeld, Sandia National Laboratories

10:00 AM

(EMA-S2-019-2017) Comparison and Evaluation of Mn Doped PZT Thin Films for Resonant PiezoMEMS Devices

R. G. Polcawich*; R. Q. Rudy¹; K. Grove¹; 1. US Army Research Laboratory, USA

10:15 AM

(EMA-S2-020-2017) Measurement and Modelling of effective piezoelectric coefficients of thin films

M. Sivaramakrishnan*; P. Mardilovich²; T. Schmitz-Kempen³; S. Tiedke³; 1. Xaar, United Kingdom; 2. Xaar, United Kingdom; 3. Aixacct, Germany

10:30 AM

(EMA-S2-021-2017) Improved Performance and Reliability in (001) Textured PZT Films for PiezoMEMS through Compositional and Doping Profiles

T. M. Borman*; W. Zhu¹; S. Ko²; P. Mardilovich²; S. Trolrier-McKinstry¹; 1. Pennsylvania State University, USA; 2. Xaar, United Kingdom

10:45 AM

(EMA-S2-022-2017) Normal and Lateral Enhancement of Piezoactuation for Geometrically Strain Relieved Functional Microstructures

L. Ye¹; R. Keech²; R. Cordier¹; S. Trolrier-McKinstry²; B. D. Huey*; 1. University of Connecticut, USA; 2. Pennsylvania State University, USA

11:00 AM

(EMA-S2-023-2017) "Ferroelectricity" in epitaxial Pb_{1-x}ZrO₃ thin films

R. Gao*; S. R. Lillo²; R. Xu¹; L. Dedon¹; Y. Dong³; H. Zhou³; A. Dasgupta¹; Z. Chen¹; C. R. Serrao⁴; J. Neaton²; L. W. Martin¹; 1. University of California, Berkeley, USA; 2. University of California, Berkeley, USA; 3. Advanced Photon Source, Argonne National Laboratory, USA; 4. University of California, Berkeley, USA

11:15 AM

(EMA-S2-024-2017) Thickness Dependence of Polarization and Electronic Conduction in (Hf,Zr)O₂

S. W. Smith*; A. Kitahara¹; M. Rodriguez¹; D. Henry¹; M. Brumbach¹; J. Ihlefeld¹; 1. Sandia National Laboratories, USA

11:30 AM

(EMA-S2-025-2017) Alternative spray-based processing methods for dielectric and piezoelectric film deposition

M. Deluca*; R. Wimmer-Teubenbacher¹; M. Bruckner²; J. Kita²; R. Moos²; K. Reichmann²; G. A. Maier¹; 1. Materials Center Leoben Forschung GmbH, Austria; 2. University of Bayreuth, Germany; 3. Technische Universitaet Graz, Austria

11:45 AM

(EMA-S2-026-2017) Flexoelectric and flexocaloric Effects, Misfit Dislocations, and Strain Gradients: Electrothermal Properties of Ultrathin Ferroelectric Films

H. Khassaf^{*1}; T. Patel¹; P. S. Alpay¹; 1. University of Connecticut, USA

12:00 PM

(EMA-S2-027-2017) Untangling Electrostatic and Strain Effects on the Polarization of Ferroelectric Superlattices

E. Khestanova¹; N. Dix¹; I. Fina¹; M. Scigaj¹; J. Rebled²; C. Magén³; S. Estradé²; F. Peiró²; G. Herranz¹; J. Fontcuberta¹; F. Sanchez^{*1}; 1. Institut of Materials Science of Barcelona (ICMAB-CSIC), Spain; 2. Universitat de Barcelona, Spain; 3. Universidad de Zaragoza, Spain

S4: Computational Design of Electronic Materials

Materials by Design I

Room: Coral A

Session Chair: Mina Yoon, Oak Ridge National Laboratory

9:45 AM

(EMA-S4-001-2017) Rational Computation-Guided Design of Polymer Dielectrics (Invited)

R. Ramprasad^{*1}; 1. University of Connecticut, USA

10:15 AM

(EMA-S4-002-2017) Materials Modeling Applied to Enablement of Emerging and Scaling Memory Technologies (Invited)

S. C. Pandey^{*1}; 1. Micron Technology Inc., USA

10:45 AM

(EMA-S4-003-2017) First-principles materials design of novel functional oxides (Invited)

V. R. Cooper^{*1}; 1. Oak Ridge National Laboratory, USA

11:15 AM

(EMA-S4-004-2017) Engineering organic solar cells with high performance computing (Invited)

E. Jankowski^{*1}; 1. Boise State University, USA

11:45 AM

(EMA-S4-005-2017) Modeling of Soft Phonon Mode Dynamics and Phase Transitions in Aurivillius Type Ferroelectrics

S. K. Nayak^{*1}; F. Sun²; D. Maurya³; D. George⁴; A. Pramanick⁵; M. Kang³; H. Song³; A. Charkhesht⁴; G. Khodaparast⁴; N. Q. Vinh⁴; S. Priya³; P. S. Alpay¹; 1. University of Connecticut, USA; 2. University of Connecticut, USA; 3. Virginia Tech, USA; 4. Virginia Tech, USA; 5. City University of Hong Kong, Hong Kong

12:00 PM

(EMA-S4-006-2017) Design of Functional Oxides using Machine Learning and Density Functional Theory

P. Balachandran^{*1}; J. Young²; J. Rondinelli³; T. Lookman¹; 1. Los Alamos National Lab, USA; 2. Drexel University, USA; 3. Northwestern University, USA

12:15 PM

(EMA-S4-007-2017) Electron anions control glass transition temperature in non-reducible oxides

L. Johnson¹; Y. Tomoda²; H. Hosono²; P. Sushko^{*1}; 1. Pacific Northwest National Lab, USA; 2. Tokyo Institute of Technology, Japan

S5: Energy Sustainable Optoelectronics and Magnetoelectronics

Low-Dimensional Electronic Materials for Energy and Logic

Room: Mediterranean C

Session Chair: Jian Shi, Rensselaer Polytechnic Institute

10:00 AM

(EMA-S5-015-2017) Adaptive, programmable oxide electronics for energy efficient devices (Invited)

S. Ramanathan^{*1}; 1. Purdue University, USA

10:30 AM

(EMA-S5-016-2017) Graded Nanowire Interfaces for Efficient Energy Conversion (Invited)

M. H. Malakooti¹; H. A. Sodano^{*2}; 1. University of Michigan, USA; 2. University of Michigan, USA

11:00 AM

(EMA-S5-017-2017) Piezotronics-Regulated Electrochemical and Catalytic Materials and Devices (Invited)

X. Wang^{*1}; 1. University of Wisconsin, USA

11:30 AM

(EMA-S5-018-2017) Scalable 3-D Nanostructure Array Integration and Manufacturing: A Nanomaterials Roadmap toward Ultrahigh Efficiency, Robustness, and Multi-functionality (Invited)

P. Gao^{*1}; 1. University of Connecticut, USA

12:00 PM

(EMA-S5-019-2017) Piezotronics in 2D materials (Invited)

W. Wu^{*1}; 1. Purdue University, USA

S9: Interfaces in Microstructural Evolution: Structure, Properties, Anisotropy, and Motion

Atomistics of Microstructure Evolution

Room: Mediterranean A/B

Session Chairs: Wayne Kaplan, Technion - Israel Institute of Technology; Wolfgang Rheinheimer, Karlsruhe Institute of Technology

10:00 AM

(EMA-S9-015-2017) Interfacial step alignment as a new mechanism of hetero-epitaxy/orientation relationships (Invited)

D. Chatain^{*1}; P. Wynblatt²; A. Rollett²; G. Rohrer²; 1. Aix Marseille Univ. - CNRS, France; 2. Carnegie Mellon University, USA

10:30 AM

(EMA-S9-016-2017) A Microstructural Study of Bilayer Graphene Using Phase Field Crystal Simulations (Invited)

R. V. Zucker^{*1}; M. Asta¹; 1. University of California, Berkeley, USA

11:00 AM

(EMA-S9-017-2017) Alumina Reinforced with Continuous Fibers of Carbon Nanotubes: Interface Characterization and Mechanical Properties

R. Marder^{*1}; W. D. Kaplan¹; 1. Technion - Israel Institute of Technology, Israel

11:15 AM

(EMA-S9-018-2017) Low-angle tilt grain boundaries in SrTiO₃ (Invited)

R. A. De Souza^{*1}; 1. RWTH Aachen University, Germany

11:45 AM

(EMA-S9-019-2017) Disconnections at general grain boundaries in SrTiO₃ and their role in grain boundary motion (Invited)

H. Sternlicht^{*1}; W. Rheinheimer²; A. Mehlmann¹; A. Rothchild¹; M. J. Hoffmann²; W. D. Kaplan¹; 1. Technion, Israel; 2. Karlsruhe Institute of Technology, Germany

12:15 PM

(EMA-S9-020-2017) Towards a Predictive Model for Grain Boundary Dynamics (Invited)

J. Han^{*}; V. Vitek¹; D. Srolovitz¹; 1. University of Pennsylvania, USA

S10: Interfacial Phenomena in Multifunctional Heterostructures: From Theory to Transport Processes

Micro/Nanoscale Theoretical and Experimental Studies of Interfacial Phenomena

Room: Caribbean B

Session Chair: Anderson Janotti, University of Delaware

10:00 AM

(EMA-S10-001-2017) Defects, band alignment and electron charge redistribution in NdTiO₃/SrTiO₃ heterostructures (Invited)

P. Sushko^{*}; P. Xu¹; T. Droubay²; Y. Ayino³; C. Cheng⁴; V. S. Pribiag⁴; J. Jeong⁴; K. Mkhoyan⁴; R. Comes¹; B. Jalan⁴; S. Chambers²; 1. Auburn University, USA; 2. Pacific Northwest National Lab, USA; 3. Pacific Northwest National Laboratory, USA; 4. University of Minnesota, USA

10:30 AM

(EMA-S10-002-2017) Extracting buried electronic and magnetic structure information from oxide heterostructures with resonant x-ray spectroscopy (Invited)

R. Green^{*}; G. Sawatzky¹; 1. University of British Columbia, Canada

11:00 AM

(EMA-S10-003-2017) Oxygen transport phenomena at the grain boundary level in MIEC thin films (Invited)

F. Chiabrera¹; A. Saranya¹; D. Pla¹; A. Morata¹; A. Cavallaro²; J. Canales-Vazquez³; J. Kilner²; M. Burriel¹; A. Tarancón^{*}; 1. IREC, Spain; 2. Imperial College, United Kingdom; 3. UCLM, Spain; 4. Grenoble-INP, France

11:30 AM

(EMA-S10-004-2017) A New Line Defect in NdTiO₃ Perovskite (Invited)

J. Jeong²; M. Topsakal²; P. Xu²; B. Jalan¹; R. Wentzcovitch²; K. Mkhoyan^{*}; 1. University of Minnesota, USA; 2. University of Minnesota, USA

12:00 PM

(EMA-S10-005-2017) Realistic Atomistic Modeling of Surfaces and Interfaces

A. Blom^{*}; U. M. Pozzoni¹; K. Stokbro¹; 1. QuantumWise, Denmark

12:15 PM

(EMA-S10-006-2017) Excitons at oxide interfaces in ellipsometric spectra

S. Zollner^{*}; C. Rodriguez¹; N. Samarasingha¹; J. Moya¹; N. Fernando¹; P. Ponath²; K. Kormondy²; A. Demkov²; S. Chattopadhyay²; 1. New Mexico State University, USA; 2. University of Texas, USA; 3. Indian Institute of Technology, India

S14: Multifunctional Nanocomposites

Multifunctional Nanocomposites: Functionality by Design II

Room: Caribbean C

Session Chair: Ho Nyung Lee, Oak Ridge National Laboratory

10:00 AM

(EMA-S14-015-2017) Flexible Multiferroic Nanocomposite with Ultra-High Magnetoelectric Coupling (Invited)

Y. Chu^{*}; 1. National Chiao Tung University, Taiwan

10:30 AM

(EMA-S14-016-2017) Novel perpendicular exchange bias in vertical aligned nanocomposite films through interfacial coupling

M. Fan^{*}; W. Zhang¹; J. Jian²; J. Huang²; H. Wang²; 1. Texas A&M University, USA; 2. Purdue University, USA

10:45 AM

(EMA-S14-017-2017) Tuning functionalities in nanocomposite metal-oxide films by strain engineering (Invited)

A. Chen¹; J. Hu²; E. Enriquez³; P. Lu⁴; H. Wang²; L. Chen⁵; J. MacManus-Driscoll⁶; M. Fitzsimmons⁷; Q. Jia^{*}; 1. Los Alamos National Lab, USA; 2. University of Wisconsin, USA; 3. Los Alamos National Lab, USA; 4. Sandia National Laboratories, USA; 5. Purdue University, USA; 6. Pennsylvania State University, USA; 7. University of Cambridge, United Kingdom; 8. Oak Ridge National Laboratory, USA; 9. University at Buffalo, USA

11:15 AM

(EMA-S14-018-2017) Enhanced Tunable Magnetic and Transport Properties in Epitaxial (Pr_{0.5}Ba_{0.5}MnO₃)_{1-x}(CeO₂)_x Nanocomposite Thin Films

L. Shen^{*}; C. Ma²; S. Cheng¹; S. Ren¹; S. Cheng¹; S. Mi¹; M. Liu¹; 1. Xi'an Jiaotong University, School of Electronic and Information Engineering, China; 2. Xi'an Jiaotong University, State Key Laboratory for Mechanical Behaviour of Materials, China

11:30 AM

(EMA-S14-019-2017) Engineering the ferroic orders at BiFeO₃/La_{0.67}Sr_{0.33}MnO₃ interfaces (Invited)

E. Guo^{*}; 1. Oak Ridge National Lab, USA

11:45 AM

(EMA-S14-020-2017) Nanoscale manipulations of the structural and electronic phases of vanadium oxides (Invited)

D. Schrecongost¹; M. Azizih¹; W. Dai¹; H. Zhang²; R. Engel-Herbert³; C. Cen^{*}; 1. West Virginia University, USA; 2. Pennsylvania State University, USA; 3. Pennsylvania State University, USA

12:15 PM

(EMA-S14-021-2017) Ultrahigh Energy Storage Performance of Lead-Free Oxide Multilayer Film Capacitors via Interface Engineering

M. Liu^{*}; Z. Sun²; C. Ma²; H. Wang³; C. Jia⁴; 1. Xi'an Jiaotong University, China; 2. Xi'an Jiaotong University, China; 3. Xi'an Jiaotong University, China; 4. Xi'an Jiaotong University, China

S15: Superconducting Materials and Applications

Issues Related to the Fabrication of Low-cost and High-performance Second Generation Coated Conductors

Room: Pacific

Session Chairs: Haiyan Wang, Purdue University; Charles Rong, U.S. Army Research Laboratory

10:00 AM

(EMA-S15-013-2017) Current-Limiting Mechanisms in Superconductors at High Temperatures and Magnetic Fields (Invited)

A. Gurevich^{*}; 1. Old Dominion University, USA

10:30 AM

(EMA-S15-014-2017) REBCO cable AC losses and transport performance limitations under mechanical bending (Invited)

A. Nijhuis^{*}; 1. University of Twente, Netherlands

11:00 AM

(EMA-S15-015-2017) Strain mediated self-assembly of strong and isotropic artificial pinning centers in YBCO nanocomposite films (Invited)

J. Wu^{*}; S. Chen²; M. P. Sebastian¹; B. Gautum²; J. Shi²; T. J. Haugan¹; 1. AFRL, USA; 2. University of Kansas, USA

11:30 AM

(EMA-S15-016-2017) Study of the Flux Pinning Landscape of YBCO Thin Films with Single and Mixed Phase Additions BaMO₃ + Z: M=Hf, Sn, Zr and Z = Y₂O₃, Y₂Ti₂ (Invited)

M. P. Sebastian^{*}; J. Reichart¹; M. Ratcliff²; T. Bullard²; J. Burke¹; C. B. Ebbing³; G. Panasyuk²; C. Tsai⁴; W. Zhang⁴; J. Huang⁴; H. Wang⁴; J. Wu⁵; T. J. Haugan¹; 1. AFRL, USA; 2. UES, USA; 3. UDRI, USA; 4. Texas A&M University, USA; 5. University of Kansas, USA

12:00 PM

(EMA-S15-017-2017) Correlation between Microstructure and Critical Current of heavily Zr-doped REBCO Superconductors over a broad range of temperature and magnetic field

E. Galstyan^{*}; G. Majkic¹; A. Xu¹; M. Gharacheshmeh¹; V. Selvamanickam¹; 1. University of Houston, USA

12:15 PM

(EMA-S15-018-2017) Superconducting Joints between (RE) Ba₂Cu₃O_{7-x} Coated Conductors via Solid State Bonding

C. Grimley^{*}; J. Schwartz²; 1. North Carolina State University, USA

Student Speaking Competition Presentations II

Room: Coral A

12:45 PM

(EMA-SF-06-2017) Exploiting kinetics and thermodynamics to grow PbTiO₃ by MBE with continuous codeposition of source elements

E. Smith^{*}; K. Parrish²; H. Paik¹; J. Schubert¹; T. Heeg⁵; J. Grazul³; J. A. Malen²; D. G. Schlom¹; 1. Cornell University, USA; 2. Carnegie Mellon University, USA; 3. Cornell Center for Materials Research, USA; 4. Forschungszentrum Jülich GmbH, Germany; 5. Heeg Vacuum Engineering, Germany

1:00 PM

(EMA-SF-07-2017) In situ X-ray Photoelectron and Auger Electron Spectroscopic Characterization of Reaction Mechanisms during Li-ion Cycling of CuO Electrodes

C. Tang^{*}; R. Haasch²; S. Dillon¹; 1. University of Illinois at Urbana-Champaign, USA; 2. Frederick Seitz Materials Research Laboratory, USA

1:15 PM

(EMA-SF-08-2017) Improved Ionic Conductivity in Doped Ceria by Sintering in Reducing Atmosphere

S. Sulekar^{*}; J. Kim¹; J. C. Nino¹; 1. University of Florida, USA

1:30 PM

(EMA-SF-09-2017) "Ferroelectricity" in epitaxial Pb_{1-x}Zr_xO₃ thin films

R. Gao^{*}; S. R. Lillo²; R. Xu¹; L. Dedon¹; Y. Dong³; H. Zhou³; A. Dasgupta¹; Z. Chen¹; C. R. Serrao⁴; J. Neaton²; L. W. Martin¹; 1. University of California, Berkeley, USA; 2. University of California, Berkeley, USA; 3. Advanced Photon Source, Argonne National Laboratory, USA; 4. University of California, Berkeley, USA

S1: Advanced Electronic Materials: Processing, Structures, Properties, and Applications

Advanced Electronic Materials: Multiferroic/Magnetic

Room: Indian

Session Chairs: Matthew Rosseinsky, University of Liverpool; Vladimir Shvartsman, University of Duisburg-Essen

2:00 PM

(EMA-S1-025-2017) Scanning Probe Microscopy Studies of the Magnetoelectric Effect in Composite Multiferroic Ceramics (Invited)

V. Shvartsman^{*}; H. Trivedi¹; D. C. Lupascu¹; 1. University of Duisburg-Essen, Germany

2:30 PM

(EMA-S1-026-2017) Symmetry, calculation and synthesis in the search for room temperature multiferroic magnetoelectric oxides (Invited)

M. Rosseinsky^{*}; 1. University of Liverpool, United Kingdom

3:00 PM

(EMA-S1-027-2017) Control of magnetism in magnetoelectric heterostructured materials

M. Staruch^{*}; S. Cheng¹; K. Bussmann¹; P. Finkel¹; 1. U.S. Naval Research Laboratory, USA

3:15 PM

(EMA-S1-029-2017) Magnetic Ion Partitioning as a Mediator for Multiferroic Behaviour in Aurivillius Bismuth Iron Manganese Titanate

L. Keeney²; R. Whatmore^{*}; A. Faraz²; M. Schmidt²; C. Downing³; V. Nicolisi³; M. E. Pemble²; 1. Imperial College London, United Kingdom; 2. Tyndall National Institute, University College Cork, Ireland; 3. Trinity College Dublin, Ireland

3:30 PM

Break

Reliability of Electronic Materials and Devices

Room: Indian

Session Chairs: Rajan Tandon, Sandia National Laboratories; Eugene Furman, Pennsylvania State University

3:45 PM

(EMA-S1-030-2017) Enhanced Electrical and Mechanical Properties of Coated Glass Ribbon (Invited)

M. Sarkarat¹; R. Rajagopalan¹; M. Yuan¹; E. Furman^{*}; M. Lanagan¹; 1. Pennsylvania State University, USA

4:15 PM

(EMA-S1-031-2017) Lessons Learned from Failure Analyses of Electronic Components (Invited)

R. Tandon^{*}; 1. Sandia National Laboratories, USA

4:45 PM

(EMA-S1-032-2017) Reliability of Analog Memory Storage using a Ferroelectric Capacitor

J. T. Evans^{*}; 1. Radiant Technologies, Inc., USA

5:00 PM

(EMA-S1-033-2017) Resistance Degradation and Polarization Effects on the Fermi level at the Barium Titanate/ Nickel Interface

D. Long^{*}; A. Klein²; E. C. Dickey¹; 1. North Carolina State University, USA; 2. Technical University Darmstadt, Germany

5:15 PM

(EMA-S1-034-2017) Evaluation of Fabrication Induced Damage on the Ferroelectric & Piezoelectric Lead Zirconate Titanate (PZT) Thin Films for Clamped and Unclamped Final Devices

M. Rivas^{*}; R. Q. Rudy²; B. D. Huey¹; R. G. Polcawich²; 1. University of Connecticut, USA; 2. U.S. Army Research Laboratory, USA

5:30 PM

(EMA-S1-035-2017) Impact of charge injection into bulk dielectric capacitors on the resistance degradation process

T. J. Bayer^{*}; J. Wang¹; J. Carter¹; R. Wang¹; L. Chen¹; C. Randall¹; 1. Pennsylvania State University, USA

S2: Advanced Processing for Electronic and Electrochemical Systems: Crystals, Films and Devices

Interface Engineering and Characterization for Novel Properties or Improved Stability

Room: Coral B

Session Chair: Mark Losego, Georgia Institute of Technology

2:00 PM

(EMA-S2-028-2017) Alumina-Silicon Interfaces: Understanding the Origins of Fixed Charge and the Influence of Non-Hydrolytic Deposition Chemistries (Invited)

N. C. Strandwitz^{*}; 1. Lehigh University, USA

2:30 PM

(EMA-S2-029-2017) Investigation of native defects states in the HfO₂ by DLTS

A. Kumar^{*}; S. Mondal¹; K. Koteswara Rao¹; 1. Indian Institute of Science, India

2:45 PM

(EMA-S2-030-2017) Advantages of PEALD Dielectrics on GaN Materials (Invited)

B. S. Eller¹; M. Hao¹; S. Chowdhury²; R. Nemanich^{*}; 1. Arizona State University, USA; 2. University of California - Davis, USA

3:15 PM

Break

Interface Engineering for Novel Properties or Improved Stability

Room: Coral B

Session Chair: Christina Rost, University of Virginia

3:45 PM

(EMA-S2-031-2017) Tuning the Surface of Fe-doped NiO Nanoparticles for Oxygen Evolution Reaction Electrocatalysis (Invited)

E. Lucas¹; B. Lynch¹; J. Tracy¹; V. Augustyn^{*}; 1. North Carolina State University, USA

4:15 PM

(EMA-S2-032-2017) Tuning the Electronic Ground State of Ca₂RuO₄ using Epitaxial Strain (Invited)

H. Nair^{*}; J. Ru²; Y. Liu³; N. Shukla⁴; B. Grise⁵; C. S. Chang⁶; Q. Han⁶; A. Millis⁶; D. A. Muller²; S. Datta⁴; K. Shen²; D. G. Schlom¹; 1. Cornell University, USA; 2. Cornell University, USA; 3. Zhejiang University, China; 4. University of Notre Dame, USA; 5. Cornell University, USA; 6. Columbia University, USA

4:45 PM

(EMA-S2-033-2017) Mechanisms of defect suppression at the initial stages of La₂MnNiO₆ film growth

P. Sushko^{*}; S. Spurgeon¹; Y. Du¹; T. Droubay¹; A. Devaraj¹; P. Longo³; S. Chambers²; 1. Pacific Northwest National Lab, USA; 2. Pacific Northwest National Laboratory, USA; 3. Gatan Inc., USA

5:00 PM

(EMA-S2-034-2017) Imaging and Quantifying Changes at Magnetic and Magnetoelectric Interfaces (Invited)

M. B. Holcomb^{*}; 1. West Virginia University, USA

5:30 PM

(EMA-S2-035-2017) Assembly of Magnetoelectric Nanowires into Magnetic Field Sensors

M. J. Bauer^{*}; X. Wen²; P. Tiwari¹; D. P. Arnold²; J. S. Andrew¹; 1. University of Florida, USA; 2. University of Florida, USA

S4: Computational Design of Electronic Materials

Materials by Design II

Room: Coral A

Session Chair: Rohan Mishra, Washington University, St. Louis

2:00 PM - CANCELLED

(EMA-S4-008-2017) Closing the loop between materials modeling and neutron scattering data (Invited)

T. Proffen^{*}; 1. Oak Ridge National Lab, USA

2:30 PM

(EMA-S4-009-2017) Learning from data to design materials (Invited)

T. Lookman^{*}; 1. Los Alamos National Laboratory, USA

3:00 PM

(EMA-S4-010-2017) Exploring CdZnTeSe alloys for improved room temperature radiation detectors through first-principles calculations (Invited)

J. B. Varley^{*}; 1. Lawrence Livermore National Laboratory, USA

3:30 PM

Break

4:00 PM

(EMA-S4-011-2017) Bismuth halide semiconductors as nontoxic alternatives to lead halide perovskite photovoltaics (Invited)

R. Mishra^{*}; X. Huang¹; A. S. Thind¹; Y. Myung¹; S. Huang²; G. Pilania³; P. Banerjee¹; 1. Washington University in St. Louis, USA; 2. Washington University in St. Louis, USA; 3. Los Alamos National Lab, USA

4:30 PM

(EMA-S4-012-2017) Exotic Elastic Properties of Layered Two-dimensional Materials (Invited)

S. Woo^{*}; 1. Korea Institute for Advanced Study, Republic of Korea

5:00 PM

(EMA-S4-013-2017) Modeling multicomponent circuits in ZnO/graphene nanocomposites: A bottom-up approach

I. C. Cezário^{*}; D. Muller²; F. R. Moreira³; G. A. de Barros²; H. P. Roldán²; C. R. Rambo²; 1. Federal University of Santa Catarina, Brazil; 2. Federal University of Santa Catarina, Brazil; 3. Federal University of Santa Catarina, Brazil

5:15 PM

(EMA-S4-014-2017) A first-principles understanding of the structure-property relationships in polymorphic MoO₃

J. Yun^{*}; W. Jang¹; T. Lee¹; Y. Lee¹; A. Soon¹; 1. Yonsei University, Republic of Korea

5:30 PM

(EMA-S4-015-2017) Modelling New Absorbers Materials for More Efficient Solar Energy Use

P. Wahnnon^{*}; P. Palacios¹; J. Conesa²; E. Menendez-Proupin²; 1. Universidad Politécnica de Madrid, Spain; 2. Universidad de Chile, Chile; 3. Instituto de Catalis y Petroleoquímica-CSIC, Spain

5:45 PM

(EMA-S4-016-2017) Study of a SnSbCu soldering alloy for electronic components assembly

M. Wary^{*}; R. Pesci¹; 1. Arts et Métiers ParisTech, France

S6: Fundamentals to Applications for the Use of Thermal Energy for Power Generation and Refrigeration

Use of Thermal Energy

Room: Mediterranean C

Session Chair: Brian Donovan, United States Naval Academy

2:00 PM

(EMA-S6-001-2017) Perspectives for High Temperature Thermoelectric Applications and Development of Materials (Borides, Sulfides, Oxides, and Nitrides) (Invited)

T. Mori^{*}; 1. National Institute for Materials Science (NIMS), Japan

2:30 PM

(EMA-S6-002-2017) Zintl thermoelectrics: Transport engineering through crystal chemistry (Invited)

A. Zevalkink^{*}; 1. Michigan State University, USA

3:00 PM

(EMA-S6-003-2017) Thermoelectric properties of GdCuTe₂ compounds

J. S. Vaney^{*}; E. Benson¹; T. Mori¹; 1. National Institute for Materials Science (NIMS), Japan

3:15 PM

(EMA-S6-004-2017) Influence of chemical ordering on the thermal conductivity and electronic relaxation in FePt thin films in heat assisted magnetic recording applications

P. Hopkins*; A. Giri²; 1. University of Virginia, USA; 2. University of Virginia, USA

3:30 PM

Break

Fundamentals of Thermal Energy

Room: Mediterranean C

Session Chair: Edward Gorzkowski, Naval Research Lab

4:00 PM

(EMA-S6-005-2017) Thickness and connectivity effects on the thermal conductivity of amorphous silicon: Insight into the fundamental nature and behavior of non-phonon vibrations in disordered structures (propagons, diffusons and locons)

J. Braun¹; A. Giri¹; J. Gaskins¹; H. Fujiwara²; P. Hopkins*; Z. Leseman³; P. E. Norris¹; 1. University of Virginia, USA; 2. Gifu University, Japan; 3. Kansas State University, USA

4:15 PM

(EMA-S6-006-2017) Probing anisotropic thermal conductivity of dielectric materials

B. Donovan*; A. Giri²; J. Gaskins³; E. Gorzkowski¹; P. Hopkins³; 1. Naval Research Lab, USA; 2. United States Naval Academy, USA; 3. University of Virginia, USA

4:30 PM

(EMA-S6-007-2017) Structure, bonding, and anharmonicity in tetrahedrite-based thermoelectrics (Invited)

D. Morelli*; 1. Michigan State University, USA

5:00 PM

(EMA-S6-008-2017) Positive Thermal Conductivity Change in PZT Thin Films Under Applied Fields via Substrate Clamping Relief

J. Ihlefeld*; B. Foley²; M. Wallace²; D. Medlin¹; D. Scrymgeour¹; B. McKenzie¹; J. Michael¹; E. A. Paisley¹; S. Trolrier-McKinstry²; J. Gaskins²; P. Hopkins²; 1. Sandia National Laboratories, USA; 2. University of Virginia, USA; 3. Pennsylvania State University, USA

5:15 PM

(EMA-S6-009-2017) Thermal Conductivity of Lead Zirconate Titanate (PbZr_{1-x}Ti_xO₃) Thin Films Across the Compositional Phase Diagram

B. Foley*; E. A. Paisley²; C. DiAntonio²; T. Chavez²; G. L. Brennecke¹; J. Gaskins²; J. Ihlefeld²; P. Hopkins²; 1. Colorado School of Mines, USA; 2. Sandia National Laboratories, USA; 3. University of Virginia, USA

5:30 PM

(EMA-S6-010-2017) Density and size effects on the thermal conductivity of atomic layer deposition-grown amorphous alumina and titania thin films

K. E. Meyer*; B. Piercy²; M. DeCoster¹; J. Gaskins¹; M. Losego²; P. Hopkins¹; 1. University of Virginia, USA; 2. Georgia Institute of Technology, USA

S8: Interfaces and Surfaces in Energy-Related Ceramic Materials

Effect of Interface Structure on Transport Properties

Room: Mediterranean A/B

Session Chair: Shuo Chen, University of Houston

2:00 PM

(EMA-S8-001-2017) Vertically Aligned Nanocomposite Oxide Thin Films with Enhanced Ionic Conductivity (Invited)

H. Wang*; Q. Su⁴; W. Zhang⁴; J. Huang⁴; J. Jian³; C. Jacob³; 1. Purdue University, USA; 2. Purdue University, USA; 3. Texas A&M University, USA; 4. Texas A&M University, USA; 5. Texas A&M University, USA

2:30 PM

(EMA-S8-002-2017) Three Dimensional Carbon Aerogels Infilled Membrane (3DCAM) as A New Cathode Design for Lithium Oxygen Batteries (Invited)

J. Ye*; S. Liang¹; T. Wang¹; T. Braun¹; S. Kim²; M. Biener¹; J. Biener¹; 1. Lawrence Livermore National Laboratory, USA; 2. University of Illinois at Chicago, USA

3:00 PM

(EMA-S8-003-2017) Good Thermoelectric Zintl and Half-Heusler Materials (Invited)

Z. Ren*; 1. University of Houston, USA

3:30 PM

Break

Atomistic and Mesoscale Modeling of Interface Structure and Properties

Room: Mediterranean A/B

Session Chair: Ming Tang, Rice University

4:00 PM

(EMA-S8-004-2017) Modeling the Ionic Transport in Multi-Component Solid Electrolyte Interphases (SEI) in Li-ion Batteries (Invited)

Y. Qi*; 1. Michigan State University, USA

4:30 PM

(EMA-S8-005-2017) Lattice Monte Carlo Simulation of Nucleation in Nanoparticles of Battery Intercalation Compounds

K. Yang*; M. Tang¹; 1. Rice University, USA

4:45 PM

(EMA-S8-006-2017) Design ultra-thick electrodes with multi-scale porous structure

F. Wang*; M. Tang¹; 1. Rice University, USA

5:00 PM

(EMA-S8-007-2017) Solving Large-Scale Reconstructions on SrTiO₃ (111) Surfaces

T. K. Andersen*; S. U. Rahman²; L. D. Marks¹; M. R. Castell²; D. Fong³; 1. Northwestern University, USA; 2. University of Oxford, United Kingdom; 3. Argonne National Lab, USA

S10: Interfacial Phenomena in Multifunctional Heterostructures: From Theory to Transport Processes

Physical and Chemical Properties of Oxide Heterostructures

Room: Caribbean B

Session Chairs: Jayakanth Ravichandran, Columbia University;

Roger De Souza, RWTH Aachen University

2:00 PM

(EMA-S10-007-2017) Evolution in Crystal Structure and Electronic Structure of Functional Oxides Probed in situ during Electrochemically Driven Phase Transition (Invited)

B. Yildiz*; Q. Lu¹; 1. Massachusetts Institute of Technology, USA

2:30 PM

(EMA-S10-008-2017) Engineering the electronic and orbital properties of the rare-earth nickelates (Invited)

C. Ahn*; 1. Yale University, USA

3:00 PM

(EMA-S10-009-2017) Engineering epitaxial complex oxide interfaces: From electronics to energy applications (Invited)

Y. Hikita*; 1. SLAC National Accelerator Laboratory, USA

3:30 PM

Break

4:00 PM

(EMA-S10-010-2017) Emerging orbital, topological, and ionic phenomena in quantum oxide heterostructures (Invited)

H. Lee^{*1}; 1. Oak Ridge National Laboratory, USA

4:30 PM

(EMA-S10-011-2017) Affecting point defects in perovskite-type oxides by voltage, light and dislocations (Invited)

J. Fleig^{*1}; 1. TU Wien, Austria

5:00 PM

(EMA-S10-012-2017) Tunable Nanionics in Epitaxial Oxide Nanocomposite Thin Films (Invited)

J. MacManus-Driscoll^{*1}; S. Cho¹; C. Yun¹; S. Lee¹; R. Wu¹; A. Kursomovic¹; 1. University of Cambridge, United Kingdom; 2. Daegu Gyeongbuk Institute of Science and Technology, Republic of Korea

5:30 PM

(EMA-S10-013-2017) Properties of the conducting $\text{LaInO}_3/\text{BaSnO}_3$ polar interface (Invited)

K. Char^{*1}; 1. Seoul National University, Republic of Korea

6:00 PM

(EMA-S10-027-2017) Emergence of room-temperature ferroelectricity at reduced dimensions (Invited)

D. Lee^{*1}; H. Lu²; Y. Gu¹; S. Choi¹; S. Li⁵; S. Ryu¹; T. Paudel¹; K. Song⁶; E. Mikheev²; S. Lee¹; S. Stemmer¹; D. Tenne²; S. Oh⁴; E. Tsybal²; X. Wu²; L. Chen³; A. Gruverman²; C. Eom¹; 1. University of Wisconsin-Madison, USA; 2. University of Nebraska-Lincoln, USA; 3. Pennsylvania State University, USA; 4. Korea Institute of Materials Science, Republic of Korea; 5. Temple University, USA; 6. Pohang University of Science and Technology (POSTECH), Republic of Korea; 7. University of California-Santa Barbara, USA; 8. Boise State University, USA

S14: Multifunctional Nanocomposites

Multifunctional Nanocomposites: Functionality by Design III

Room: Caribbean C

Session Chair: Bryan Huey, University of Connecticut

2:00 PM

(EMA-S14-022-2017) Monolithic integration of room-temperature multifunctional $\text{BaTiO}_3\text{-CoFe}_2\text{O}_4$ epitaxial heterostructures on Si(001) (Invited)

M. Scigaj¹; N. Dix¹; J. Gazquez¹; M. Varela²; I. Fina¹; N. Domingo³; G. Herranz¹; V. Skumryev¹; J. Fontcuberta¹; F. Sanchez^{*1}; 1. Institut of Materials Science of Barcelona (ICMAB-CSIC), Spain; 2. Universidad Complutense, Spain; 3. ICN2, Spain; 4. ICREA, Spain

2:30 PM

(EMA-S14-023-2017) Ultrafast control of ferroelectric states by intense terahertz field pulses (Invited)

H. Wen^{*1}; 1. Argonne National Lab, USA

3:00 PM

(EMA-S14-024-2017) Quasi 2D oxide composite skins for autonomous systems (Invited)

S. Ramanathan^{*1}; 1. Purdue University, USA

3:30 PM

Break

Multifunctional Nanocomposites: The Interface II

Room: Caribbean C

Session Chair: Xia Hong, University of Nebraska-Lincoln

4:00 PM

(EMA-S14-025-2017) Understanding oxygen vacancies formed in 1D oxide nano-superlattices

X. Gao^{*1}; D. Lee¹; M. F. Chisholm¹; H. Lee¹; 1. Oak Ridge National Laboratory, USA

4:15 PM

(EMA-S14-026-2017) Conducting interface in oxide homojunction: Understanding of superior properties in black TiO_2 (Invited)

X. Lu^{*1}; A. Chen¹; P. Lu²; E. Enriquez¹; H. Xu¹; Q. Jia³; 1. Los Alamos National Lab, USA; 2. Sandia National Laboratories, USA; 3. University at Buffalo, USA

4:30 PM

(EMA-S14-028-2017) Enhanced Magnetic Properties and Spin-Seebeck Effect in Epitaxial Nickel Ferrite Thin Films and Heterostructures (Invited)

A. Gupta^{*1}; 1. University of Alabama, USA

5:00 PM

(EMA-S14-029-2017) Enhanced Energy Density with Wide Thermal Stability in Epitaxial $\text{Pb}_{0.92}\text{La}_{0.06}\text{Zr}_{0.52}\text{Ti}_{0.48}\text{O}_3$ Thin Films

C. Ma^{*1}; G. Hu¹; W. Wei¹; Z. Sun¹; L. Lu¹; S. Mi¹; M. Liu¹; B. Ma¹; J. Wu¹; C. Jia¹; 1. Xi'an Jiaotong University, China; 2. University of Kansas, USA; 3. Argonne National Lab, USA

5:15 PM

(EMA-S14-030-2017) A radial-quadrant domain structure in ferroelectric nanoplates: A new route into charged domain walls and topological structures (Invited)

C. Yang^{*1}; 1. KAIST, Republic of Korea

S15: Superconducting Materials and Applications

Characterization of Structural, Magnetic, and Superconducting Properties

Room: Pacific

Session Chairs: Hai-Hu Wen, Nanjing University; Sergey Bud'ko, Ames Laboratory / Iowa State University

2:00 PM - CANCELLED

(EMA-S15-019-2017) Electronic Structure and Superconductivity of FeSe-Related Superconductors (Invited)

X. Zhou^{*1}; 1. Chinese Academy of Sciences, China

2:30 PM - CANCELLED

(EMA-S15-020-2017) Charge Doping and Magneto-structural Effects in Iron-based Superconductors (Invited)

A. S. Sefat^{*1}; 1. Oak Ridge National Laboratory, USA

3:00 PM

(EMA-S15-021-2017) Microscopic Nature of High- T_c Superconductivity in Interfacial FeSe at Strong $e^- - e^-$ Repulsion (Invited)

J. P. Rodriguez^{*1}; 1. California State University at Los Angeles, USA

3:30 PM

Break

4:00 PM

(EMA-S15-022-2017) A BCS-like model for heavy fermion superconductivity (Invited)

Y. Yang^{*1}; 1. Institute of Physics, Chinese Academy of Sciences, China

4:30 PM

(EMA-S15-023-2017) Interplay between magnetism, structure, and superconductivity in Mo_3Sb_7 (Invited)

J. Yan^{*1}; 1. Oak Ridge National Lab, USA

5:00 PM

(EMA-S15-024-2017) Understanding doping, vacancy, lattice stability, and superconductivity in $\text{K}_x\text{Fe}_{2-y}$

G. Wang^{*1}; 1. Institute of Physics, Chinese Academy of Sciences, China

5:15 PM

(EMA-S15-025-2017) The synthesis and physical properties of new layered oxyhalides

T. Kitamura^{*1}; 1. The University of Tokyo, Japan

5:30 PM

(EMA-S15-026-2017) Development of high performance SmFeAs(O,F) superconductor

K. Hayashi^{*1}; H. Ogino²; J. Shimoyama³; K. Kishio¹; 1. University of Tokyo, Japan; 2. National Institute of Advanced Industrial Science and Technology (AIST), Japan; 3. Aoyama Gakuin University, Japan

Friday, January 20, 2017

S1: Advanced Electronic Materials: Processing, Structures, Properties, and Applications

Energy Storage, Conversion, and Harvesting Materials and Device Structures I

Room: Indian

Session Chair: Rudeger Wilke, Sandia National Laboratories

8:30 AM

(EMA-S1-036-2017) Impact of phase transition sequence on the electrocaloric effect in PbZrO₃-based ceramics

Z. Xu¹; Z. Fan¹; X. Tan^{*1}; 1. Iowa State Univ, USA

8:45 AM

(EMA-S1-037-2017) Ferroelectric enhancement, band-gap engineering and photovoltaic response of the ternary system: PbTiO₃-BiFeO₃-Bi(Ni_{1/2}Ti_{1/2})O₃

L. Wu^{*1}; D. Imbrenda²; A. A. Podpirka³; J. E. Spanier²; P. K. Davies¹; 1. University of Pennsylvania, USA; 2. Drexel University, USA; 3. Drexel University, USA

9:00 AM

(EMA-S1-038-2017) Design of Multilayer Ferroelectrics for Pyroelectric Energy Conversion

Y. Espinal^{*1}; P. S. Alpay¹; R. G. Polcawich²; B. Hanrahan²; 1. University of Connecticut, USA; 2. US Army Research Laboratory, USA

9:15 AM

Break

Energy Storage, Conversion, and Harvesting Materials and Device Structures II

Room: Indian

Session Chairs: Sean Garner, Corning Incorporated; Chun-Ming Wang, Shandong University

10:00 AM

(EMA-S1-039-2017) Ultra-Slim Flexible Glass for Optical and Electronic Applications (Invited)

S. Garner^{*1}; 1. Corning Incorporated, USA

10:30 AM

(EMA-S1-040-2017) Unusual electrical properties and piezoresponse studies of antiferroelectric sodium niobate (NaNbO₃) (Invited)

C. Wang^{*1}; 1. Shandong University, China

11:00 AM

(EMA-S1-041-2017) Reduced temperature sensitivity of relative permittivity in dipole-like substituted BaTiO₃ for high-temperature capacitor technology

V. Kaliyaperumal Veerapandiyar^{*1}; W. Schulze¹; S. Mixture¹; S. Pilgrim¹; D. M. Potrepka²; F. Crowne²; A. Tauber²; S. C. Tidrow¹; 1. Kazuo Inamori School of Engineering, Alfred University, USA; 2. U.S. Army Research Laboratory, Sensors Electron Devices Directorate, USA; 3. As contracted to the U. S. Army Research Laboratory from Geo-Centers Inc.; presently retired, USA

11:15 AM

(EMA-S1-042-2017) Polymeric Bonding of Alkali-Free Glass to form Multi-Layer Capacitors

R. Wilke^{*1}; H. Brown-Shaklee¹; A. Casias²; R. Johnson-Wilke¹; M. Vecchio¹; B. Cunningham²; R. Vudatha⁴; 1. Sandia National Laboratories, USA; 2. Pennsylvania State University, USA; 3. Sandia National Laboratories, USA; 4. Cornell University, USA

11:30 AM

(EMA-S1-043-2017) Energy Harvesting from Vehicles Using a Pavement Embedded Piezoelectric Generator

G. Yesner^{*1}; A. Safari¹; 1. Rutgers University, USA

11:45 AM

(EMA-S1-044-2017) Bi(Zn_{0.5}Ti_{0.5})O₃ – BaTiO₃ Dielectric Composites Produced via Freeze-Casting

E. Gorzkowski^{*3}; E. Patterson³; M. A. Beuerlein²; G. L. Brennecke¹; 1. Colorado School of Mines, USA; 2. Colorado School of Mines, USA; 3. US Naval Research Lab, USA

12:00 PM

(EMA-S1-045-2017) Surface modification of flexible, ultra-thin glass based dielectrics to enhance capacitance

A. Mahadevegowda^{*1}; C. Johnston¹; P. S. Grant¹; 1. University of Oxford, United Kingdom

Lead Free Piezoelectrics I

Room: Coral B

Session Chair: Ke Wang, Tsinghua University

8:30 AM

(EMA-S1-046-2017) Peculiarities in the structure and dielectric properties of Na_{1/2}Bi_{1/2}TiO₃-BaTiO₃ (Invited)

R. Ranjan^{*1}; B. Rao¹; D. Khatua¹; 1. Indian Institute of Science, India

9:00 AM

(EMA-S1-047-2017) Recent Developments on Lead Free Ferroelectric Materials

S. Zhang^{*1}; Y. Qin²; J. Zhang²; 1. University of Wollongong, Australia; 2. Shandong University, China

9:15 AM

(EMA-S1-048-2017) Structural and Piezoelectric Properties of CuO-added 0.96(Na_{0.5}K_{0.5})(Nb_{1-x}Sb_x)O₃-0.04SrZrO₃ Lead-free Piezoelectric Ceramics

K. Lee^{*1}; D. Kim¹; J. Park¹; S. Cho¹; S. Nahm¹; 1. Korea University, Republic of Korea

9:30 AM

Break

Lead Free Piezoelectrics II

Room: Coral B

Session Chairs: Steven Milne, University of Leeds; Rintaro Aoyagi, National Institute of Advanced Industrial Science and Technology

10:00 AM

(EMA-S1-049-2017) Domain Relaxation Behavior in CaZrO₃ Doped (K, Na)NbO₃-based Ceramics (Invited)

K. Wang^{*1}; J. Li¹; 1. Tsinghua University, China

10:30 AM

(EMA-S1-050-2017) Performance of Lead-free Dielectric and Piezoelectric Ceramics over Extended Temperature Ranges (Invited)

A. Zeb¹; D. Hall²; S. Jan³; J. Li³; G. Wang⁴; F. Zhu⁵; S. J. Milne^{*2}; 1. Islamia College, Pakistan; 2. University of Leeds, United Kingdom; 3. Tsinghua University, China; 4. Manchester University, United Kingdom; 5. Shanghai Synchrotron Radiation Facility, China

11:00 AM

(EMA-S1-051-2017) Additive Effects on Electrical Properties of (Na,Ba)(Nb,Ti)O₃ Lead-free Piezoelectric Ceramics (Invited)

R. Aoyagi^{*1}; 1. National Institute of Advanced Industrial Science and Technology, Japan

11:30 AM

(EMA-S1-052-2017) Ferroelectric, piezoelectric, and structural studies of novel Bi-based perovskites

M. Dolgos^{*1}; 1. Oregon State University, USA

11:45 AM

(EMA-S1-064-2017) Formation and Microstructure of KNbO₃ Platelets Synthesized using K₄Nb₆O₁₇ nH₂O Precursor

Y. Ko^{*1}; H. Xu²; S. Nahm¹; 1. KU-KIST Graduate School of Converging Science and Technology, Republic of Korea; 2. Korea University, Republic of Korea

12:00 PM

(EMA-S1-054-2017) Depolarisation of Na_{0.5}Bi_{0.5}TiO₃-based Relaxors and the Resultant Double Hysteresis Loops

S. Huband^{*1}; P. A. Thomas¹; 1. University of Warwick, United Kingdom

12:15 PM - CANCELLED

(EMA-S1-055-2017) Synergistically Enhanced Piezoelectricity and Temperature Stability in Potassium-Sodium Niobate Lead-free Ceramics

T. Zheng^{*1}; J. Wu¹; 1. Sichuan University, China

S3: Ceramic Photonic Materials and Applications

Ceramic Photonic Materials and Applications I

Room: Mediterranean C

Session Chairs: Juejun Hu, Massachusetts Institute of Technology; Yiquan Wu, Alfred University

8:30 AM

(EMA-S3-001-2017) Hexagonal boron nitride epilayers: Growth, optical properties and device applications (Invited)

J. Lin^{*1}; H. Jiang¹; 1. Texas Tech University, USA

9:00 AM

(EMA-S3-002-2017) Flexible photonics: Photonic integration with a new twist (Invited)

J. Hu^{*1}; 1. Massachusetts Institute of Technology, USA

9:30 AM

(EMA-S3-003-2017) Quantized Charging and Property-Control of Single-Photon Emission from Site-Controlled III-Nitride Quantum Dots (Invited)

H. Deng^{*1}; 1. University of Michigan, USA

10:00 AM

Break

10:30 AM

(EMA-S3-004-2017) Spatially Oriented Plasmonic 'Nanogratings' (Invited)

W. Li^{*1}; C. Gu¹; A. Cui¹; Z. Liu¹; 1. The Institute of Physics, China

11:00 AM

(EMA-S3-005-2017) Electrically conductive glass-carbon composites (Invited)

G. Tao^{*1}; S. Chen¹; S. J. Pandey¹; A. Abouraddy¹; R. Gaume¹; 1. University of Central Florida, USA

11:30 AM

(EMA-S3-006-2017) Comparative Study on Field Assisted Sintering and Hot Pressing of ZnS-CaLa₂S₄ Infrared Optical Ceramics (Invited)

Y. Li^{*1}; Y. Wu¹; 1. Alfred University, USA

12:00 PM

(EMA-S3-007-2017) Optical characterization of natural and synthetic diamonds and diamond nanoparticles (Invited)

H. Ye^{*1}; T. Ochalski¹; 1. Aston University, United Kingdom; 2. Cork Institute of Technology, Ireland

S4: Computational Design of Electronic Materials

Novel Phenomena at Interfaces and Heterostructures

Room: Coral A

Session Chair: Sungjong Woo, Korea Institute for Advanced Study

8:30 AM

(EMA-S4-017-2017) First-principles modeling of electronic states in perovskite oxide heterostructures (Invited)

S. Park¹; K. M. Rabe^{*1}; 1. Rutgers, the State University of New Jersey, USA

9:00 AM

(EMA-S4-018-2017) First-Principles Design of Two-Dimensional Electron Gas in the Perovskite-Oxide-Based Interface Materials (Invited)

K. Yang^{*1}; 1. University of California, San Diego, USA

9:30 AM

(EMA-S4-019-2017) Carrier localization in transition-metal oxides (Invited)

A. Janotti^{*1}; 1. University of Delaware, USA

10:00 AM

Break

10:15 AM

(EMA-S4-020-2017) Understanding the advantages of hexagonal WO₃ as an efficient photoanode for solar water splitting: A first-principles perspective (Invited)

T. Lee¹; Y. Lee¹; W. Jang¹; A. Soon^{*1}; 1. Yonsei University, Republic of Korea

10:45 AM

(EMA-S4-021-2017) Understanding the A-Cation Order Dependent Band Gap Variation in Ruddlesden-Popper Oxides

Y. Shin^{*1}; J. Rondinelli¹; 1. Northwestern University, USA

11:00 AM

(EMA-S4-022-2017) Phase-field modeling of magnetoelectric coupling in biferroic composite thin films with patterned interface

Y. Alvandi-Tabrizi^{*1}; W. Chan²; J. Schwartz²; 1. North Carolina State University, USA; 2. North Carolina State University, USA

11:15 AM

(EMA-S4-023-2017) Electronic structure and band alignments of half-Heusler semiconductors for electronic applications

A. Sharan^{*1}; Z. Gui¹; A. Janotti¹; 1. University of Delaware, USA; 2. University of Delaware, USA

High-Throughput Approaches

Room: Coral A

Session Chair: Emmanouil Kioupakis, University of Michigan

11:30 AM

(EMA-S4-024-2017) Discovery of solar fuels photoanode materials by integrating high-throughput theory and experiment (Invited)

Q. Yan^{*1}; 1. Lawrence Berkeley National Lab, USA

12:00 PM

(EMA-S4-025-2017) Functional Defects by Design: A High-Throughput Approach to Energy Materials Discovery

J. Balachandran²; L. Lin²; J. Ding¹; Y. Cheng²; J. Anchell²; R. Unocic²; N. Bassiri-Gharb¹; G. Veith²; W. Ren²; C. Bridges²; P. Ganesh^{*3}; 1. Georgia Institute of Technology, USA; 2. Oak Ridge National Lab, USA; 3. Oak Ridge National Lab, USA

12:15 PM

(EMA-S4-026-2017) Computational Prediction of Two-Dimensional Transition Metal Mono-Chalcogenides

B. Rijal^{*1}; J. T. Paul¹; M. Ashton¹; R. G. Hennig¹; 1. University of Florida, USA

12:30 PM

(EMA-S4-027-2017) High-Throughput Data Generation and Screening of Transition Metal Dichalcogenides

L. Li^{*1}; I. Williamson¹; 1. Boise State University, USA

S8: Interfaces and Surfaces in Energy-Related Ceramic Materials

Interface Structures in Batteries

Room: Mediterranean A/B

Session Chair: Brian Sheldon, Brown University

8:30 AM

(EMA-S8-008-2017) Understanding the Surface of LiMn₂O₄ Spinel Cathodes with Aberration-Corrected HAADF STEM and EELS (Invited)

P. Ferreira^{*1}; 1. University of Texas at Austin, USA

9:00 AM

(EMA-S8-009-2017) 2-D MnO₂ nanosheet assemblies: electrochemical intercalation at surface defect sites

S. Mistry^{*1}; P. Metz¹; P. Gao¹; 1. Alfred University, USA

9:15 AM

Break

In Situ Characterization of Interface Structure and Evolution (Joint session with Symposium 7)

Room: Mediterranean A/B

Session Chair: Paulo Ferreira, University of Texas at Austin

9:45 AM

(EMA-S8-010-2017) In situ characterization of battery materials by transmission x-ray microscopy (Invited)

J. Wang^{*1}; 1. Brookhaven National Laboratory, USA

10:15 AM

(EMA-S8-011-2017) Stress Evolution and Degradation Mechanisms at Interfaces in Energy-Related Ceramics (Invited)

B. W. Sheldon^{*1}; 1. Brown University, USA

10:45 AM

(EMA-S8-012-2017) Direct imaging of ion insertion and phase transition processes in WO₃ thin film electrodes

Y. Du^{*1}; Y. He²; S. Mao²; H. Xiao³; F. Gao⁴; L. Luo¹; C. Wang¹; 1. Pacific Northwest National Laboratory, USA; 2. University of Pittsburgh, USA; 3. University of Electronic Science and Technology of China, China; 4. University of Michigan, USA

S7: In situ Experiments of Microstructure Evolution and Properties

In Situ Experiments on Microstructural Evolution and Properties I (Joint session with Symposium 8)

Room: Mediterranean A/B

Session Chairs: Shen Dillon, University of Illinois at Urbana-Champaign; Wayne Kaplan, Technion - Israel Institute of Technology

11:00 AM

(EMA-S7-001-2017) Photovoltaic properties and microstructure in CdTe solar cells via Tomographic AFM (Invited)

J. Luria²; Y. Kutes²; K. Atamanuk²; A. Moore³; L. Zhang¹; E. Stach¹; B. D. Huey^{*2}; 1. Brookhaven National Laboratory, USA; 2. University of Connecticut, USA; 3. Colorado State University, USA

11:30 AM

(EMA-S7-002-2017) Using in-situ electron microscopy methods to study the thermal degradation of nickel-based cathode materials (Invited)

E. Stach^{*1}; S. Hwang¹; K. Karki²; S. Kim³; W. Chang³; S. Whittingham²; G. Zhou²; 1. Brookhaven National Laboratory, USA; 2. Binghamton University, USA; 3. Korean Institute of Science and Technology, Republic of Korea

12:00 PM

(EMA-S7-003-2017) Imaging Dynamic Materials Processes in Liquids by (Scanning) Transmission Electron Microscopy (S/TEM) (Invited)

N. Browning^{*1}; 1. Pacific Northwest National Lab, USA

S10: Interfacial Phenomena in Multifunctional Heterostructures: From Theory to Transport Processes

Synthesis and Characterization of Heterostructures and Superlattices

Room: Caribbean B

Session Chair: Dillon Fong, Argonne National Lab

8:30 AM

(EMA-S10-014-2017) Band Alignment at the SrZr_xTi_{1-x}O₃/p-Ge(001) Heterojunction and Surface Reactivity toward Water (Invited)

S. Chambers^{*1}; Y. Du¹; K. Stoerzinger¹; 1. Pacific Northwest National Laboratory, USA

9:00 AM

(EMA-S10-015-2017) Measuring Built-in Electric Fields in Oxide Heterostructures with X-rays (Invited)

R. Comes^{*1}; 1. Auburn University, USA

9:30 AM

(EMA-S10-016-2017) Atomic Imaging Multifunctional Heterostructures and Heterointerfaces by Phasing Coherent Bragg Rods (Invited)

H. Zhou^{*1}; 1. Argonne National Lab, USA

10:00 AM

Break

10:30 AM

(EMA-S10-017-2017) Synthesis of polar oxide superlattices from centrosymmetric constituent layers (Invited)

S. May^{*1}; 1. Drexel University, USA

11:00 AM

(EMA-S10-018-2017) The Influence of Surface Atomic Structure on Solid State Electrochemistry (Invited)

M. Riva^{*2}; M. Kubicek³; X. Hao³; S. Gerhold²; G. Franceschi²; M. Schmid²; H. Hutter³; J. Fleig³; C. Franchini³; B. Yildiz¹; U. Diebold²; 1. Massachusetts Institute of Technology, USA; 2. TU Wien, Austria; 3. TU Wien, Austria; 4. Yanshan University, China; 5. University of Vienna, Austria

11:30 AM

(EMA-S10-019-2017) Exploring low dimensional electron system at transition metal oxides: Create and Control (Invited)

M. Radovic^{*1}; 1. Paul Scherrer Institut, Switzerland

12:00 PM

(EMA-S10-020-2017) Interfaces in a VO₂(B)/SrTiO₃ heterostructure

X. Gao^{*1}; S. Lee¹; M. F. Chisholm¹; H. Lee¹; 1. Oak Ridge National Laboratory, USA

12:15 PM

(EMA-S10-021-2017) Dislocation-free strain relaxation in RuO₂(110) epitaxial films

Y. Wang^{*1}; A. Wong²; A. Herklotz¹; T. Z. Ward¹; H. Weiering²; P. Snijders¹; 1. Oak Ridge National Lab, USA; 2. The University of Tennessee, USA

S11: Ion Conducting Ceramics

Ion Conduction for Energy Storage

Room: Caribbean C

Session Chair: Claire Xiong, Boise State University

8:30 AM

(EMA-S11-001-2017) Synthesis of Li_{1-x}La₃Zr₂O₁₂ Garnet Nanowires and Evaluation as Ceramic Fillers in Composite Polymer Electrolytes (Invited)

T. Yang¹; C. K. Chan^{*1}; 1. Arizona State University, USA

9:00 AM

(EMA-S11-002-2017) The role of interfaces in all solid-state batteries (Invited)

N. J. Taylor^{*1}; Y. Kim¹; T. Thompson¹; J. Sakamoto¹; 1. University of Michigan, USA

9:30 AM

(EMA-S11-003-2017) Structural and Electrochemical Response to Irradiation Induced Defects in TiO₂ Anodes for Lithium-ion Batteries

K. A. Smith^{*1}; D. Butt²; J. Wharry³; C. Xiong¹; 1. Boise State University, USA; 2. University of Utah, USA; 3. Purdue University, USA

9:45 AM

(EMA-S11-004-2017) Enabling Next Generation Sodium-Based Batteries with Engineered NaSICON Ion Conductors

E. D. Spoecker^{*1}; L. Small¹; P. Clem¹; J. Lamb¹; E. Allcorn¹; G. Nagasubramanian¹; D. Ingersoll¹; A. Eccleston²; S. Bhavaraju²; 1. Sandia National Laboratories, USA; 2. Ceramtec, Inc., USA

10:00 AM

Break

Processing and Microstructure Effects on Ion Conduction

Room: Caribbean C

Session Chair: Fanglin (Frank) Chen, University of South Carolina

10:30 AM

(EMA-S11-005-2017) Processing Nanostructured YSZ Scaffolds at High Temperatures via in situ Carbon Templating of Hybrid Materials (Invited)

M. D. Gross^{*1}; 1. Wake Forest University, USA

11:00 AM

(EMA-S11-006-2017) Novel Processing of Composite Cathodes for Proton Ceramic Fuel Cells by Exsolution (Invited)

M. Einarsrud^{*1}; L. Rioja-Monllor¹; C. Bernuy-Lopez¹; M. Fontaine²; T. Grande¹; 1. NTNU Norwegian University of Science and Technology, Norway; 2. SINTEF Materials and Chemistry, Norway

S15: Superconducting Materials and Applications

Advances in Carbon Conductors: Physics and Applications

Room: Pacific

Session Chairs: Timothy Haugan, U.S. Air Force Research Laboratory; Judy Wu, University of Kansas

8:30 AM

(EMA-S15-027-2017) Will carbon nanotube based wires transform the field of electrical machines? (Invited)

A. E. Lekawa-Raus^{*1}; 1. Warsaw University of Technology, Poland

9:00 AM

(EMA-S15-028-2017) Magneto-transport of highly graphitic, highly aligned carbon nanotube fibers (Invited)

J. Bulmer^{*1}; 1. Cambridge University, United Kingdom

9:30 AM

(EMA-S15-029-2017) An examination of the evidence for superconductivity in doped graphite and graphene (Invited)

G. Larkins^{*1}; Y. Vlasov²; K. Holland¹; 1. Florida International University, USA; 2. Florida International University, USA

10:00 AM

Break

10:30 AM

(EMA-S15-030-2017) Development and Measurement of Carbon Nanotube-metal composite conductors (Invited)

M. Sumption^{*1}; 1. The Ohio State University, USA

11:00 AM

(EMA-S15-031-2017) Hints of superconductivity in graphitic materials (Invited)

N. Gheorghiu^{*2}; C. B. Ebbing⁴; M. Sumption³; T. J. Haugan¹; 1. Air Force Research Laboratory, USA; 2. UES, Inc., USA; 3. Ohio State University, USA; 4. University of Dayton Research Institute, USA

11:30 AM

(EMA-S15-032-2017) Synthesis and physical properties of new iron-based compound EuFeAs₂

H. Ogino^{*1}; A. Sala¹; H. Tanaka²; K. Kishio²; Y. Goto¹; A. Iyo¹; H. Eisaki¹; 1. National Institute of Advanced Industrial Science and Technology, Japan; 2. University of Tokyo, Japan

S1: Advanced Electronic Materials: Processing, Structures, Properties, and Applications

Characterization of Materials: Crystal Structure and Properties II

Room: Indian

Session Chair: Matthew Cabral, North Carolina State University

2:00 PM

(EMA-S1-056-2017) Use of Bayesian Inference in Characterization of Ceramic Materials: An Introduction and Applications in Ferroelectrics (Invited)

J. L. Jones^{*1}; J. Guerrier¹; T. Iamsasri¹; C. Fancher¹; J. E. Daniels²; A. Larsen³; A. Wilson³; B. Reich³; R. Smith⁴; 1. North Carolina State University, USA; 2. University of New South Wales, Australia; 3. North Carolina State University, USA; 4. North Carolina State University, USA

2:30 PM

(EMA-S1-057-2017) Structural and Thermal Characterization of the $\text{Mg}_x\text{Co}_x\text{Cu}_x\text{Ni}_x\text{Zn}_x\text{O}$ $x=0.2$ Entropy Stabilized Oxide

C. M. Rost^{*1}; J. Braun²; P. Hopkins²; J. Maria¹; 1. North Carolina State University, USA; 2. University of Virginia, USA

2:45 PM

(EMA-S1-058-2017) Structure-property-processing relationships in BiScO_3 – PbTiO_3

B. Kowalski^{*1}; A. Sehirlioglu¹; 1. Case Western Reserve University, USA

3:00 PM

(EMA-S1-059-2017) Structural and Electrical Properties of PZN-PZT Piezoceramic Fibers with Low Sintering Temperature and Their Device Applications

E. Mensur-Alkoy^{*2}; M. Y. Kaya¹; S. Alkoy¹; 1. Gebze Technical University, Turkey; 2. Maltepe University, Turkey

3:15 PM

(EMA-S1-060-2017) Point defect chemistry and its effect on the order-disorder phase transition and dielectric properties of $\text{Ba}(\text{Co}_{1/3}\text{Nb}_{2/3})\text{O}_3$ complex perovskites

A. Sayyadishahraki^{*1}; E. Taheri-Nassaj¹; T. Kolodiazhnyi²; J. Gonzales³; N. Newman³; 1. Tarbiat Modares University, Islamic Republic of Iran; 2. National Institute for Materials Science, Japan; 3. Arizona State University, USA

3:30 PM

Break

Lead Free Piezoelectrics III

Room: Coral B

Session Chairs: Ken-ichi Kakimoto, Nagoya Institute of Technology; Jiagang Wu, Sichuan University

2:00 PM

(EMA-S1-061-2017) Engineering of Alkali Niobate Piezoceramics and Energy-Harvesting Application (Invited)

K. Kakimoto^{*1}; 1. Nagoya Institute of Technology, Japan

2:30 PM - CANCELLED

(EMA-S1-062-2017) Relationship between Phase Boundaries and Piezoelectricity in Potassium-Sodium Niobate Lead-free Ceramics (Invited)

J. Wu^{*1}; 1. Sichuan University, China

3:00 PM

(EMA-S1-063-2017) Potassium-sodium Niobate (KNN) Based Piezoelectric Ceramic Coatings Derived from Thermal Spray Process

S. Chen^{*1}; C. Tan¹; K. Yao¹; 1. Institute of Materials Research and Engineering (IMRE) Singapore, Singapore

3:15 PM

(EMA-S1-053-2017) Fracture toughness of $(1-x)(\text{Bi}_{1/2}\text{Na}_{1/2})\text{TiO}_3$ - $x\text{BaTiO}_3$ relaxor ferroelectrics

M. Vögler^{*1}; S. M. Denkhäus¹; J. Rödel¹; K. G. Webber²; 1. Technical University Darmstadt, Germany; 2. Friedrich-Alexander-University Erlangen-Neurnberg, Germany

3:30 PM

Break

Lead Free Piezoelectrics/Ferroelectric Superlattice

Room: Coral B

Session Chair: Xiaoli Tan, Iowa State Univ

4:00 PM

(EMA-S1-065-2017) Low Temperature Sintering, Atmospheric Control, and Bismuth Deficiency in Morphotropic Phase Boundary BNT-BKT-BT Ceramics

G. Yesner^{*1}; A. Safari¹; 1. Rutgers University, USA

4:15 PM

(EMA-S1-066-2017) Effect of Sr^{2+} Doping on the Structural and Electrical Properties of $\text{Bi}(\text{Na,K})\text{TiO}_3$ Lead-Free Ceramics

V. Kalem^{*1}; 1. Selcuk University, Turkey

4:30 PM

(EMA-S1-067-2017) The role of interfaces on strain-enabled ferroelectricity in $\text{CaTiO}_3/\text{SrTiO}_3$ superlattices (Invited)

R. Engel-Herbert^{*1}; 1. Pennsylvania State University, USA

S3: Ceramic Photonic Materials and Applications

Ceramic Photonic Materials and Applications II

Room: Mediterranean C

Session Chairs: Haiyan Wang, Purdue University; Yoshio Bando, National Institute for Materials Science (NIMS)

2:00 PM

(EMA-S3-008-2017) Novel synthesis and analysis of BN nanotube/nanosheet and applications (Invited)

Y. Bando^{*1}; 1. National Institute for Materials Science (NIMS), Japan

2:30 PM

(EMA-S3-009-2017) Self-Assembled Epitaxial Au-Oxide Vertically Aligned Nanocomposites for Nanoscale Metamaterials (Invited)

L. Li^{*1}; L. Sun²; J. Sebastian Gomez-Diaz²; N. L. Hogan¹; P. Lu³; F. Khatkhatay¹; W. Zhang¹; J. Jian¹; J. Huang¹; Q. Su¹; M. Fan¹; C. Jacob¹; X. Zhang⁴; Q. Jia⁵; M. Sheldon¹; A. Alù²; X. Li²; H. Wang¹; 1. Texas A&M University, USA; 2. The University of Texas at Austin, USA; 3. Sandia National Laboratories, USA; 4. Purdue University, USA; 5. Los Alamos National Laboratory, USA

3:00 PM

(EMA-S3-011-2017) The tailoring of microstructure of percolative composites for RF metamaterials (Invited)

R. Fan^{*1}; 1. Shanghai Maritime University, China

3:30 PM

Break

4:00 PM

(EMA-S3-012-2017) Field-assisted solid-state single crystal conversion (Invited)

Y. Liu^{*1}; Y. Wu¹; 1. New York State College of Ceramics, Alfred University, USA

S4: Computational Design of Electronic Materials

Low-Dimensional Structures

Room: Coral A

Session Chair: Lan (Samantha) Li, Boise State University

2:00 PM

(EMA-S4-028-2017) Thermal Conductivity Modeling of Hybrid Organic-Inorganic Crystals and Superlattices (Invited)

R. Yang^{*1}; X. Qian¹; X. Gu¹; 1. University of Colorado, USA

2:30 PM

(EMA-S4-029-2017) Ab-initio Design of Oxides for Non-Volatile Memory (Invited)

D. Stewart^{*1}; 1. HGST, A Western Digital Company, USA

3:00 PM

(EMA-S4-030-2017) Neutron scattering studies of organic-inorganic photovoltaic perovskites (Invited)

S. Lee^{*1}; 1. University of Virginia, USA

3:30 PM

Break

3:45 PM

(EMA-S4-031-2017) Magnetic anisotropy in two dimensional transition metal nitrides

J. J. Gabriel*; D. Stewart; R. G. Hennig; 1. University of Florida, USA; 2. HGST, USA

4:00 PM

(EMA-S4-032-2017) Nanoscale Investigation of Ferroelectric Response of Nanostructures through Molecular Dynamics Simulation

M. Li*; X. Zeng; L. Lin; R. Guo; A. Bhalla; 1. University of Texas at San Antonio, USA; 2. University of Texas at San Antonio, USA

4:15 PM

(EMA-S4-033-2017) Shape of nanocrystals of transition metal oxides predicted in vacuum and in solvent

V. Kolluru*; R. G. Hennig; 1. University of Florida, USA

4:30 PM

(EMA-S4-034-2017) Discovery of Transition-Metal Halide Monolayers and the Characterization of their Magnetic and Electronic Properties

J. T. Paul*; M. Ashton; J. J. Gabriel; R. G. Hennig; 1. University of Florida, USA

4:45 PM

(EMA-S4-035-2017) First-Principles and Grand Canonical Monte Carlo Simulations of Electrochemical Response of Pseudocapacitive beta-MnO₂ Electrodes

Y. Okada*; N. Keilbart; I. Dabo; S. Higai; K. Shiratsuyu; 1. Murata Manufacturing Co., Ltd., Japan; 2. The Pennsylvania State University, USA

S7: In situ Experiments of Microstructure Evolution and Properties

In Situ Experiments on Microstructural Evolution and Properties II

Room: Mediterranean A/B

Session Chairs: Shen Dillon, University of Illinois at Urbana-Champaign; Wayne Kaplan, Technion - Israel Institute of Technology

2:00 PM

(EMA-S7-004-2017) Atomic Scale In Situ Electron Microscopy: Challenges and Opportunities (Invited)

J. R. Jinschek*; 1. Thermo Fisher Scientific, Netherlands

2:30 PM

(EMA-S7-005-2017) In-situ Transmission Electron Microscopy Observation of Heat-Induced Structural Changes of 3D Nb₃O₇(OH) Networks (Invited)

S. Betzler; C. Scheu*; 1. Max-Planck-Institut für Eisenforschung GmbH, Germany; 2. Ludwig-Maximilians-University, Germany

3:00 PM

(EMA-S7-006-2017) Towards probing the barrier strength of grain boundaries for dislocation transmission (Invited)

G. Dehm*; N. Malyar; C. Kirchlechner; 1. Max Planck Institut für Eisenforschung, Germany

3:30 PM

Break

4:00 PM

(EMA-S7-007-2017) High-speed observation of the agglomeration of thin metal films on ceramic substrates (Invited)

K. van Benthem*; S. Hihath; M. Santala; G. Campbell; 1. University of California, Davis, USA; 2. Lawrence Livermore National Laboratory, USA

4:30 PM

(EMA-S7-008-2017) In situ X-ray Photoelectron and Auger Electron Spectroscopic Characterization of Reaction Mechanisms during Li-ion Cycling of CuO Electrodes

C. Tang*; R. Haasch; S. Dillon; 1. University of Illinois at Urbana-Champaign, USA; 2. Frederick Seitz Materials Research Laboratory, USA

4:45 PM

(EMA-S7-009-2017) Nanoscale Atomic Displacements Ordering for Enhanced Piezoelectric Properties in Lead-Free ABO₃ Ferroelectrics

A. Pramanick*; 1. City University of Hong Kong, Hong Kong

S10: Interfacial Phenomena in Multifunctional Heterostructures: From Theory to Transport Processes

Physical Properties of Quantum Confined Structures

Room: Caribbean B

Session Chairs: Jayakanth Ravichandran, Columbia University; Bharat Jalan, University of Minnesota

2:00 PM

(EMA-S10-022-2017) High Electron Mobility in Oxide Interfaces (Invited)

N. Pryds*; D. Christensen; G. Prawiroatmodjo; F. Trier; M. von Soosten; Y. Zhang; T. Jespersen; Y. Chen; 1. Technical University of Denmark, Denmark; 2. Niels Bohr Institute, University of Copenhagen, Denmark

2:30 PM

(EMA-S10-023-2017) Electroforming of oxygen vacancies in SrTiO₃ evidenced by graphene quantum conductance (Invited)

W. Choi*; 1. SungKyunKwan University, Republic of Korea

3:00 PM

(EMA-S10-024-2017) Quantum Hall Effect in Bi/Sb Based Chalcogenide Topological Insulators (Invited)

V. V. Deshpande*; 1. University of Utah, USA

3:30 PM

Break

4:00 PM

(EMA-S10-025-2017) Atomically engineered ferroic layers yield a room-temperature magnetoelectric multiferroic (Invited)

J. Mundy*; 1. University of California, Berkeley, USA

4:30 PM

(EMA-S10-026-2017) Disentangling growth induced and equilibrium properties of 2DEGs at oxide interfaces (Invited)

R. Dittmann*; C. Xu; R. Heinen; S. Hoffmann-Eifert; F. Gunkel; 1. Forschungszentrum Juelich, Germany; 2. IWE II, RWTH Aachen University, Germany

S11: Ion Conducting Ceramics

Design and Characterization of Ion Conducting Ceramics

Room: Caribbean C

Session Chair: Jon Ihlefeld, Sandia National Laboratories

2:00 PM

(EMA-S11-007-2017) Accelerated Design and Discovery of Fast Ion Conducting Materials using First Principles Computation (Invited)

Y. Mo*; 1. University of Maryland, College Park, USA

2:30 PM

(EMA-S11-008-2017) Fast Atomic-Scale Chemical Imaging by Scanning Transmission Electron Microscopy for Study of Dynamic Phase Transformations (Invited)

P. Lu*; R. Yuan; J. Ihlefeld; E. D. Spörke; J. Zuo; W. Pan; 1. Sandia National Laboratories, USA; 2. University of Illinois at Urbana-Champaign, USA

3:00 PM

(EMA-S11-009-2017) The Effect of Non-stoichiometry and Lattice Strain on the Proton Conductivity in Y-Doped Barium Zirconate
J. Ding²; X. Sang¹; J. Balachandran¹; W. Guo¹; C. Rouleau¹; G. Veith¹; C. Bridges¹; J. Poplawsky¹; N. Bassiri-Gharb²; P. Ganesh^{*1}; R. Unocic¹; 1. Oak Ridge National Lab, USA; 2. Georgia Institute of Technology, USA

3:15 PM

(EMA-S11-010-2017) Improved Ionic Conductivity in Doped Ceria by Sintering in Reducing Atmosphere
S. Sulekar^{*1}; J. Kim¹; J. C. Nino¹; 1. University of Florida, USA

3:30 PM

Break

4:00 PM

(EMA-S11-011-2017) Enhancing Grain Boundary Ionic Conductivity in Mixed Ionic–Electronic Conductors
F. Chen^{*1}; 1. University of South Carolina, USA

4:15 PM

(EMA-S11-012-2017) Amphoteric Transition Metal Ions: New Insights into Novel Perovskite Doping Mechanisms
R. A. Maier^{*1}; A. Johnston-Peck¹; M. Donohue²; 1. National Institute of Standards and Technology, USA; 2. National Institute of Standards and Technology, USA

S15: Superconducting Materials and Applications

Applications and Related Material Issues including Wire Properties

Room: Pacific

Session Chairs: Alex Gurevich, Old Dominion University; Arend Nijhuis, University of Twente

2:00 PM

(EMA-S15-033-2017) Status of Cryogenic/Superconducting Power System Technologies for Electrified Propulsion of Aircraft (Invited)
T. J. Haugan^{*1}; 1. U.S. Air Force Research Laboratory, USA

2:30 PM

(EMA-S15-034-2017) Modelling and Testing of MgB₂ Segmented Coils and Persistent joints for MgB₂ Magnets (Invited)
M. Sumption^{*1}; 1. The Ohio State University, USA

3:00 PM

(EMA-S15-035-2017) The MgB₂ superconductor: A case study of the relationship between basic science research to superconducting applications (Invited)

M. A. Susner^{*2}; M. Sumption³; G. Li³; S. Bohnenstiehl³; Y. Yang³; T. J. Haugan¹; E. W. Collings³; 1. U.S. Air Force Research Laboratory, USA; 2. UES, Inc., USA; 3. Ohio State University, USA

3:30 PM

(EMA-S15-036-2017) Understanding High Temperature Superconductors for Potential use in Aero-Engine components
D. E. Sievers^{*1}; 1. The Boeing Co., USA

3:45 PM

(EMA-S15-006-2017) Development and control of physical properties of new layered compounds with CrPn layers

Y. Ichihara^{*1}; H. Ogino²; J. Shimoyama³; K. Kishio¹; 1. University of Tokyo, Japan; 2. National Institute of Advanced Industrial Science and Technology (AIST), Japan; 3. Aoyama Gakuin Univ., Japan

S16: Failure: The Greatest Teacher

Failure: The Greatest Teacher

Room: Indian

Session Chair: Geoff Brenneka, Colorado School of Mines

5:15 PM

JP Maria: Liquid phase assisted thin film growth of BaTiO₃: Unrealized expectations for low temperature processing

5:25 PM

Javier Garay: Transparent Failures

5:35 PM

(EMA-S16-003-2017) Intuition vs. Thermodynamics (or Maybe We Should Have Calculated That First!)

M. Losego^{*1}; 1. Georgia Institute of Technology, USA

5:45 PM

(EMA-S16-004-2017) The First FRAM - Extraordinary Success, Painful Failure

J. T. Evans^{*1}; 1. Radiant Technologies, Inc., USA

2017



Meetings & Expositions of THE AMERICAN CERAMIC SOCIETY

JANUARY 22 – 27

41ST INTERNATIONAL CONFERENCE AND
EXPO ON ADVANCED CERAMICS AND
COMPOSITES (ICACC'17)
Daytona Beach, Fla. USA

SEPTEMBER 27 – 29

UNITECR 2017
CentroParque Convention & Conference
Center
Santiago, Chile

FEBRUARY 20 – 24

MATERIALS CHALLENGES IN ALTERNATIVE
& RENEWABLE ENERGY (MCARE 2017)
Jeju, Korea

OCTOBER 22 – 25

2017 ICG ANNUAL MEETING & 32ND SISECAM
GLASS SYMPOSIUM
Sisecam Science and Technology Center
Istanbul, Turkey

MARCH 29 – 30

53RD ANNUAL ST. LOUIS SECTION/RCD
MEETING
Hilton St. Louis Airport | St. Louis, MO USA

OCTOBER 8 – 12

MATERIALS SCIENCE & TECHNOLOGY 2017,
COMBINED WITH ACERS 119TH ANNUAL
MEETING (MS&T17)
Pittsburgh, Pa. USA

APRIL 24

6TH CERAMIC BUSINESS AND LEADERSHIP
SUMMIT
Marriott Airport | Cleveland, OH USA

NOVEMBER 6 – 9

78TH CONFERENCE ON GLASS PROBLEMS
(78TH GPC) INCLUDING 11TH ADVANCES IN
FUSION AND PROCESSING OF GLASS
(AFPG) SYMPOSIUM
Greater Columbus Convention Center
Columbus, OH USA

APRIL 25 – 27

3RD CERAMICS EXPO
I-X Center | Cleveland, OH USA

NOVEMBER 12 – 16

INTERNATIONAL CONFERENCE ON
SINTERING 2017
Hyatt Regency Mission Bay Spa and Marina
San Diego, Calif. USA

MAY 21 – 26

12TH PACIFIC RIM CONFERENCE ON CERAMIC
AND GLASS TECHNOLOGY (PACRIM 12),
INCLUDING GLASS & OPTICAL MATERIALS
DIVISION MEETING (GOMD 2017)
Hilton Waikoloa Village | Waikoloa, HI USA

JUNE 26 – 28

8TH ADVANCES IN CEMENTS-BASED
MATERIALS (CEMENTS 2017)
Georgia Tech | Atlanta, GA USA





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11 Na 22.98976928 Sodium	12 Mg 24.305 Magnesium																	13 Al 26.9815386 Aluminum	14 Si 28.0855 Silicon	15 P 30.973762 Phosphorus	16 S 32.065 Sulfur	17 Cl 35.453 Chlorine	18 Ar 39.948 Argon
19 K 39.0983 Potassium	20 Ca 40.078 Calcium	21 Sc 44.955912 Scandium	22 Ti 47.867 Titanium	23 V 50.9415 Vanadium	24 Cr 51.9961 Chromium	25 Mn 54.938045 Manganese	26 Fe 55.845 Iron	27 Co 58.933195 Cobalt	28 Ni 58.9334 Nickel	29 Cu 63.546 Copper	30 Zn 65.38 Zinc	31 Ga 69.723 Gallium	32 Ge 72.64 Germanium	33 As 74.9216 Arsenic	34 Se 78.96 Selenium	35 Br 79.904 Bromine	36 Kr 83.798 Krypton						
37 Rb 85.4678 Rubidium	38 Sr 87.62 Strontium	39 Y 88.90585 Yttrium	40 Zr 91.224 Zirconium	41 Nb 92.90638 Niobium	42 Mo 95.96 Molybdenum	43 Tc (98) Technetium	44 Ru 101.07 Ruthenium	45 Rh 102.9055 Rhodium	46 Pd 106.42 Palladium	47 Ag 107.8682 Silver	48 Cd 112.411 Cadmium	49 In 114.818 Indium	50 Sn 118.71 Tin	51 Sb 121.76 Antimony	52 Te 127.6 Tellurium	53 I 126.90447 Iodine	54 Xe 131.293 Xenon						
55 Cs 132.9054 Cesium	56 Ba 137.327 Barium	57 La 138.90547 Lanthanum	72 Hf 178.48 Hafnium	73 Ta 180.938 Tantalum	74 W 183.84 Tungsten	75 Re 186.207 Rhenium	76 Os 190.23 Osmium	77 Ir 192.22 Iridium	78 Pt 195.084 Platinum	79 Au 196.96657 Gold	80 Hg 200.59 Mercury	81 Tl 204.383 Thallium	82 Pb 207.2 Lead	83 Bi 208.9804 Bismuth	84 Po (209) Polonium	85 At (210) Astatine	86 Rn (222) Radon						
87 Fr (223) Francium	88 Ra (226) Radium	89 Ac (227) Actinium	104 Rf (261) Rutherfordium	105 Db (268) Dubnium	106 Sg (266) Seaborgium	107 Bh (264) Bohrium	108 Hs (277) Hassium	109 Mt (270) Meitnerium	110 Ds (281) Darmstadtium	111 Rg (289) Roentgenium	112 Cn (285) Copernicium	113 Nh (286) Nihonium	114 Fl (289) Flerovium	115 Uup (288) Ununpentium	116 Lv (293) Livermorium	117 Uus (294) Ununseptium	118 Uuo (294) Ununoctium						

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