

2018

CONFERENCE ON ELECTRONIC AND ADVANCED MATERIALS

January 17 – 19, 2018 | DoubleTree by Hilton Orlando at Sea World Conference Hotel | Orlando, Fla., USA

CONFERENCE PROGRAM

The 2018 meeting has expanded programming and is organized by
ACerS Electronics and Basic Science Divisions.



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welcome



Brady Gibbons
Electronics Division



Jon Ihlefeld
Electronics Division



Rick Ubic
Electronics Division



Wayne Kaplan
Basic Science Division



John Blendell
Basic Science Division

Welcome to the 2018 Conference on Electronic and Advanced Materials (EAM 2018)—organized by the Electronics Division and the Basic Science Division of The American Ceramic Society (ACerS). You may notice we have a new name:

We hope it reflects the expanded programming on the nature of ceramic materials and theories governing their processing. This conference is the 9th in a series of annual international meetings, and provides a forum for exchanging scientific knowledge on the fundamental nature of ceramic materials, grand challenges that ceramic materials can solve, and the new applications they can drive.

The 2018 technical program includes plenary talks, invited lectures, contributed papers, poster presentations—including an interactive multimedia experience for selected posters—and open discussions. EAM 2018 features symposia focused on complex oxide and chalcogenide semiconductors, thermal energy conversion, multifunctional nanocomposites, superconductors, ion-conducting ceramics, and materials for millimeter-wave applications. Other symposia emphasize broader themes covering sustainable processing, microstructural evolution, and integration; effects of surfaces and interfaces on processing, transport, and properties; mesoscale phenomena; and computational design of materials.

In addition to the technical symposia, EAM 2018 includes additional activities and events such as the poster and networking session Wednesday, 5:30-7:30 p.m. in Orange A/B and the Basic Science Division's tutorial on "Defect Chemistry in Perovskite Ceramics and Its Impact on Materials Processing and Properties" Wednesday evening, 7:45-9:45 p.m. in Citrus A. The conference dinner and awards banquet will be held on Thursday, 7:00-9:00 p.m. in Orange A/B. The student poster and presentation award winners will be announced during this event. The grand finale of the meeting will again be a light-hearted session entitled "Failure: the Greatest Teacher" Friday, 5:15-6:15 p.m. in Magnolia A/B. All of these activities are included in the meeting registration, and everyone is strongly encouraged to attend!

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 advanced and/or 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 ACerS staff thank you for joining us for EAM 2018. We hope you have a rewarding and beneficial meeting experience and very much look forward to your continued participation in future EAM 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.

table of contents

Sponsors	i
Schedule at a Glance	ii
Regulations	iv
Plenary Speakers	v
Floorplan/Symposia	vi – vii
Special Events	viii

Final Program

Wednesday morning	2 – 7
Wednesday afternoon	7 – 12
Thursday morning	13 – 16
Thursday afternoon	16 – 20
Friday morning	20 – 24
Friday afternoon	24 – 25

Basic Science Division Officers:

Chair: **Dunbar Birnie**, Rutgers University, USA
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Vice Chair: **John Blendell**, Purdue University, USA
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conference sponsors

Special thanks to our sponsors for their generosity



Media Sponsors



schedule at a glance

TUESDAY, JANUARY 16, 2018

Conference registration 5:00 p.m. – 6:30 p.m.

WEDNESDAY, JANUARY 17, 2018

Conference registration 7:30 a.m. – 6:00 p.m.

Plenary session I – Roger DeSouza,
RWTH Aachen University 8:30 a.m. – 9:30 a.m.

Coffee Break 9:30 a.m. – 10:00 a.m.

Concurrent technical sessions 10:00 a.m. – 5:30 p.m.

Poster session set up 12:30 p.m. – 5:00 p.m.

Lunch on own 12:30 p.m. – 2:00 p.m.

Coffee break 3:30 p.m. – 4:00 p.m.

Poster session & reception 5:30 p.m. – 7:30 p.m.

Basic Science Division tutorial – Defect chemistry in
perovskite ceramics and its impact on materials
processing and properties 7:40 p.m. – 9:45 p.m.

Orange D

Nautilus and Orange lobbies

Orange A/B, Cypress A/B, Citrus A/B,
Magnolia A/B, Nautilus A/B

Orange C/D

Nautilus and Orange lobbies

Orange C/D

Citrus A

THURSDAY, JANUARY 18, 2018

Conference registration 7:30 a.m. – 6:00 p.m.

Plenary session II – Judith MacManus-Driscoll,
University of Cambridge 8:30 a.m. – 9:30 a.m.

Concurrent technical sessions 10:00 a.m. – 5:30 p.m.

Lunch on own 12:30 p.m. – 2:00 p.m.

New member refreshment break 1:30 p.m. – 2:00 p.m.

Coffee break 3:30 p.m. – 4:00 p.m.

Student & Young Professionals reception 5:30 p.m. – 6:30 p.m.

Conference dinner 7:00 p.m. – 9:00 p.m.

Orange D

Orange A/B, Cypress A/B, Citrus A/B,
Magnolia A/B, Nautilus A/B

Orange lobby

Nautilus and Orange lobbies

Barefoot Bar

Orange C/D

FRIDAY, JANUARY 20, 2017

Conference registration 7:30 a.m. – 5:00 p.m.

Concurrent technical sessions 8:30 a.m. – 5:00 p.m.

Lunch on own 12:30 p.m. – 2:00 p.m.

Failure – the greatest teacher 5:15 p.m. – 6:15 p.m.

Orange A/B, Cypress A/B, Citrus A/B,
Magnolia A/B, Nautilus A/B

Magnolia A/B

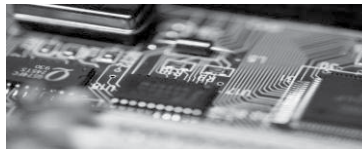
Current as of December 8, 2017

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meeting regulations



No photography/recording

Cell phones silent



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

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Registration Requirements: Attendance at any meeting of the Society shall be limited to duly registered persons.

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plenary speakers



Roger DeSouza

8:30 – 9:30 a.m | Orange D | Wednesday, January 17, 2018

Roger DeSouza, professor, RWTH Aachen University, Institut fuer Physikalische Chemie

Title: ***Using transport studies to reveal the myriad secrets of SrTiO₃***

Biography: Roger A. De Souza obtained a B. Eng in Material Science and Engineering in 1992 and a Ph.D. in Materials Science in 1996 from Imperial College London. After spending two years as a post-doctoral researcher at the University of Karlsruhe, he moved to the Max-Planck Institute for Solid State Research in Stuttgart. In 2002 he joined the Institute of Physical Chemistry at RWTH Aachen University, where he received his professorial degree (Habilitation) in 2011 and was promoted to Professor in 2017. The De Souza group performs fundamental research, encompassing both experimental and computational approaches, on complex oxides for energy and information technologies. One particular theme is characterising and understanding transport processes in these oxides and at their extended defects.



**Judith
MacManus-
Driscoll**

8:30 – 9:30 a.m | Orange D | Thursday, January 18, 2018

Judith MacManus-Driscoll, professor, Department of Materials Science,
University of Cambridge

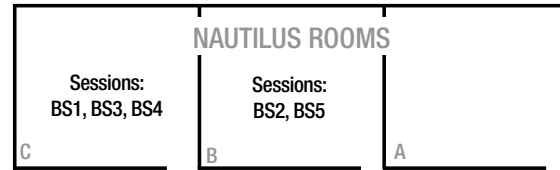
Title: ***New materials paradigm in oxide epitaxial nanocomposite thin films and the realization of enhanced functionalities***

Biography: Judith Driscoll's is a Professor in the Materials Science dept. at the University of Cambridge. Her research is in the area of electronic oxide thin films, i.e. superconductors, ferroelectrics, multiferroics, magnetics and semiconductors. She is also a Long Term visiting staff at Los Alamos National Lab, a position she's held for more than 10 years.

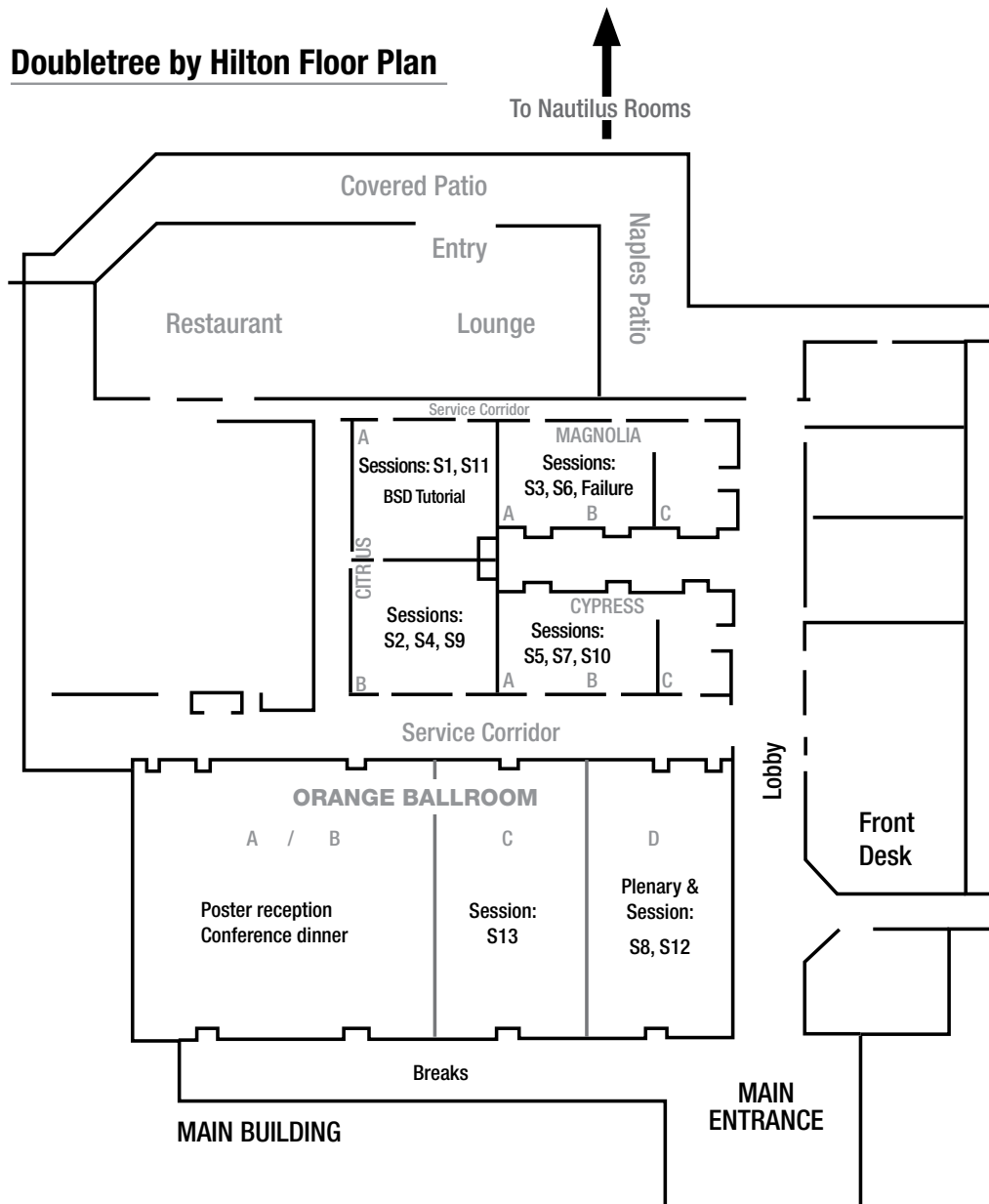
Judith was an undergraduate at Imperial College in London where she won the Governor's prize for top student. She was a Dee Scholar at the University of Cambridge where she earned her PhD. She was an IBM Fellow for her postdoctoral research at Stanford University and IBM Almaden. She was a Reader at Imperial College from 1995 until 2003. She moved to Cambridge in 2003 and became Full Professor in 2008. She is a Fellow of Trinity College and also a Fellow of the Institute of Physics, American Physical Society and the US Materials Research Society. In 2015, she won the Institute of Physics Joule Medal, and the Royal Academy of Engineering Armourers and Brasiers Prize. In 2017, she won the IEEE James Wong award.

Judith has published over 350 research papers which have been cited more than 10,000 times and she has an h-index of 48. She has more than 10 patents, several of which have been taken up by industry worldwide. She is also Founding Editor (in 2013) of the journal, APL Materials, from the American Institute of Physics.

floor plan



Doubletree by Hilton Floor Plan



symposia

The 2018 Organizing Committee

Brady Gibbons, Electronics Division
Jon Ihlefeld, Electronics Division
Rick Ubic, Electronics Division

Wayne Kaplan, Basic Science Division
John Blendell, Basic Science Division

ELECTRONICS DIVISION

S1. Complex Oxide and Chalcogenide Semiconductors: Research and Applications

Jayakanth Ravichandran, University of Southern California, USA; **Bharat Jalan**, University of Minnesota, USA; **Rafael Jaramillo**, Massachusetts Institute of Technology, USA; **Anderson Janotti**, University of Delaware, USA; **Yuval Golan**, Ben Gurion University of the Negev, Israel; **Ryan Comes**, Auburn University, USA

S2. Energy Applications of Electronic and Ferroic Ceramics: Synthesis, Characterization, and Theory

Paul G. Evans, University of Wisconsin-Madison, USA; **S. Pamir Alpay**, University of Connecticut, USA; **Brahim Dkhil**, CentraleSupélec/CNRS, France; **Daniel Schreiber**, US Army Research Laboratory, USA; **Quanxi Jia**, State University of New York at Buffalo, USA

S3. Multiscale Structure-Property Relationships and Advanced Characterization of Functional Ceramics

David W. McComb, The Ohio State University, USA; **Abhijit Pramanick**, City University of Hong Kong, Hong Kong; **Julian Walker**, The Pennsylvania State University, USA; **John E Daniels**, University of New South Wales, Australia; **Arno Merkle**, Carl Zeiss Microscopy, USA; **Hugh Simons**, Technical University of Denmark, Denmark

S4. Agile Design of Electronic Materials: Aligned Computational and Experimental Approaches

Mina Yoon, Oak Ridge National Laboratory, USA; **Venkatesh Botu**, Corning Incorporated, USA; **Lan Li**, Boise State University, USA; **Scott Retterer**, Oak Ridge National Laboratory, USA

S5. Ion-Conducting Ceramics

Hui (Claire) Xiong, Boise State University, USA; **Fanglin (Frank) Chen**, University of South Carolina, USA; **Jeff Sakamoto**, University of Michigan, USA; **Erik Spoeerke**, Sandia National Laboratories, USA; **Jing Xu**, Iowa State University, USA

S6. Electronics Materials for 5G Telecommunications Applications

Nate Orloff, National Institute of Standards and Technology, USA; **Chris Long**, National Institute of Standards and Technology, USA; **Geoff Brennecke**, Colorado School of Mines, USA

S7. Mesoscale Phenomena in Ceramic Materials

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

S8. Multifunctional Nanocomposites

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

S9. Substitution and Sustainability in Functional Materials and Devices

Ian M Reaney, University of Sheffield, United Kingdom; **Ruzhong Zuo**, Hefei University of Technology, China; **David P Cann**, Oregon State University, USA; **Derek C. Sinclair**, University of Sheffield, United Kingdom

S10. Synthesis and Processing Science of Thin Films and Single Crystals – The Details of Engineering Structure-Property Relationships

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

S11. Superconducting Materials and Applications

Gang Wang, Institute of Physics, Chinese Academy of Sciences, China; **Haiyan Wang**, Purdue University, USA; **Tim Haugan**, Air Force Research Laboratory, USA; **Charles Rong**, US Army Research Laboratory, USA

S12. Thermal Transport and Storage in Functional Materials and Devices

Alp Sehrioglu, Case Western Reserve University, USA; **Patrick Hopkins**, University of Virginia, USA; **Brian Donovan**, US Naval Academy, USA; **Mark Losego**, Georgia Institute of Technology, USA

S13. Advanced Electronic Materials: Processing, Structures, Properties, and Applications

Shujun Zhang, University of Wollongong, Australia; **Xiaoli Tan**, Iowa State University, USA; **Kyle Webber**, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany; **Satoshi Wada**, University of Yamanashi, Japan; **Rudeger (Derek) Wilke**, Sandia National Laboratories, USA

Student Awards and Competition:

Hui (Claire) Xiong, Boise State University, USA

BASIC SCIENCE DIVISION

S1: Computational and Data Sciences for the 21st Century Ceramics Research

Ming Tang, Rice University, USA; **Jeffrey Rickman**, Lehigh University, USA

S2: Electro-magnetic Field Effects on Ceramic Processing: Fundamental Mechanisms and New Applications

Klaus van Benthem, University of California - Davis, USA; **Martha Mecartney**, University of California - Irvine, USA

S3: Experimental and Theoretical insights on Interfaces of Ceramics

Christina Scheu, Max-Planck-Institut für Eisenforschung GmbH (MPIE), Germany; **Dominique Chatain**, Aix-Marseille University, CNRS, CINaM, France

S4: Fundamentals of Mechanical Response

Ivar Reimanis, Colorado School of Mines, USA; **Gerhard Dehm**, Max-Planck-Institute für Eisenforschung GmbH, Germany

S5: Morphology Evolution and Microstructure Characterization

Dan Lewis, Rensselaer Polytechnic Institute, USA; **Helen Chan**, Lehigh University, USA

Basic Science Division Tutorial: Defect Chemistry in Perovskite Ceramics and its impact on Materials Processing and Properties

Wolfgang Rheinheimer, Karlsruhe Institute of Technology, Germany; **Rachel Zucker**, University of California – Berkeley, USA

special events

Poster Session and Welcome Reception

Wednesday, January 17

5:30 p.m. – 7:30 p.m. | Orange A/B

Renew acquaintances and get to know new faces within the EAM community during the poster session and welcome reception

Basic Science Division Tutorial

Wednesday, January 17

7:40 p.m. – 9:45 p.m. | Citrus A

Defect chemistry in perovskite ceramics and its impact on materials processing and properties

7:40 p.m. Introduction

7:45 p.m. **Derek Sinclair**, University of Sheffield
Impact of defect chemistry on materials properties in oxides

8:25 p.m. **Roger de Souza**, RWTH Aachen University
Ion Transport in Oxides

9:05 p.m. **Elizabeth Dickey**, North Carolina State University
Fundamentals of Point Defect Thermodynamics in Ceramics

New Member Refreshment Break

Thursday, January 18

1:30pm – 2:00 p.m. | Orange A/B lobby

Learn how to make the most of your new ACerS membership and meet other new members.

Student and Young Professional Reception

Thursday, January 18

5:30 p.m. – 6:30 p.m. | Barefoot Bar

Following a long day of sessions, join with other students and young professionals at this informal reception.

Conference Dinner

Thursday, January 18

7:00 p.m. – 9:00 p.m. | Orange A/B

All conference attendees are invited to attend the conference dinner. Poster session awards will be announced at this event.

Failure - the Greatest Teacher

Friday, January 19,

5:15 p.m. – 6:15 p.m. | Magnolia A/B

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. Introduction

5:25 p.m. **Jurgen Roedel**, Technical University-Darmstadt
Antiferroelectrics, Relaxors, polar, non-polar, R3m

5:55 p.m. **Nate Orloff**, National Institute of Standards & Technology
Hip to be Square

6:10 p.m. **Jacob Jones**, North Carolina State University
The limits of diffraction and pragmatism

Welcome American Ceramic Society (ACerS)

The ACerS community is open to all, and we're happy to have you with us. ACerS values diverse and inclusive participation within the field of ceramic science and engineering. We strive to promote involvement and access to leadership opportunity regardless of race, ethnicity, gender, religion, age, sexual orientation, nationality, disability, appearance, geographic location, career path or academic level.

If you are a new member or joining us for the first time, please see the events available for you on this page, or visit the ACerS registration desk to learn more.

For all guests, if you need access to a nursing mother's room or other special needs, please ask us at the ACerS registration desk. For childcare services, please check with the hotel concierge or a listing of licensed and bonded caregivers.

We hope you enjoy the conference and want you to know that all individuals are welcome at ACerS conferences and events.

ACerS young professionals network speakers

Turan Birol	University of Minnesota, USA
Victoria Blair	U.S. Army Research Laboratory, USA
Lyndsey Denis	Pennsylvania State University, USA
Brian Donovan	USA Naval Academy, USA
Richard Floyd	Pennsylvania State University, USA
Brian Foley	Georgia Institute of Technology, USA
Till Frömling	Technische Universität Darmstadt, Germany
Panchapakesan Ganesh	Oak Ridge National Laboratory, USA
Ran Gao	University of California, Berkeley, USA
Julia Glaum	Norwegian University of Science and Technology NTNU, Norway
Michael Golt	U.S. Army Research Laboratory, USA
Edward Gorzkowski	Naval Research Laboratory, USA
Er-Jia Guo	Oak Ridge National Laboratory, USA
Xia Hong	University of Nebraska-Lincoln, USA
Jacob Ivy	Colorado School of Mines, USA
Rafael Jaramillo	Massachusetts Institute of Technology, USA
Gang Jian	Jiangsu University of Science and Technology, China
David Kok	University of California, Irvine, USA
Jurij Koruza	Technische Universität Darmstadt, Germany
James LeBeau	North Carolina State University, USA
David Lowing	Purdue University, USA
Lane Martin	University of California, Berkeley, USA
Elizabeth Paisley	Sandia National Laboratories, USA
Eric Patterson	U.S. Naval Research Laboratory, USA
Krishna Chaitanya Pitike	University of Connecticut, USA
Abhijit Pramanick	City University of Hong Kong, Hong Kong
Elizabeth Radue	University of Virginia, USA
Wolfgang Rheinheimer	Karlsruhe Institute of Technology, Germany
Christina Rost	University of Virginia, USA
Whitney Schmidt	University of Sheffield, United Kingdom
Sean Smith	Sandia National Laboratories, USA
Margo Staruch	U.S. Naval Research Laboratory, USA
Michael Susner	Air Force Research Laboratory, USA
Austin Travis	University of California, Irvine, USA
Tedi-Marie Usher	Oak Ridge National Laboratory, USA
Gang Wang	Institute of Physics, Chinese Academy of Sciences, China
Rui Wu	University of Cambridge, United Kingdom
Stephen Xie	University of Florida, USA
Kesong Yang	University of California, San Diego, USA

CALL FOR PAPERS

Submit your abstracts by February 12, 2018

MATERIALS CHALLENGES IN ALTERNATIVE AND RENEWABLE ENERGY (MCARE 2018)

August 20 - 23, 2018

Sheraton Vancouver Wall Centre Hotel | Vancouver, BC, Canada

TECHNICAL PROGRAM

- MATERIALS FOR SOLAR FUEL PRODUCTION AND APPLICATIONS
- ADVANCED ELECTROCHEMICAL MATERIALS FOR ENERGY STORAGE
- MATERIALS CHALLENGES IN PEROVSKITE AND NEXT GENERATION SOLAR CELLS
- FERROELECTRICS AND MULTIFERROICS FOR ENERGY GENERATION, CONVERSION, AND STORAGE
- MATERIALS CHALLENGES IN DIRECT THERMAL-TO-ELECTRICAL ENERGY CONVERSION AND THERMAL ENERGY HARNESSING FOR EFFICIENT INNOVATIVE APPLICATIONS
- MATERIALS FOR SPECTRAL ENERGY CONVERSION
- ADVANCED MATERIALS FOR SOLID OXIDE FUEL CELLS AND HIGH TEMPERATURE ELECTROLYSIS
- LIFECYCLE CONSIDERATIONS FOR ENERGY MATERIALS
- CRITICAL MATERIALS FOR ENERGY
- MATERIALS AND PROCESS CHALLENGES FOR SUSTAINABLE NUCLEAR ENERGY
- SUSTAINABLE, ECO-FRIENDLY ADVANCED MATERIALS AND NANODEVICES
- YOUNG SCIENTISTS FORUM ON FUTURE ENERGY MATERIALS AND DEVICES

Hosted and organized by:



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Also organized by:



Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
A									
Aigner, R.	17-Jan	10:15AM	Magnolia A/B	5	Fast, D.	18-Jan	4:30PM	Citrus B	18
Akkopru Akgun, B.	17-Jan	11:15AM	Cypress A/B	6	Finkel, P.	17-Jan	11:30AM	Citrus B	5
Alamgir, F.M.	18-Jan	11:15AM	Nautilus B	13	Finnis, M.W.	17-Jan	10:00AM	Nautilus C	4
Alem, N.	17-Jan	3:00PM	Orange D	8	Floyd, R.	17-Jan	4:30PM	Citrus B	9
Alpay, P.	18-Jan	10:00AM	Cypress A/B	14	Foley, B.	17-Jan	10:45AM	Orange D	6
Altermann, F.J.	17-Jan	11:30AM	Nautilus B	4	Foley, B.	19-Jan	11:00AM	Orange C	24
An, L.	18-Jan	10:00AM	Nautilus B	13	Fox, A.	18-Jan	3:00PM	Orange C	20
Anderson, K.	17-Jan	3:45PM	Nautilus B	8	Freeman, C.	18-Jan	12:15PM	Citrus B	15
Arroyave, R.	19-Jan	12:00PM	Citrus B	21	Frolov, T.	18-Jan	4:30PM	Nautilus C	16
					Frömling, T.	19-Jan	11:15AM	Cypress A/B	22
					Fujimoto, K.	19-Jan	11:15AM	Citrus B	21
B					G				
Bayer, T.J.	19-Jan	10:30AM	Magnolia A/B	22	Gabriel, J.J.	18-Jan	5:00PM	Citrus B	18
Beechem, T.E.	19-Jan	9:00AM	Orange C	23	Ganesh, P.	19-Jan	2:45PM	Citrus B	24
Bell, A.J.	18-Jan	4:30PM	Orange C	20	Gao, L.	18-Jan	11:45AM	Orange C	16
Bhattacharyya, R.	19-Jan	11:45AM	Cypress A/B	22	Gao, R.	18-Jan	2:30PM	Cypress A/B	18
Bian, J.	17-Jan	11:45AM	Orange C	7	Gheorghiu, N.	17-Jan	12:00PM	Citrus A	6
Biol, T.	19-Jan	3:00PM	Orange D	25	Gibbons, B.	18-Jan	11:30AM	Citrus B	15
Bishara, H.	18-Jan	5:30PM	Orange C	20	Glaum, J.	17-Jan	4:45PM	Orange C	11
Biswas, A.	18-Jan	2:30PM	Orange D	19	Golt, M.C.	19-Jan	9:30AM	Citrus B	20
Blair, V.L.	18-Jan	5:30PM	Nautilus B	17	Gozkowski, E.	17-Jan	3:15PM	Nautilus B	7
Bonnough, S.W.	17-Jan	5:30PM	Citrus A	10	Gray, A.	18-Jan	3:45PM	Citrus A	17
Borman, T.M.	17-Jan	5:00PM	Cypress A/B	10	Green, R.J.	18-Jan	2:30PM	Citrus A	17
Boston, R.	17-Jan	2:00PM	Citrus B	9	Grimley, E.D.	17-Jan	10:30AM	Nautilus C	4
Brahlek, M.	19-Jan	9:15AM	Orange D	23	Grimley, E.D.	17-Jan	4:30PM	Orange D	8
Brova, M.J.	17-Jan	3:00PM	Orange C	11	Guo, E.	18-Jan	11:45AM	Orange D	15
Bullard, T.	17-Jan	4:45PM	Citrus A	10	Guo, J.	17-Jan	11:00AM	Orange C	7
Butler, B.D.	17-Jan	11:30AM	Orange D	6	H				
C					Hagerstrom, A.	17-Jan	3:00PM	Magnolia A/B	8
Cabral, M.J.	18-Jan	2:30PM	Orange C	20	Hall, D.A.	19-Jan	11:00AM	Magnolia A/B	22
Cai, L.	17-Jan	11:15AM	Magnolia A/B	5	Hallsteinsen, I.	19-Jan	11:15AM	Orange D	23
Carter, J.	17-Jan	11:30AM	Nautilus C	4	Han, H.	19-Jan	9:30AM	Orange C	23
Chambers, S.	19-Jan	2:00PM	Orange D	24	Harrington, G.	19-Jan	9:45AM	Orange D	23
Chan, S.	17-Jan	3:30PM	Nautilus C	7	Harris, D.T.	17-Jan	2:00PM	Cypress A/B	9
Chen, J.	19-Jan	10:30AM	Orange C	23	Harris, W.	18-Jan	11:00AM	Magnolia A/B	14
Chen, L.	17-Jan	4:00PM	Nautilus B	8	Hartman, S.T.	18-Jan	11:15AM	Nautilus C	13
Chen, L.	18-Jan	2:00PM	Nautilus C	16	Haugan, T.J.	17-Jan	4:15PM	Citrus A	10
Chen, W.	17-Jan	12:15PM	Citrus B	5	He, Q.	18-Jan	5:00PM	Orange D	19
Chen, Y.	18-Jan	2:45PM	Citrus B	18	Heath, J.P.	17-Jan	5:00PM	Citrus B	9
Cheng, C.Y.	17-Jan	11:30AM	Cypress A/B	6	Heisig, T.	18-Jan	4:30PM	Citrus A	17
Chi, M.	18-Jan	4:30PM	Cypress A/B	19	Herisson de Beauvoir, T.	17-Jan	11:15AM	Orange C	7
Choi, S.	18-Jan	5:30PM	Orange D	19	Herrera, G.M.	17-Jan	11:00AM	Citrus B	5
Chopdekar, R.V.	18-Jan	10:00AM	Orange D	15	Hinterstein, M.	18-Jan	4:15PM	Magnolia A/B	18
Choudhary, K.	19-Jan	3:30PM	Citrus B	24	Hong, S.	18-Jan	4:30PM	Orange D	19
Clarke, D.R.	17-Jan	10:00AM	Orange D	6	Hong, X.	18-Jan	3:00PM	Orange D	19
Cockayne, E.	18-Jan	10:00AM	Nautilus C	13	Huang, J.	19-Jan	11:45AM	Orange D	23
Comes, R.	19-Jan	10:30AM	Orange D	23	Huang, W.	19-Jan	9:15AM	Orange C	23
D					Huddleston, W.	18-Jan	5:15PM	Cypress A/B	19
Dawley, N.	17-Jan	2:30PM	Magnolia A/B	8	Huey, B.	19-Jan	3:15PM	Citrus B	24
De Souza, R.A.	17-Jan	8:40AM	Orange D	4	Hughes, L.A.	18-Jan	4:00PM	Nautilus B	17
Denis, L.M.	18-Jan	4:00PM	Magnolia A/B	18	Huijben, M.	19-Jan	4:15PM	Orange D	25
Dickens, P.	17-Jan	4:45PM	Cypress A/B	10	Hwang, H.	19-Jan	9:45AM	Orange C	23
Dickey, E.C.	18-Jan	10:45AM	Nautilus B	13	I				
Dolgos, M.	18-Jan	11:15AM	Citrus B	15	Ito, Y.	17-Jan	12:00PM	Citrus B	5
Donovan, B.F.	17-Jan	11:00AM	Orange D	6	J				
Drisko, J.	17-Jan	4:45PM	Magnolia A/B	8	Jain, A.	19-Jan	10:45AM	Citrus B	21
Du, Y.	19-Jan	9:00AM	Cypress A/B	22	Jalan, B.	19-Jan	8:45AM	Orange D	23
Dursun, S.	17-Jan	3:15PM	Orange C	11	Jana, A.	18-Jan	5:30PM	Nautilus C	16
E					Janotti, A.	19-Jan	11:00AM	Citrus A	21
Egami, T.	18-Jan	5:00PM	Magnolia A/B	18	Jaramillo, R.	18-Jan	4:15PM	Citrus A	17
Evans, J.T.	17-Jan	4:00PM	Orange C	11	Jaramillo, R.	19-Jan	9:45AM	Citrus A	21
F					Jeen, H.	19-Jan	9:30AM	Orange D	23
Fan, Z.	18-Jan	2:45PM	Orange C	20	Jennings, D.	18-Jan	10:30AM	Nautilus B	13
Fancher, C.	17-Jan	11:45AM	Citrus B	5	Jeong, J.	19-Jan	2:30PM	Citrus A	24
Farghadany, E.	18-Jan	5:30PM	Cypress A/B	19	Jia, J.	17-Jan	2:30PM	Citrus A	10

Presenting Author List

Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Jian, G.	19-Jan	8:30AM	Orange D	22	Mitic, V.	17-Jan	12:00PM	Orange C	7
Jin, K.	17-Jan	2:00PM	Citrus A	10	Mitzi, D.	18-Jan	10:30AM	Citrus A	14
Jones, J.L.	18-Jan	2:00PM	Orange C	20	Moore, R.	19-Jan	11:30AM	Citrus A	21
K					Moshe, R.	17-Jan	11:45AM	Nautilus B	4
Kalkur, T.S.	17-Jan	10:45AM	Magnolia A/B	5	Muccillo, E.N.	19-Jan	11:00AM	Cypress A/B	22
Kan, D.	19-Jan	10:45AM	Orange D	23	Müller, M.P.	18-Jan	5:00PM	Cypress A/B	19
Kelley, K.	17-Jan	4:00PM	Cypress A/B	9	Mundy, J.	18-Jan	4:00PM	Orange D	19
Khatun, N.	18-Jan	11:30AM	Cypress A/B	14	Murakami, S.	18-Jan	10:30AM	Citrus B	15
Kim, E.	17-Jan	4:00PM	Magnolia A/B	8	Muralt, P.R.	19-Jan	2:30PM	Orange C	25
Kim, J.	19-Jan	4:30PM	Orange D	25	Murphy, R.	19-Jan	9:45AM	Cypress A/B	22
Kim, S.	18-Jan	11:00AM	Orange C	15	N				
Klemm, R.A.	17-Jan	5:00PM	Citrus A	10	Nahm, S.	18-Jan	10:30AM	Orange C	15
Koh, L.	17-Jan	2:45PM	Citrus B	9	Nakhmanson, S.	18-Jan	10:30AM	Cypress A/B	14
Kok, D.	18-Jan	3:00PM	Nautilus B	16	Newman, N.	19-Jan	11:45AM	Orange C	24
Koruza, J.	19-Jan	11:30AM	Magnolia A/B	22	O				
Kotsonis, G.N.	17-Jan	5:15PM	Cypress A/B	10	Olevsky, E.A.	18-Jan	11:30AM	Nautilus C	13
Kreisel, J.	19-Jan	9:15AM	Magnolia A/B	21	Olevsky, E.A.	18-Jan	2:30PM	Nautilus B	16
Krogstad, J.A.	17-Jan	2:30PM	Nautilus C	7	Orloff, N.	17-Jan	10:00AM	Magnolia A/B	5
Kumar, A.	19-Jan	12:00PM	Orange C	24	Ormstrup, J.	17-Jan	11:15AM	Citrus B	5
Kumar, S.	18-Jan	2:45PM	Cypress A/B	19	Osofsky, M.	19-Jan	2:30PM	Orange D	24
Kuna, L.	18-Jan	11:15AM	Cypress A/B	14	P				
Kusne, A.	18-Jan	4:00PM	Citrus B	18	Pachuta, K.G.	18-Jan	3:15PM	Cypress A/B	19
L					Paisley, E.A.	17-Jan	3:00PM	Cypress A/B	9
Lange, K.	17-Jan	4:00PM	Citrus A	10	Patel, T.	17-Jan	10:00AM	Citrus B	4
Langenberg, E.	19-Jan	12:15PM	Orange C	24	Paterson, A.	18-Jan	5:00PM	Orange C	20
Law, S.	19-Jan	9:00AM	Citrus A	21	Patterson, B.M.	18-Jan	10:30AM	Magnolia A/B	14
LeBeau, J.	17-Jan	2:00PM	Orange D	8	Patterson, E.	17-Jan	11:30AM	Orange C	7
Lee, H.	18-Jan	2:00PM	Orange D	19	Paudel, H.P.	18-Jan	12:00PM	Nautilus C	13
Lee, H.	18-Jan	2:45PM	Citrus A	17	Paul, J.T.	18-Jan	2:30PM	Citrus B	18
Lee, H.	19-Jan	10:30AM	Cypress A/B	22	Pitike, K.	18-Jan	11:00AM	Cypress A/B	14
Lee, J.	19-Jan	2:00PM	Citrus A	24	Popovic, N.B.	17-Jan	5:00PM	Magnolia A/B	8
Lee, S.	18-Jan	11:45AM	Cypress A/B	14	Pramanick, A.	19-Jan	11:45AM	Magnolia A/B	22
Lei, L.	19-Jan	9:30AM	Cypress A/B	22	Psychogiou, D.	17-Jan	4:15PM	Magnolia A/B	8
LeSar, R.	19-Jan	8:30AM	Citrus B	20	Pulskamp, J.	17-Jan	12:00PM	Magnolia A/B	5
Levin, I.	18-Jan	2:45PM	Magnolia A/B	17	R				
Lewis, D.	18-Jan	5:00PM	Nautilus C	16	Radovic, M.	18-Jan	4:45PM	Citrus A	17
Li, L.	17-Jan	10:30AM	Orange D	6	Radue, E.	17-Jan	4:45PM	Orange D	8
Li, L.	19-Jan	2:30PM	Citrus B	24	Radue, E.	19-Jan	11:30AM	Orange C	24
Li, Q.	18-Jan	4:00PM	Orange C	20	Rajan, K.	19-Jan	10:15AM	Citrus B	20
Liu, M.	17-Jan	5:00PM	Orange D	9	Rajan, K.	19-Jan	2:00PM	Citrus B	24
Liu, X.	17-Jan	4:15PM	Orange D	8	Ran, S.	17-Jan	11:30AM	Citrus A	6
Long, D.	17-Jan	4:15PM	Orange C	11	Randall, C.	17-Jan	3:45PM	Citrus B	9
Lookman, T.	18-Jan	2:00PM	Citrus B	18	Rappe, A.M.	18-Jan	11:00AM	Citrus A	14
Losego, M.D.	17-Jan	4:30PM	Cypress A/B	10	Rappe, A.M.	18-Jan	2:30PM	Nautilus C	16
Lowing, D.	17-Jan	3:00PM	Nautilus B	7	Reaney, I.M.	18-Jan	10:45AM	Citrus B	15
Luo, J.	18-Jan	4:00PM	Nautilus C	16	Reaney, I.M.	19-Jan	8:30AM	Orange C	23
M					Reimanis, I.	17-Jan	10:50AM	Nautilus B	4
MacManus-Driscoll, J.	18-Jan	8:40AM	Orange D	13	Rheinheimer, W.	17-Jan	11:15AM	Nautilus B	4
Mahjouri-Samani, M.	19-Jan	10:30AM	Citrus A	21	Rickman, J.	17-Jan	2:00PM	Nautilus B	7
Manjón Sanz, A.M.	18-Jan	2:30PM	Magnolia A/B	17	Rickman, J.	19-Jan	9:00AM	Citrus B	20
Mannodi-Kanakkithodi, A.	18-Jan	11:00AM	Nautilus C	13	Rödel, J.	17-Jan	11:45AM	Nautilus C	4
Mannodi-Kanakkithodi, A.	19-Jan	11:30AM	Citrus B	21	Rohrer, G.	17-Jan	10:25AM	Nautilus B	4
Mantri, S.	18-Jan	11:45AM	Magnolia A/B	14	Rojac, T.	19-Jan	2:00PM	Orange C	25
Marksz, E.	17-Jan	11:45AM	Magnolia A/B	5	Rost, C.M.	17-Jan	5:30PM	Cypress A/B	10
Marquis, E.	18-Jan	10:00AM	Magnolia A/B	14	S				
Martin, L.W.	17-Jan	10:00AM	Cypress A/B	5	Sabino, F.P.	19-Jan	3:30PM	Citrus A	24
Martin, L.W.	18-Jan	11:15AM	Orange D	15	Saremi, S.	17-Jan	10:30AM	Cypress A/B	6
Martin, S.W.	18-Jan	4:00PM	Cypress A/B	19	Saxena, M.	19-Jan	3:15PM	Orange C	25
Matt, C.E.	19-Jan	11:15AM	Citrus A	21	Schmidt, W.L.	17-Jan	2:30PM	Citrus B	9
McComb, D.W.	17-Jan	11:00AM	Nautilus C	4	Schneider, G.A.	17-Jan	3:15PM	Nautilus C	7
McComb, D.W.	18-Jan	11:30AM	Magnolia A/B	14	Schneider, G.A.	18-Jan	4:30PM	Nautilus B	17
McDowell, M.	17-Jan	11:45AM	Cypress A/B	6	Sebastian, M.	17-Jan	3:45PM	Citrus A	10
Meisenheimer, P.B.	17-Jan	4:00PM	Orange D	8	Seifert, D.U.	17-Jan	4:15PM	Citrus B	9
Michie, M.J.	17-Jan	12:00PM	Nautilus B	4	Selbach, S.M.	18-Jan	4:30PM	Magnolia A/B	18
Milne, S.J.	18-Jan	10:00AM	Citrus B	15	Seshadri, R.	18-Jan	11:30AM	Citrus A	14
Misirlioglu, B.	19-Jan	3:00PM	Orange C	25	Sheldon, B.W.	17-Jan	2:00PM	Nautilus C	7
Misture, S.T.	17-Jan	2:30PM	Nautilus B	7					
Misture, S.T.	18-Jan	2:00PM	Magnolia A/B	17					

Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Shi, J.	19-Jan	3:00PM	Citrus A	24					
Shimizu, T.	17-Jan	2:30PM	Cypress A/B	9					
Shoemaker, D.P.	18-Jan	3:00PM	Magnolia A/B	18	Wachsman, E.D.	18-Jan	2:00PM	Cypress A/B	18
Shrout, T.	17-Jan	2:00PM	Orange C	10	Wada, S.	17-Jan	10:00AM	Orange C	7
Simons, H.W.	19-Jan	9:45AM	Magnolia A/B	21	Walker, J.	18-Jan	12:15PM	Orange C	16
Sinclair, D.C.	18-Jan	11:00AM	Citrus B	15	Walker, J.	18-Jan	3:15PM	Orange C	20
Sinclair, D.C.	19-Jan	12:00PM	Cypress A/B	22	Wallis, T.M.	17-Jan	2:00PM	Magnolia A/B	8
Smith, K.A.	18-Jan	3:00PM	Cypress A/B	19	Wan, D.	18-Jan	12:00PM	Citrus B	15
Smith, S.W.	17-Jan	2:45PM	Cypress A/B	9	Wang, G.	17-Jan	10:45AM	Citrus A	6
Soler, R.	17-Jan	3:00PM	Nautilus C	7	Wang, Z.	17-Jan	2:30PM	Orange D	8
Spreitzer, M.	17-Jan	10:30AM	Orange C	7	Wang, Z.	18-Jan	2:00PM	Citrus A	17
Srolovitz, D.J.	17-Jan	10:00AM	Nautilus B	4	West, A.R.	19-Jan	11:30AM	Cypress A/B	22
Staruch, M.	18-Jan	5:15PM	Orange C	20	Whitelock, H.	18-Jan	10:45AM	Cypress A/B	14
Steffes, J.	19-Jan	9:00AM	Magnolia A/B	21	Wilson, A.A.	17-Jan	11:15AM	Orange D	6
Surta, T.W.	18-Jan	12:15PM	Nautilus C	13	Won, S.	18-Jan	11:15AM	Orange C	16
Susner, M.A.	17-Jan	10:30AM	Citrus A	6	Woo, J.	18-Jan	12:00PM	Orange C	16
Susner, M.A.	19-Jan	9:30AM	Citrus A	21	Wu, J.	17-Jan	10:00AM	Citrus A	6
					Wu, J.	17-Jan	3:00PM	Citrus A	10
					Wu, R.	18-Jan	10:30AM	Orange D	15
		T							
Takahashi, R.	19-Jan	4:00PM	Orange D	25					
Talley, K.R.	18-Jan	5:45PM	Orange C	20	Xie, S.	18-Jan	4:45PM	Citrus B	18
Tidrow, S.	17-Jan	10:30AM	Citrus B	5					
Todd, R.I.	18-Jan	2:00PM	Nautilus B	16					
Tong, J.	19-Jan	8:30AM	Cypress A/B	22					
Travis, A.W.	17-Jan	12:00PM	Nautilus C	4	Yamaura, K.	17-Jan	11:00AM	Citrus A	6
Trolier-McKinstry, S.	17-Jan	10:45AM	Cypress A/B	6	Yang, C.	19-Jan	2:45PM	Orange C	25
Tsen, A.	19-Jan	8:30AM	Citrus A	21	Yang, K.	17-Jan	10:45AM	Nautilus C	4
Tsur, Y.	18-Jan	3:15PM	Nautilus B	17	Ye, Z.	17-Jan	2:30PM	Orange C	11
					Yoshida, H.	18-Jan	5:00PM	Nautilus B	17
					Yoshimura, M.	18-Jan	10:30AM	Nautilus C	13
		U							
Uršič, H.	19-Jan	8:30AM	Magnolia A/B	21					
Usher, T.	18-Jan	5:30PM	Magnolia A/B	18	Zhai, J.	18-Jan	10:00AM	Orange C	15
Usui, T.	17-Jan	10:45AM	Citrus B	5	Zhang, K.H.	19-Jan	4:45PM	Orange D	25
					Zhang, L.	18-Jan	11:00AM	Orange D	15
					Zhang, L.	18-Jan	3:15PM	Citrus B	18
		V			Zhang, S.	18-Jan	10:00AM	Citrus A	14
van Benthem, K.	18-Jan	5:45PM	Nautilus B	17	Zhang, S.	18-Jan	11:30AM	Orange C	16
Veazey, R.A.	17-Jan	4:45PM	Citrus B	9	Zhang, Y.	18-Jan	11:45AM	Nautilus B	13
Viehland, D.	18-Jan	3:00PM	Nautilus C	16	Zhuk, M.	17-Jan	4:30PM	Orange C	11
Viola, G.	19-Jan	12:00PM	Magnolia A/B	22					

Poster Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Al-Aaraji, M.N.	17-Jan	5:30PM	Orange A/B	11	Kuna, L.	17-Jan	5:30PM	Orange A/B	11
Al-Hamed, F.H.	17-Jan	5:30PM	Orange A/B	12	Lester, H.	17-Jan	5:30PM	Orange A/B	11
Banys, J.	17-Jan	5:30PM	Orange A/B	11	Li, H.	17-Jan	5:30PM	Orange A/B	12
Brodie, J.	17-Jan	5:30PM	Orange A/B	12	Mitic, V.	17-Jan	5:30PM	Orange A/B	12
Colton, Z.	17-Jan	5:30PM	Orange A/B	12	Muccillo, R.	17-Jan	5:30PM	Orange A/B	11
El-Faouri, S.	17-Jan	5:30PM	Orange A/B	12	Mula, S.	17-Jan	5:30PM	Orange A/B	11
Frömling, T.	17-Jan	5:30PM	Orange A/B	12	Myers, C.	17-Jan	5:30PM	Orange A/B	12
Gheorghiu, N.	17-Jan	5:30PM	Orange A/B	12	Panasjuk, G.Y.	17-Jan	5:30PM	Orange A/B	12
Gorzowski, E.	17-Jan	5:30PM	Orange A/B	12	Patel, T.	17-Jan	5:30PM	Orange A/B	12
Grimley, C.	17-Jan	5:30PM	Orange A/B	11	Pitike, K.	17-Jan	5:30PM	Orange A/B	11
Gupta, S.K.	17-Jan	5:30PM	Orange A/B	12	Rath, M.	17-Jan	5:30PM	Orange A/B	12
Haugan, T.J.	17-Jan	5:30PM	Orange A/B	12	Reis, S.L.	17-Jan	5:30PM	Orange A/B	11
Heath, J.P.	17-Jan	5:30PM	Orange A/B	12	Samanta, S.	17-Jan	5:30PM	Orange A/B	11
Huddleston, W.	17-Jan	5:30PM	Orange A/B	11	Sarangi, V.	17-Jan	5:30PM	Orange A/B	11
Ivanov, M.	17-Jan	5:30PM	Orange A/B	11	Sebastian, M.	17-Jan	5:30PM	Orange A/B	12
Ivy, J.	17-Jan	5:30PM	Orange A/B	12	Sun, Z.	17-Jan	5:30PM	Orange A/B	12
Kennedy, C.D.	17-Jan	5:30PM	Orange A/B	12	Watson, B.H.	17-Jan	5:30PM	Orange A/B	12
Kim, Y.	17-Jan	5:30PM	Orange A/B	12	Wright, B.L.	17-Jan	5:30PM	Orange A/B	12

Wednesday, January 17, 2018

Plenary Session I

Room: Orange D

Session Chair: Wayne Kaplan, Technion - Israel Inst of Tech

8:30 AM

Introduction

Wayne Kaplan, Technion - Israel Inst of Tech; Brady Gibbons, Oregon State University

8:40 AM

(EAM-PLEN- 001-2018) Using transport studies to reveal the myriad secrets of SrTiO₃

R. A. De Souza*¹

1. RWTH Aachen University, Institute of Physical Chemistry, Germany

9:30 AM

Break

BASIC SCIENCE DIV S3: Experimental and Theoretical Insights on Interfaces of Ceramics

Experimental and theoretical insights on interfaces of ceramics

Room: Nautilus C

Session Chair: Christina Scheu, Max-Planck-Institute for Eisenforschung GmbH

10:00 AM

(EAM-BASIC-S3-001-2018) Dynamic simulation of oxygen transport through oxide films (Invited)

M. P. Tautschig¹; N. M. Harrison¹; M. W. Finnis*¹

1. Imperial College London, United Kingdom

10:30 AM

(EAM-BASIC-S3-002-2018) Understanding grain structure and phase coexistence in ferroelectric HfO₂ by STEM and crystal chemistry

E. D. Grimley*¹; T. Schenk²; T. Mikolajick²; U. Schroeder²; J. LeBeau¹

1. North Carolina State University, Materials Science and Engineering, USA

2. NaMLab gGmbH, Germany

10:45 AM

(EAM-BASIC-S3-003-2018) δ -Doping Effects on Electronic and Energetic Properties of LaAlO₃/SrTiO₃ Heterostructure: First-Principles Analysis of 23 Transition-Metal Dopants

J. Cheng¹; J. Luo¹; K. Yang*¹

1. University of California San Diego, Department of NanoEngineering, USA

11:00 AM

(EAM-BASIC-S3-004-2018) STEM Imaging and Analysis of Defects and Interfaces in Complex Oxides (Invited)

D. W. McComb*¹

1. The Ohio State University, USA

11:30 AM

(EAM-BASIC-S3-005-2018) Effect of a single grain boundary on resistance degradation of bicrystal SrTiO₃

J. Carter*¹; T. J. Bayer¹; C. Randall¹

1. Pennsylvania State University, Materials Science and Engineering, USA

11:45 AM

(EAM-BASIC-S3-006-2018) Bicrystal piezotronics

J. Rödel*¹; P. Keil¹; T. Frömling¹; M. Trapp¹; H. Kleebe¹; N. Novak¹

1. Technische Universität Darmstadt, Germany

12:00 PM

(EAM-BASIC-S3-007-2018) Thermal conductivity measurements of ceramic composites with the 3 omega method

A. W. Travis*¹; M. Mecartney¹

1. University of California, Irvine, USA

BASIC SCIENCE DIV S5: Morphology Evolution and Microstructure Characterization

Experimental Studies of Microstructure Evolution

Room: Nautilus B

Session Chair: Helen Chan, Lehigh University

10:00 AM

(EAM-BASIC-S5-001-2018) Grain Boundary Migration in Polycrystals: A disconnection perspective (Invited)

D. J. Srolovitz*¹; J. Han¹; S. Thomas¹; K. Chen¹; Y. Xiang²; L. Zhang²

1. University of Pennsylvania, Materials Science & Engineering, USA

2. Hong Kong University of Science and Technology, Mathematics, Hong Kong

10:25 AM

(EAM-BASIC-S5-002-2018) 3D observations of the evolution of grain morphology during grain growth (Invited)

A. Bhattacharya¹; Y. Shen¹; C. Hefferan¹; S. Li¹; J. Lind¹; R. Suter¹; G. Rohrer*¹

1. Carnegie Mellon University, USA

10:50 AM

(EAM-BASIC-S5-003-2018) Morphological Changes in Oxides Doped with Nickel: The Role of Oxide Particle Size (Invited)

I. Reimanis*¹; A. Morrissey²

1. Colorado School of Mines, USA

2. CoorsTek, USA

11:15 AM

(EAM-BASIC-S5-004-2018) Impact of Fe-dopant on grain growth in strontium titanate: Experimental evidence for solute drag

W. Rheinheimer*¹; M. J. Hoffmann²

1. Karlsruhe Institute of Technology, Institute for Applied Materials, Germany

2. University of Karlsruhe, Institute for Applied Materials (IAM-KM), Germany

11:30 AM

(EAM-BASIC-S5-005-2018) Influence of Defect Chemistry on the Grain Growth of Barium Strontium Titanate

F. J. Altermann*¹; W. Rheinheimer¹; M. J. Hoffmann¹

1. Karlsruhe Institute of Technology, Institute for Applied Materials – Ceramic Materials and Technologies, Germany

11:45 AM

(EAM-BASIC-S5-006-2018) The Influence of Impurities and Second Phase Particles on the Microstructural Evolution of Alumina

R. Moshe*¹; W. D. Kaplan¹

1. Technion - Israel Institute of Technology, Israel

12:00 PM

(EAM-BASIC-S5-007-2018) Surface Faceting of Barium Strontium Titanate Alloys

M. J. Michie*¹; F. J. Altermann²; W. Rheinheimer²; C. Handwerker¹; J. Blendell¹

1. Purdue University, Materials Engineering, USA

2. Karlsruhe Institute of Technology, Germany

ELECTRONICS DIV S2: Energy Applications of Electronic and Ferroic Ceramics: Synthesis, Characterization, and Theory

Energy Applications of Electronic and Ferroic Ceramics

Room: Citrus B

Session Chair: Paul Evans, University of Wisconsin

10:00 AM

(EAM-ELEC-S2-001-2018) Flexocaloric Response of Epitaxial Ferroelectric Films (Invited)

H. Khassaf¹; T. Patel*¹; R. Hebert¹; P. Alpay¹

1. University of Connecticut, Materials Science and Engineering, USA

10:30 AM**(EAM-ELEC-S2-002-2018) NSMM Modeling and Design of Energy Conversion Materials**S. Tidrow*¹

1. Alfred University, USA

10:45 AM**(EAM-ELEC-S2-003-2018) Electrocaloric effects in Pb(Nb,Zr,Sn,Ti)O₃ ceramics near ferroelectric and antiferroelectric phase transitions**T. Usui*¹; S. Hirose¹; X. Moya²; N. D. Mathur²

1. Murata Manufacturing Co., Ltd., Japan
2. University of Cambridge, United Kingdom

11:00 AM**(EAM-ELEC-S2-004-2018) Local electronic structure and covalent character in TiO₂ and BCZT electroceramics by core-hole spectroscopies.**G. M. Herrera*¹; O. Solis²; A. Reyes-Rojas³; L. Fuentes-Cobas³

1. CONACyT-CIMAV, Physics of Materials, Mexico
2. CIMAV, Nanotech, Mexico
3. CIMAV, Physics of Materials, Mexico

11:15 AM**(EAM-ELEC-S2-005-2018) The kinetics and grain orientation dependence of the electric field induced phase transition in Sm modified BiFeO₃ ceramics**J. Ormstrup*¹; M. Makarovic²; M. Majkut³; T. Rojac²; J. Walker⁴; H. W. Simons¹

1. Technical University of Denmark, Physics, Denmark
2. Jozef Stefan Institute, Electronic Ceramics, Slovenia
3. ESRF, France
4. Materials Research Institute, USA

11:30 AM**(EAM-ELEC-S2-006-2018) Magnetoelectric vibrational energy harvesters utilizing a phase transitional approach**M. Staruch¹; J. Yoo²; N. Jones²; P. Finkel*¹

1. U.S. Naval Research Laboratory, USA
2. Naval Surface Warfare Center Carderock Division, USA

11:45 AM**(EAM-ELEC-S2-007-2018) Time Resolved Neutron Single Crystal Diffraction: A Technique to Probe Polarization Switching in Organic Ferroelectrics**C. Fancher*¹; A. Schultz²; C. Hoffmann¹; X. Wang¹

1. Oak Ridge National Lab, USA
2. Argonne National Lab, USA

12:00 PM**(EAM-ELEC-S2-008-2018) Growth of orientation-controlled epitaxial (K, Na)NbO₃ thick films and their ferroelectric and piezoelectric properties**Y. Ito*¹; A. Tateyama¹; Y. Nakamura¹; T. Shimizu¹; M. Kurosawa¹; H. Funakubo¹; H. Uchida²; T. Shiraishi³; T. Kiguchi³; T. J. Konno³; M. Ishikawa³

1. Tokyo Institute of Technology, Japan
2. Sophia University, Japan
3. Tohoku University, Japan
4. Toin University of Yokohama, Japan

12:15 PM**(EAM-ELEC-S2-009-2018) Study of Bonding Material Utilizing Cold Sintering for High-Temperature Energy Harvesting Piezoelectric Device**W. Chen*²; A. Gurdal³; S. Tuncdemir³; J. Guo²; C. Randall¹

1. Pennsylvania State University, Materials Science and Engineering, USA
2. Pennsylvania State University, Material Research Institute, USA
3. Solid State Ceramics, Inc, USA

ELECTRONICS DIV S6: Electronics Materials for 5G Telecommunications Applications**Electronics Materials for 5G Telecommunications Applications I**

Room: Magnolia A/B

Session Chairs: Nate Orloff, NIST; Geoff Brennecka, Colorado School of Mines

10:00 AM**(EAM-ELEC-S6-001-2018) What is 5G and how can materials help?**N. Orloff*²; C. Long²; G. L. Brennecka¹

1. Colorado School of Mines, USA
2. NIST, USA
3. National Institute of Standards and Technology, Communications Technology Laboratory, USA

10:15 AM**(EAM-ELEC-S6-002-2018) Bulk Acoustic Wave (BAW) RF filters for 5th Generation Telecommunication (Invited)**R. Aigner*¹

1. Qorvo, Acoustic R&D, USA

10:45 AM**(EAM-ELEC-S6-003-2018) Tunable and Switchable RF blocks Based on Barium Strontium Titanate Films (Invited)**T. S. Kalkur*¹

1. University of Colorado Colorado Springs, Electrical and Computer Engineering, USA

11:15 AM**(EAM-ELEC-S6-004-2018) mm-Wave dielectric property study of glass and ceramics (Invited)**L. Cai*¹

1. Corning Incorporated, Science and Technology, USA

11:45 AM**(EAM-ELEC-S6-005-2018) How to Measure Relative Permittivity of Thin-Films and Substrates from 100 Hz to 125 GHz**E. Marks*²; N. Orloff¹; A. Hagerstrom²; C. Long²; J. Booth²; I. Takeuchi¹

1. University of Maryland, Materials Science And Engineering, USA
2. National Institute of Standards and Technology, Communications Technology Laboratory (CTL), USA

12:00 PM**(EAM-ELEC-S6-006-2018) PZT Based RF MEMS for Military and 5G Telecommunications Applications (Invited)**J. Pulskamp*¹; S. Bedair¹; R. Rudy¹; R. Benoit¹; D. M. Potrepka¹; R. G. Polcawich²

1. U.S. Army Research Laboratory, Sensors & Electron Devices Directorate, USA
2. US Army Research Laboratory, USA

ELECTRONICS DIV S10: Synthesis and Processing Science of Thin Films and Single Crystals - The Details of Engineering Structure-Property Relationships**Pioneers in Synthesis**

Room: Cypress A/B

Session Chairs: Jon-Paul Maria, North Carolina State University; Elizabeth Paisley, Sandia National Laboratories

10:00 AM**(EAM-ELEC-S10-001-2018) The Good, The Bad, and The Ugly – Redefining the Role of Defects in Complex-Oxide Thin Films (Invited)**L. W. Martin*¹

1. University of California, Berkeley, Materials Science and Engineering, USA

10:30 AM**(EAM-ELEC-S10-002-2018) Electronic Transport and Ferroelectric Switching in Ion-Bombarded, Defect-Engineered BiFeO₃ Thin Films**S. Saremi*¹; R. Xu¹; L. Dedon¹; R. Gao¹; L. W. Martin¹

1. University of California, Berkeley, Materials Science and Engineering, USA

10:45 AM**(EAM-ELEC-S10-003-2018) Reliability of Piezoelectric Microelectromechanical Systems (Invited)**S. Trolrier-McKinstry*¹

1. Pennsylvania State University, Materials Science and Engineering, USA

11:15 AM**(EAM-ELEC-S10-004-2018) Understanding the defect chemistry controlling DC resistance degradation in PZT films**B. Akkopru Akgun*¹; T. J. Bayer¹; K. Tsuji¹; C. Randall¹; M. Lanagan²; S. Trolrier-McKinstry¹

1. Pennsylvania State University, Materials Science and Engineering, USA
2. Pennsylvania State University, Engineering Science and Mechanics, USA

11:30 AM**(EAM-ELEC-S10-005-2018) Nucleation Studies of In-situ Sputtered Lead Zirconate Titanate Thin Films**C. Y. Cheng*¹; K. Grove²; B. Gibbons²; R. Benoit³; D. M. Potrepka³; J. Mulcahy³; G. R. Fox⁴; R. G. Polcawich⁵; S. Trolrier-McKinstry¹

1. Pennsylvania State University, Materials Science and Engineering, USA
2. Oregon State University, School of Mechanical, Industrial, and Mechanical Engineering, USA
3. US Army Research Laboratory, Sensors and Electron Devices Directorate, USA
4. Fox Materials Consulting, LLC, USA
5. Defense Advanced Research Projects Agency, USA

11:45 AM**(EAM-ELEC-S10-006-2018) Investigating the Dynamic Evolution of Ceramic Materials in Energy Storage Systems (Invited)**M. McDowell*¹; F. J. Quintero Cortes²

1. Georgia Institute of Technology, Mechanical Engineering, Materials Science and Engineering, USA
2. Georgia Institute of Technology, Materials Science and Engineering, USA

ELECTRONICS DIV S11: Superconducting Materials and Applications**Superconducting Materials I**

Room: Citrus A

Session Chair: Gang Wang, Institute of Physics, Chinese Academy of Sciences

10:00 AM**(EAM-ELEC-S11-001-2018) Electronic nematicity in a copper oxide superconductor (Invited)**J. Wu*¹

1. Brookhaven National Laboratory, Condensed Matter Physics, USA

10:30 AM**(EAM-ELEC-S11-002-2018) Single Crystal Growth and Doping of Possible Chromium Analogues to Fe-based Superconductors**M. A. Susner*²; R. Jishi²; J. Rodriguez²; T. Bullard³; T. J. Haugan¹

1. Air Force Research Lab, AFRL/RQJM, USA
2. California State University, Los Angeles, Department of Physics and Astronomy, USA
3. Air Force Research Lab, Aerospace Systems Directorate, USA

10:45 AM**(EAM-ELEC-S11-003-2018) Phase diagram of single-crystalline Eu(Fe_{1-x}Co_x)₂As₂ (x ≤ 0.24) grown by transition metal arsenide flux**G. Wang*¹; W. R. Meier²; W. E. Straszheim³; J. Slagle³; S. Bud'ko³; P. C. Caneld²

1. Institute of Physics, Chinese Academy of Sciences, China
2. Ames Laboratory, Iowa State University, USA
3. Civil and Construction Engineering Department, Iowa State University, USA

11:00 AM**(EAM-ELEC-S11-004-2018) Large negative magnetoresistance of a nearly Dirac material EuMnSb₂ (Invited)**K. Yamaura*¹

1. National Institute for Materials Science, Japan

11:30 AM**(EAM-ELEC-S11-005-2018) Thermal expansion and high magnetic field electrical transport measurements on Fe substituted URu₂Si₂ (Invited)**S. Ran*¹

1. University of Maryland, Material Science and Engineering, USA

12:00 PM**(EAM-ELEC-S11-006-2018) Carbon's allotropy towards becoming the lightest magnetic superconductor (Invited)**N. Gheorghiu*²; C. Ebbing³; T. J. Haugan¹

1. Air Force Research Lab, AFRL/RQJM, USA
2. UES, Inc., USA
3. University of Dayton Research Institute, USA

ELECTRONICS DIV S12: Thermal Transport and Storage in Functional Materials and Devices**Thermal Transport and Storage**

Room: Orange D

Session Chair: Alp Sehirliglu, Case Western Reserve University

10:00 AM**(EAM-ELEC-S12-001-2018) What is the likely value of the thermal conductivity of my ceramic material? (Invited)**D. R. Clarke*¹

1. Harvard University, School of Engineering and Applied Sciences, USA

10:30 AM**(EAM-ELEC-S12-002-2018) Tuning Thermal Transport in Two-Dimensional Transition Metal Dichalcogenides**L. Li*¹

1. Boise State University, Micron School of Materials Science and Engineering, USA

10:45 AM**(EAM-ELEC-S12-003-2018) Phonon Thermal Transport in Ultra-Wide Bandgap β-Ga₂O₃**B. Foley*¹; S. Graham¹

1. Georgia Institute of Technology, George W. Woodruff School of Mechanical Engineering, USA

11:00 AM**(EAM-ELEC-S12-004-2018) Characterization of thermal transport across cracks in optical materials**B. F. Donovan*²; J. LaFlam¹; R. Warzoha¹

1. United States Naval Academy, Mechanical Engineering, USA
2. United States Naval Academy, Physics, USA

11:15 AM**(EAM-ELEC-S12-005-2018) Thermal conductivity mapping of iridium oxide using a combined non-contact and contact mode scanning hot probe technique**A. A. Wilson*²; M. Rivas¹

1. US Army Research Laboratory, Sensors and Electron Devices Directorate, USA

11:30 AM**(EAM-ELEC-S12-006-2018) Characterizing Novel Transducers for High Temperature Thermal Measurements Using Time Domain Thermoreflectance**B. D. Butler*¹; C. M. Rost¹; J. L. Braun¹; K. Ferri²; L. Backman³; C. Dawes²; T. M. Borman²; E. J. Opila³; J. Maria²; P. E. Hopkins¹

1. University of Virginia, Mechanical and Aerospace Engineering, USA
2. North Carolina State University, USA
3. University of Virginia, Materials Science & Engineering, USA

ELECTRONICS DIV S13: Advanced Electronic Materials: Processing, Structure, Properties, and Applications

Advanced Electronic Materials I: Processing

Room: Orange C

Session Chairs: Satoshi Wada, University of Yamanashi;
Matjaz Spreitzer, Jozef Stefan Institute

10:00 AM

(EAM-ELEC-S13-001-2018) Strange Low Temperature Preparation of Perovskite-based Nano-complex Ceramics by Solvothermal Solidification Method (Invited)

S. Wada*¹

1. University of Yamanashi, Material Science and Technology, Japan

10:30 AM

(EAM-ELEC-S13-002-2018) Growth Peculiarities of Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃ Epitaxial Thin Films on SrTiO₃ Substrates Using Pulsed-Laser Deposition (Invited)

M. Spreitzer*¹; U. Gabor¹; H. Uršič²; E. Tchernychova³; D. Suvorov¹

1. Jozef Stefan Institute, Advanced Materials Department, Slovenia
2. Jozef Stefan Institute, Electronic Ceramics Department, Slovenia
3. National Institute of Chemistry, Department of Materials Chemistry, Slovenia

11:00 AM

(EAM-ELEC-S13-003-2018) Utilizing Cold Sintering Process for the Fabrication of Microwave dielectric materials and devices

J. Guo*¹; N. Pfeifferberger²; A. Baker¹; H. Guo²; M. Lanagan³; C. Randall³

1. Pennsylvania State University, USA
2. Pennsylvania State University, Dept. of Engineering Science and Mechanics, USA
3. Pennsylvania State University, Materials Science and Engineering, USA
4. Pennsylvania State University, Materials Research Institute, USA
5. SABIC, USA

11:15 AM

(EAM-ELEC-S13-004-2018) Low temperature sintering techniques: Paving the way to new ceramic materials

T. Herisson de Beauvoir*¹; A. Ndayishimiye³; J. Guo²; Z. Xuetong¹; G. Goglio³; C. Elissalde³; M. Josse²; C. Randall¹

1. Material Research Institute - Pennsylvania State University, USA
2. Pennsylvania State University, Materials Science and Engineering, USA
3. ICMCB-CNRS, France

11:30 AM

(EAM-ELEC-S13-005-2018) Freeze-Casting of High Temperature Dielectric Composites

E. Patterson*²; M. Baczkowski³; E. Gorzkowski¹

1. Naval Research Lab, USA
2. ASEE, USA
3. University of Connecticut, USA

11:45 AM

(EAM-ELEC-S13-006-2018) Dielectric and energy storage properties of Na(Nb_{1-x}Ta_x)O₃ ceramics prepared by spark plasma sintering

J. Bian*²; D. Suvorov¹

1. Jozef Stefan Institute, Advanced Materials, Slovenia
2. Shanghai University, Department of Inorganic Materials, China

12:00 PM

(EAM-ELEC-S13-007-2018) Ceramics Intergranular Contacts in the Frame of Fractal Hull

V. Mitic*¹; L. Kocić²; V. Paunović²

1. Serbian Academy of Sciences, Institute of Technical Sciences, Serbia
2. Faculty of Electronic Engineering, University of Nis, Serbia

BASIC SCIENCE DIV S4: Fundamentals of Mechanical Response

Mechanical Behavior

Room: Nautilus C

Session Chairs: Ivar Reimanis, Colorado School of Mines;
Gerhard Dehm, Max-Planck-Institute for Eisenforschung GmbH

2:00 PM

(EAM-BASIC-S4-001-2018) Chemo-Mechanical Failure Mechanisms in Ceramic Nanocomposites (Invited)

B. W. Sheldon*¹

1. Brown University, School of Engineering, USA

2:30 PM

(EAM-BASIC-S4-002-2018) Ferroelastic switching as a route to enhanced toughness: Understanding the role of coercive stress (Invited)

C. S. Smith¹; J. A. Krogstad*¹

1. University of Illinois at Urbana-Champaign, Materials Science and Engineering, USA

3:00 PM

(EAM-BASIC-S4-003-2018) Combining high strength and moderate ductility in a novel ceramic coating: A combined ab initio and micromechanical study on Mo₂BC

R. Soler*¹; S. Gleich¹; H. Bolvardi²; C. Kirchlechner¹; J. M. Schneider²; C. Scheu¹; G. Dehm¹

1. Max-Planck-Institute for Eisenforschung GmbH, Germany
2. RWTH Aachen University, Germany

3:15 PM

(EAM-BASIC-S4-004-2018) Organically linked iron oxide nanoparticle supercrystals with exceptional isotropic mechanical properties

G. A. Schneider*¹; B. Domenech¹; D. Giuntini¹; B. Bor¹; D. Benke¹

1. Hamburg University of Technology, Germany

3:30 PM

(EAM-BASIC-S4-005-2018) Bond length, elastic and thermal properties as a function of crystallite-size in unary nano-oxides

S. Chan*¹

1. Columbia University, Applied Physics, USA

BASIC SCIENCE DIV S5: Morphology Evolution and Microstructure Characterization

Modeling and Characterization

Room: Nautilus B

Session Chair: Dan Lewis, Rensselaer Polytechnic Institute

2:00 PM

(EAM-BASIC-S5-008-2018) Microstructure and Kinetics Associated with First-Order Phase Transformations (Invited)

J. Rickman*¹

1. Lehigh University, Materials Science and Engineering, USA

2:30 PM

(EAM-BASIC-S5-009-2018) In-situ SEM study of crystal faceting and surfaces during selective reduction of metals from oxides (Invited)

S. T. Misture*¹

1. Alfred University, MSE, USA

3:00 PM

(EAM-BASIC-S5-010-2018) Surface Faceting Behavior in NiO-MgO

D. Lowing*¹; C. Handwerker¹; J. Blendell¹

1. Purdue University, USA

3:15 PM

(EAM-BASIC-S5-011-2018) Novel Processing Routes to Bulk Nanostructured Ceramics (Invited)

E. Gorzkowski*¹

1. Naval Research Lab, USA

3:45 PM**(EAM-BASIC-S5-012-2018) Innovative Processing and Scalable Consolidation of Metal-Ceramic Nanocomposites**K. Anderson*; R. P. Vinci¹; H. M. Chan¹

1. Lehigh University, USA

4:00 PM**(EAM-BASIC-S5-013-2018) Modeling Domain and Topological Defect Structure Evolution in Hexagonal Manganite Using Phase-field Simulations (Invited)**F. Xue¹; X. Wang²; S. Cheong³; L. Chen*¹

1. The Pennsylvania State University, Materials Science and Engineering, USA
2. Beijing University of Technology, China
3. Rutgers University, USA

ELECTRONICS DIV S6: Electronics Materials for 5G Telecommunications Applications**Electronics Materials for 5G Telecommunications Applications II**

Room: Magnolia A/B

Session Chairs: Nate Orloff, NIST; Thomas Wallis, National Institute of Standards and Technology

2:00 PM**(EAM-ELEC-S6-007-2018) Microwave Characterization of Nanomaterials for 5G Applications (Invited)**T. M. Wallis*¹; S. Berweger¹; P. Kabos¹

1. National Institute of Standards and Technology, Applied Physics Division, USA

2:30 PM**(EAM-ELEC-S6-008-2018) Defect Mitigating (SrTiO₃)_n(BaTiO₃)_mSrO Superlattices for mmWave Tunable Dielectrics (Invited)**N. Dawley*¹; X. Lu²; A. Hagerstrom²; G. Olsen³; M. Holtz²; C. Lee¹; J. Zhang¹; C. Fennie³; D. Muller³; N. Orloff¹; J. Booth²; D. Schlom¹

1. Cornell University, Materials Science and Engineering, USA
2. NIST, USA
3. Cornell University, Applied and Engineering Physics, USA

3:00 PM**(EAM-ELEC-S6-009-2018) Broadband nonlinear dielectric spectroscopy of materials with polar nano-regions (Invited)**A. Hagerstrom*¹; E. Marks²; C. Long¹; N. Orloff¹

1. National Institute of Standards and Technology, Communications Technology Laboratory, USA
2. University of Maryland, Materials Science And Engineering, USA

3:30 PM**Break****4:00 PM****(EAM-ELEC-S6-010-2018) Enhanced Quality Factor of Mg₂TiO₄-based Ceramics at Microwave Frequencies**E. Kim*¹

1. Kyonggi University, Department of Materials Engineering, Republic of Korea

4:15 PM**(EAM-ELEC-S6-011-2018) Continuously tunable acoustic-wave-resonator-based RF filters for next generation wireless communication transceivers**D. Psychogiou*¹

1. University of Colorado, Boulder, Electrical Computer and Energy Engineering, USA

4:45 PM**(EAM-ELEC-S6-012-2018) Tunable Photoconductive Resistor for Multi-State Calibrations and Materials Characterization**J. Drisko*¹; X. Ma²; J. Davila-Rodriguez¹; J. Booth¹; A. Feldman¹; F. Quinlan¹; N. Orloff¹; C. Long¹

1. National Institute of Standards and Technology, USA
2. Lehigh University, USA

5:00 PM**(EAM-ELEC-S6-013-2018) Nondestructive Electrical Property Measurements by Multireflect Thru to 110GHz**N. B. Popovic*²; J. Drisko²; S. E. Shaheen¹; E. Garbozi²; C. Long²; N. Orloff²

1. University of Colorado, Boulder, Electrical Engineering, USA
2. National Institute of Standards and Technology, USA

ELECTRONICS DIV S8: Multifunctional Nanocomposites**Thin Film Growth: A STEM Study**

Room: Orange D

Session Chair: Hyoungjeen Jeon, Pusan National University

2:00 PM**(EAM-ELEC-S8-001-2018) Native formation of oxide/oxide and oxide/nitride nano-composites (Invited)**J. LeBeau*¹; J. Dycus¹; W. Xu¹; P. Bowes¹; K. Mirrielees¹; E. D. Grimley¹; D. Irving¹

1. North Carolina State University, Materials Science & Engineering, USA

2:30 PM**(EAM-ELEC-S8-002-2018) Atomic-Scale Analysis of Phases of Layered In₂Se₃ for high performance photodetectors (Invited)**Z. Wang*¹

1. International Iberian Nanotechnology Laboratory (INL), Department of Quantum Materials, Science and Technology, Portugal

3:00 PM**(EAM-ELEC-S8-003-2018) Metrology of polar displacements across interfaces and domain walls in complex oxides: A high resolution aberration-corrected electron microscopy study (Invited)**N. Alem*¹

1. Pennsylvania State University, Materials Science and Engineering, USA

3:30 PM**Break****Thin Film Growth and Functionalities**

Room: Orange D

Session Chair: Julia Mundy, Harvard University

4:00 PM**(EAM-ELEC-S8-004-2018) Magnetic and structural order and deviations from rule of mixtures in entropy stabilized oxide heterostructures**P. B. Meisenheimer*¹; T. Kratofil¹; J. Heron¹

1. University of Michigan, Materials Science and Engineering, USA

4:15 PM**(EAM-ELEC-S8-005-2018) Synthesis of Ruddlesden-Popper strontium iridate epitaxial thin films by kinetic control**X. Liu*¹; Y. Cao¹; B. Pal¹; S. Middey⁴; M. Kareev¹; Y. Choi³; P. Shafer²; D. Haskel¹; E. Arenholz²; J. Chakhalian¹

1. Rutgers University, Physics & Astronomy, USA
2. Lawrence Berkeley National Laboratory, USA
3. Argonne National Laboratory, USA
4. Indian Institute of Science, India

4:30 PM**(EAM-ELEC-S8-006-2018) On the epitaxial relationships between CdO thin films and sapphire substrates**E. D. Grimley*¹; K. Kelley¹; E. Sachet¹; J. Maria¹; J. LeBeau¹

1. North Carolina State University, Materials Science and Engineering, USA

4:45 PM**(EAM-ELEC-S8-007-2018) Time-dependent thermorefectivity of doped CdO thin films with mid-IR surface plasmon polaritons**E. Radue*²; E. Runnerstrom¹; J. Maria¹; P. E. Hopkins²

1. North Carolina State University, Materials Science and Engineering, USA
2. University of Virginia, Mechanical and Aerospace Engineering, USA

5:00 PM**(EAM-ELEC-S8-008-2018) Interface-Thickness Optimization of Lead-Free Oxide Multilayer Capacitors for High-Performance Energy Storage (Invited)**M. Liu^{*}; Z. Sun¹; L. Wang²; Z. Liang²; Q. Fan²; L. Lu²; C. Ma³; X. Lou²; H. Wang²; C. Jia²

1. Xi'an Jiaotong University, School of Microelectronics, China
2. Xi'an Jiaotong University, China
3. Xi'an Jiaotong University, Material Science and Engineering, China

ELECTRONICS DIV S9: Substitution and Sustainability in Functional Materials and Devices**Substitution and Sustainability in Functional Materials I**

Room: Citrus B

Session Chair: Derek Sinclair, University of Sheffield

2:00 PM**(EAM-ELEC-S9-001-2018) Low-temperature bio-inspired synthesis of functional oxides (Invited)**R. Boston^{*}; I. M. Reaney¹; D. C. Sinclair¹

1. University of Sheffield, Materials Science & Engineering, United Kingdom

2:30 PM**(EAM-ELEC-S9-003-2018) Thermoelectric property optimization of reduced Sr_{1-3x/2}RE_xTiO_{3-δ}**W. L. Schmidt^{*}; G. D. Lewin¹; A. Iyasara¹; D. C. Sinclair¹; I. M. Reaney¹

1. University of Sheffield, Materials Science & Engineering, United Kingdom

2:45 PM**(EAM-ELEC-S9-004-2018) Materials and manufacturing supply chain life cycle sustainability: The next frontier (Invited)**L. Koh^{*}

1. The University of Sheffield, Advanced Resource Efficiency Centre, United Kingdom

3:15 PM**Break****3:45 PM****(EAM-ELEC-S9-005-2018) Grain Boundary Engineering Opportunities for Novel Composites with the Aid of Cold Sintering (Invited)**C. Randall^{*}; J. Guo³; Z. Xuetong³; T. Herisson de Beauvoir¹

1. MRI - Pennsylvania State University, USA
2. Pennsylvania State University, Materials Science and Engineering, USA
3. Pennsylvania State University, USA

4:15 PM**(EAM-ELEC-S9-006-2018) Development of Lead-free PTCR Materials**D. U. Seifert^{*}; M. J. Hoffmann¹; M. Hinterstein¹

1. Karlsruhe Institute of Technology, Institute for Applied Materials, Germany

4:30 PM**(EAM-ELEC-S9-007-2018) Material characteristics from Cold Sintering Process (CSP) compared to conventional sintering**R. Floyd^{*}; X. Kang¹; J. Maria²

1. North Carolina State University, USA
2. Pennsylvania State University, USA

4:45 PM**(EAM-ELEC-S9-008-2018) The Influence of Electrode Geometry on the Average and Local Electrical Responses of Electroceramics**R. A. Veazey^{*}; J. S. Dean¹; A. S. Gandy¹; D. C. Sinclair¹

1. University of Sheffield, Materials Science and Engineering, United Kingdom

5:00 PM**(EAM-ELEC-S9-009-2018) Finite Element Modelling of the Electrical Microstructure of Rough Interfaces**J. P. Heath^{*}; J. S. Dean¹; J. Harding¹; D. C. Sinclair¹

1. University of Sheffield, Material Science and Engineering, United Kingdom

ELECTRONICS DIV S10: Synthesis and Processing Science of Thin Films and Single Crystals - The Details of Engineering Structure-Property Relationships**Refined Synthesis Routes to Advance and Enable Properties I**

Room: Cypress A/B

Session Chair: Mark Losego, Georgia Institute of Technology

2:00 PM**(EAM-ELEC-S10-007-2018) Disorder and fluctuations in superconducting BaPb_{1-x}Bi_xO₃ epitaxial thin films (Invited)**D. T. Harris^{*}; N. Campbell²; R. Uecker²; D. Schlom¹; M. Rzchowski²; C. Eom¹

1. University of Wisconsin-Madison, Materials Science and Engineering, USA
2. University of Wisconsin - Madison, Physics, USA
3. Leibniz Institute for Crystal Growth, Germany
4. Cornell University, Department of Materials Science and Engineering, USA

2:30 PM**(EAM-ELEC-S10-008-2018) Domain switching in epitaxial ferroelectric HfO₂ films**T. Shimizu^{*}; T. Mimura¹; T. Kiguchi²; T. Shiraishi²; A. Akama²; T. J. Konno²; O. Sakata³; K. Yoshio²; H. Funakubo¹

1. Tokyo Institute of Technology, Japan
2. Tohoku University, Japan
3. National Institute for Materials Science (NIMS), Japan

2:45 PM**(EAM-ELEC-S10-009-2018) Thickness Dependence of Pyroelectric and Ferroelectric Response in (Hf,Zr)O₂**S. W. Smith^{*}; M. D. Henry¹; J. Ihlefeld²

1. Sandia National Laboratories, USA
2. University of Virginia, Department of Materials Science and Engineering, USA

3:00 PM**(EAM-ELEC-S10-010-2018) Domain Wall Contribution to Room Temperature Phonon Scattering in Epitaxial PbZr_{0.20}Ti_{0.80}O₃ on SrTiO₃**E. A. Paisley^{*}; B. M. Foley¹; J. Gaskins¹; D. Scrymgeour¹; J. Michael¹; B. McKenzie¹; D. Medlin¹; J. Maria²; P. E. Hopkins³; J. Ihlefeld²

1. Sandia National Laboratories, USA
2. North Carolina State University, Materials Science and Engineering, USA
3. University of Virginia, Department of Materials Science and Engineering, USA
4. University of Virginia, Mechanical and Aerospace Engineering, USA

3:15 PM**Break****Refined Synthesis Routes to Advance and Enable Properties II**

Room: Cypress A/B

Session Chair: Sean Smith, Sandia National Laboratories

4:00 PM**(EAM-ELEC-S10-011-2018) Novel plasmonic metamaterials enabled by epitaxial CdO multilayer heterostructures (Invited)**K. Kelley^{*}; J. Maria¹; E. Runnerstrom¹; E. Sachtel¹

1. North Carolina State University, Materials Science and Engineering, USA

4:30 PM**(EAM-ELEC-S10-012-2018) Quantifying the Processing Kinetics of Vapor Phase Infiltration for Organic-Inorganic Hybrid Materials Synthesis**M. D. Losego^{*1}; C. Leng¹

1. Georgia Institute of Technology, Materials Science and Engineering, USA

4:45 PM**(EAM-ELEC-S10-013-2018) Development of lattice-matched Mg_{1-x}Ca_xO gate oxides for (Al)GaN power transistors**P. Dickens^{*4}; E. A. Paisley³; B. Gunning³; S. W. Smith²; M. Brumbach³; S. Atcitty³; M. D. Losego¹; J. Maria²; J. Ihlefeld⁴

1. Georgia Institute of Technology, School of Materials Science and Engineering, USA
2. North Carolina State University, Materials Science and Engineering, USA
3. Sandia National Laboratories, USA
4. Sandia National Laboratories, 1816, USA
5. Sandia National Laboratories, Electronic, Optical, and Nano Materials, USA
6. University of Virginia, Department of Materials Science and Engineering, USA

5:00 PM**(EAM-ELEC-S10-014-2018) High Entropy Ultra-High Temperature Thin Films: Synthesis and Characterization**T. M. Borman^{*1}; M. D. Hossain¹; Z. Rak¹; D. Brenner¹; T. Harrington³; K. S. Vecchio³; E. A. Paisley²; J. Maria¹

1. North Carolina State University, Materials Science and Engineering, USA
2. Sandia National Laboratories, USA
3. University of California, San Diego, Department of NanoEngineering, USA

5:15 PM**(EAM-ELEC-S10-015-2018) Evidence for Entropy Stabilization in Oxide Thin Film Growth**G. N. Kotsonis^{*1}; C. M. Rost²; D. T. Harris³; J. Maria¹

1. North Carolina State University, Materials Science and Engineering, USA
2. University of Virginia, Mechanical and Aerospace Engineering, USA
3. University of Wisconsin - Madison, Materials Science and Engineering, USA

5:30 PM**(EAM-ELEC-S10-016-2018) Underlying Mechanisms Controlling Thermal Properties in Entropy Stabilized Oxide Thin Films**C. M. Rost^{*1}; J. L. Braun¹; G. N. Kotsonis²; D. T. Harris³; J. Maria²; P. E. Hopkins¹

1. University of Virginia, Mechanical and Aerospace Engineering, USA
2. North Carolina State University, Materials Science and Engineering, USA
3. University of Wisconsin Madison, Materials Science and Engineering, USA

ELECTRONICS DIV S11: Superconducting Materials and Applications**Superconducting Materials II**

Room: Citrus A

Session Chair: Timothy Haugan, U.S. Air Force Research Laboratory

2:00 PM**(EAM-ELEC-S11-007-2018) High-throughput syntheses and fast screening of cuprate and FeSe thin films (Invited)**K. Jin^{*1}

1. Institute of Physics, Chinese Academy of Sciences, National Lab for Superconductivity, China

2:30 PM**(EAM-ELEC-S11-008-2018) Growth of atomically flat NbN thin films and development of in situ two-coil mutual inductance technique (Invited)**J. Jia^{*1}

1. Shanghai Jiao Tong University, Physics and Astronomy, China

3:00 PM**(EAM-ELEC-S11-009-2018) Manipulation of micro-strain to generate strong and isotropic artificial pinning centers in YBCO nanocomposite films (Invited)**J. Wu^{*1}

1. University of Kansas, USA

3:30 PM**Break****3:45 PM****(EAM-ELEC-S11-010-2018) Comparison of the Flux Pinning Landscape of YBa₂Cu₃O_{7-δ} Thin Films with Single and Mixed Phase Additions BaMO₃ + Z: M = Hf, Sn, Zr and Z = Y₂O₃, Y₂BaCuO₅**M. Sebastian^{*1}; T. Bullard⁴; C. Ebbing¹; G. Panasyuk⁴; J. Huang⁵; C. F. Tsai⁵; W. Zhang⁵; H. Wang³; B. Gautum²; C. Shihong²; J. Wu²; T. J. Haugan²

1. UDRI, USA
2. Air Force Research Lab, AFRL/RQQM, USA
3. University of Kansas, Dept. of Astronomy & Physics, USA
4. UES, USA
5. Purdue University, Dept. of Materials Engineering, USA

4:00 PM**(EAM-ELEC-S11-011-2018) Comparison of edge-barrier pinning in micron scale YBCO bridges made by photolithography and ultrafast laser ablation**K. Lange^{*1}; J. Bulmer¹; A. Di Bernardo²; J. Feighan²; T. J. Haugan³; W. O'Neill¹; J. Robinson²; M. Sparkes¹

1. University of Cambridge, Institute for Manufacturing, United Kingdom
2. University of Cambridge, Department of Materials Science & Metallurgy, United Kingdom
3. US Air Force Research Lab, AFRL/RQQM, USA

4:15 PM**(EAM-ELEC-S11-012-2018) Development of High-Energy-Density Superconducting-Magnetic-Energy-Storage (SMES) for Aerospace Applications (Invited)**T. J. Haugan^{*2}; T. Bullard¹

1. UES Inc, U.S. Air Force Research Laboratory, USA
2. U.S. Air Force Research Laboratory, USA

4:45 PM**(EAM-ELEC-S11-013-2018) Tunable Broadband Radiation Generated Via Ultrafast Laser Illumination of an Inductively Charged Superconducting Ring**T. Bullard^{*5}; J. Bulmer³; M. Ferdinandus⁴; J. Murphy²; T. J. Haugan¹

1. Air Force Research Lab, AFRL/RQQM, USA
2. University of Dayton Research Institute, USA
3. University of Cambridge, Department of Materials Science and Metallurgy, United Kingdom
4. Air Force Institute of Technology, USA
5. UES Inc., USA

5:00 PM**(EAM-ELEC-S11-014-2018) Terahertz emission from the intrinsic Josephson junctions of high-symmetry thermally-managed Bi₂Sr₂CaCu₂O_{8+δ} microstrip antennas (Invited)**R. A. Klemm^{*1}

1. University of Central Florida, Physics, USA

5:30 PM**(EAM-ELEC-S11-015-2018) Possible terahertz emissions from the intrinsic Josephson junction in thermally managed annular microstrip antennas of the Bi₂Sr₂CaCu₂O_{8+δ}**S. W. Bonnough^{*1}; R. A. Klemm¹

1. University of Central Florida, Physics, USA

ELECTRONICS DIV S13: Advanced Electronic Materials: Processing, Structure, Properties, and Applications**Advanced Electronic Materials II: Ferroelectric Materials**

Room: Orange C

Session Chair: Zuo-Guang Ye, Simon Fraser University

2:00 PM**(EAM-ELEC-S13-008-2018) Recent Developments in Relaxor-PT Piezoelectric Ceramics and Crystals (Invited)**T. Shrout^{*1}; F. Li¹; D. Lin¹; J. Luo²

1. Pennsylvania State University, USA
2. TRS Technologies, INC., USA

2:30 PM**(EAM-ELEC-S13-009-2018) Multiferroic Morphotropic Phase Boundaries and Related Properties in BiFeO₃-Based Solid Solutions (Invited)**Z. Ye*¹

1. Simon Fraser University, Canada

3:00 PM**(EAM-ELEC-S13-010-2018) Stabilization and Sintering of Pb(In_{1/2}Nb_{1/2})O₃-Pb(Zn_{1/3}Nb_{2/3})O₃-PbTiO₃ Ceramics**M. J. Brova*¹; B. H. Watson¹; Y. Chang¹; E. R. Kupp¹; J. Wu¹; M. A. Fanton²; R. J. Meyer²; G. L. Messing¹

1. The Pennsylvania State University, Material Science and Engineering, USA
2. The Pennsylvania State University, Applied Research Laboratory, USA

3:15 PM**(EAM-ELEC-S13-011-2018) Hard-Piezoelectric Ceramics for Low Temperature Co-Fired Multilayer Piezoelectric Transformers**S. Dursun*¹; A. Gurdal²; S. Tuncdemir²; C. Randall²

1. Pennsylvania State University, Materials Research Institute, USA
2. Pennsylvania State University, Materials Science and Engineering, USA
3. Solid State Ceramics, Inc., USA

3:30 PM**Break****Reliability of Electronic Materials and Devices**

Room: Orange C

Session Chair: Matthew Cabral, North Carolina State University

4:00 PM**(EAM-ELEC-S13-012-2018) Complexity of Test for Non-linear Components and Systems**J. T. Evans*¹

1. Radiant Technologies, Inc., USA

4:15 PM**(EAM-ELEC-S13-013-2018) Effects of Boundary Conditions on Resistance Degradation of SrTiO₃**D. Long*¹; B. Cai¹; E. C. Dickey¹

1. North Carolina State University, Materials Science and Engineering, USA

4:30 PM**(EAM-ELEC-S13-014-2018) Hygroscopic and Piezoelectric Properties of KNN-based Ceramics**M. Zhuk*¹; J. Glaum¹; M. Einarsrud¹

1. Norwegian University of Science and Technology, Department of Materials Science and Engineering, Norway

4:45 PM**(EAM-ELEC-S13-015-2018) Impact of porosity on piezoelectric and mechanical performance of BaTiO₃ ceramics**K. Skaar Fedje¹; M. Einarsrud¹; J. Glaum*¹

1. Norwegian University of Science and Technology NTNU, Materials Science and Engineering, Norway

Poster Session

Room: Orange A/B

5:30 PM**(EAM-P001-2018) Electric-field assisted bonding of YSZ/alumina bilayers**C. Grimley*¹; A. Prette²; J. Schwartz²; E. C. Dickey¹

1. North Carolina State University, Materials Science and Engineering, USA
2. Lucideon, United Kingdom
3. Pennsylvania State University, Department of Engineering Science and Mechanics, USA

(EAM-P002-2018) Ab-initio electrochemistry of transition-metal interfacesS. Mula*¹; V. Kolluru¹; K. Mathew¹; R. G. Hennig¹

1. University of Florida, Materials Science and Engineering, USA

(EAM-P003-2018) Electrocaloric effect, dielectric, ferroelectric and piezoelectric properties in normal and relaxor phases of La-doped PZT(65/35)S. Samanta*¹; V. Sankaranarayanan¹; K. Sethupathi¹

1. Indian Institute of Technology Madras, Department of Physics, India

(EAM-P004-2018) Effect of Mn-addition on broadband dielectric properties of PMN-10PT ceramicsR. Katiliute¹; M. Ivanov*¹; M. Vrabelj²; L. Fulanovic²; A. Bradesko²; Z. Kutnjak²; B. Malic²; J. Banys¹

1. Vilnius University, Lithuania
2. Jozef Stefan Institute, Slovenia

(EAM-P005-2018) Dielectric Response of the Methylammonium Lead Halide Solar Cell AbsorbersI. Anusca²; S. Balciunas¹; P. Gemeiner²; S. Svirskas¹; M. Sanljalp³; G. Lackner²; C. Fettkenhauer²; J. Belovickis¹; V. Samulionis¹; M. Simenas¹; E. Tornau⁴; M. Ivanov¹; B. Dkhil¹; J. Banys*¹; S. V. Vladimir¹; D. C. Lupascu³

1. Vilnius University, Lithuania
2. CentraleSupélec CNRS-UMR8580 Université Paris-Saclay, France
3. University of Duisburg-Essen, Germany
4. Center for Physical Sciences and Technology, Lithuania

(EAM-P006-2018) Enhanced Curie temperature and piezoelectric properties of Sn doped (x)(Ba_{0.82}Ca_{0.13}Sn_{0.05})TiO₃ - (1-x) Ba(Zr_{0.15}Ti_{0.85})O₃ perovskite systemV. Sarangi*¹; A. Pramanick¹

1. City University of Hong Kong, Materials Science and Engineering, Hong Kong

(EAM-P007-2018) Influence of KBT on the structure and ferroelectric properties of BCZT ceramicsM. N. Al-Aaraji*¹

1. University of Manchester, School of Materials, United Kingdom

(EAM-P008-2018) Ab-Initio Prediction of Novel 2D Group-III Oxides by Evolutionary AlgorithmsH. Lester*¹; B. Revard¹; M. Ashton¹; D. Gluhovic¹; R. G. Hennig¹

1. University of Florida, Materials Science and Engineering, USA
2. Cornell University, USA

(EAM-P009-2018) Effects of Dysprosium Oxide on Sintering Behavior and Electrical Conductivity of Samarium Doped CeriaS. L. Reis*¹; E. N. Muccillo¹

1. Energy and Nuclear Research Institute, Brazil

(EAM-P010-2018) Samaria-doped ceria with impregnation of molten lithium/potassium carbonate for application as CO₂ separation membranesT. Porfiro¹; E. N. Muccillo¹; F. Marques²; R. Muccillo*¹

1. Energy and Nuclear Research Institute, Brazil
2. University of Aveiro, Portugal

(EAM-P011-2018) Freeze casting of LAGP electrolyte for textured 3D all-solid-state lithium-ion battery multifunctional compositesW. Huddleston*¹; F. Dynys²; A. Sehrliglu¹

1. Case Western Reserve University, Department of Materials Science and Engineering, USA
2. NASA Glenn Research Center, USA

(EAM-P012-2018) Shape and size dependent phase transformations and field-induced behavior in ferroelectric nanoparticlesK. Pitike*¹; J. Mangeri¹; H. Whitelock²; T. Patel¹; P. Dyer¹; O. Heinonen³; P. Alpay¹; S. Nakhmanson¹

1. University of Connecticut, Materials Science and Engineering, USA
2. University of Connecticut, Department of Physics, USA
3. Argonne National Lab, Material Science Division, USA

(EAM-P013-2018) Mesoscale modeling of stress induced band-gap attenuation in ZnO NanowiresL. Kuna*¹; J. Mangeri¹; P. Gao²; S. Nakhmanson²

1. University of Connecticut, Physics, USA
2. University of Connecticut, Institute of Materials Science, USA

(EAM-P014-2018) Dielectric Properties of Ferroelectric Materials on Aerospace AlloysT. Patel^{*1}; P. Alpay¹; R. Hebert¹

1. University of Connecticut, Materials Science and Engineering, USA

(EAM-P015-2018) Effect of Gd₂O₃ additives on the electrical properties of ZnO varistor at different temperaturesF. H. Al-Hamed^{*1}

1. Najran University, Saudi Arabia

(EAM-P016-2018) Evaluation of coloration behavior with york-shell structured core-shell a-Fe₂O₃ nanorodR. Yu¹; G. An¹; Y. Kim^{*1}

1. Korea Institute of Ceramic Engineering and Technology (KICET), Republic of Korea

(EAM-P018-2018) Finite Element Modelling of Poly(Methyl Methacrylate)/Methyl Ammonium Lead Iodide CompositesC. D. Kennedy^{*1}; J. S. Dean¹; D. C. Sinclair¹; I. M. Reaney¹

1. The University of Sheffield, Material Science and Engineering, United Kingdom

(EAM-P019-2018) Electrical conductivity of ceria electrodes for use in MHD generatorsB. L. Wright^{*1}; M. Johnson¹; D. Cann¹; K. Kwong²; C. Woodside²1. Oregon State Univ, School of Mechanical, Industrial, and Manufacturing Engineering, USA
2. U.S. Department of Energy, National Energy Technology Laboratory, USA**(EAM-P020-2018) Electric-Field Induced Strains in (Bi_{0.5}Na_{0.5})TiO₃-(Bi_{0.5}K_{0.5})TiO₃-Based Piezoceramics**S. K. Gupta^{*1}; M. Hilliker¹; D. Cann¹

1. Oregon State Univ, School of Mechanical, Industrial, and Manufacturing Engineering, USA

(EAM-P021-2018) When do parallel pathways influence the brick work layer model in electroceramics and how should we analyse their impedance spectra?J. P. Heath^{*1}; J. S. Dean¹; J. Harding¹; D. C. Sinclair¹

1. University of Sheffield, Material Science and Engineering, United Kingdom

(EAM-P022-2018) Comparative study of macroscopic and nanoscale polarization switching in large area PLD grown PZT thin filmsM. Rath^{*1}

1. IIT Madras, Physics, India

(EAM-P023-2018) Field- and temperature-driven transitions in graphitic samples as signatures of superconducting fluctuationsN. Gheorghiu^{*2}; C. Ebbing²; T. J. Haugan¹1. Air Force Research Lab, AFRL/RQOM, USA
2. UES, Inc., USA
3. University of Dayton Research Institute, USA**(EAM-P024-2018) Status of Cryogenic/Superconducting Drivetrain Technologies for Electric Propulsion of Aircraft**T. J. Haugan^{*1}; G. Panasyuk²1. U.S. Air Force Research Laboratory, USA
2. UES Inc, U.S. Air Force Research Laboratory, USA**(EAM-P025-2018) Comparison Study of the Flux Pinning Enhancement of YBa₂Cu₃O_{7-δ} Superconductor with BaHfO₃ and Y₂O₃ Single and Mixed Phase Additions**M. Sebastian^{*2}; C. Ebbing²; T. Bullard²; W. Zhang⁴; J. Huang⁴; H. Wang⁴; B. Gautum⁵; C. Shihong²; J. Wu²; T. J. Haugan¹1. Air Force Research Lab, AFRL/RQOM, USA
2. UDRI, USA
4. Purdue University, School of Materials Engineering, USA
5. University of Kansas, Dept. of Physics & Astronomy, USA
6. UES, USA**(EAM-P026-2018) YBa₂Cu₃O₇ thin films with large, congruent, columnar Y₂BaCuO₅ pinning centers: Magnetization creep and decay**C. Myers^{*1}; M. Sebastian²; M. A. Susner²; M. D. Sumption¹; T. J. Haugan²1. Ohio State University, Materials Science and Engineering, USA
2. Air Force Research Lab, Aerospace Systems Directorate, USA**(EAM-P027-2018) Calorimetric Measurements of YBCO Conductors and Cables at High dB/dt in a Stator Machine Environment**T. J. Haugan^{*1}; J. P. Murphy²; M. D. Sumption³; E. W. Collings³; T. Bullard⁵1. U.S. Air Force Research Laboratory, AFRL/RQOM, USA
2. University of Dayton Research Inc, U.S. AFRL, USA
3. The Ohio State University, USA
5. UES Inc, U.S. Air Force Research Laboratory, USA**(EAM-P028-2018) Quasistatic Phononic Energy Transport between Nanoparticles Mediated by a Molecule**G. Y. Panasyuk^{*2}; K. L. Yerkes³; T. J. Haugan¹1. Air Force Research Lab, AFRL/RQOM, USA
2. UES Inc., USA
3. Air Force Research Lab, AFRL/RQOM, USA**(EAM-P029-2018) Designing Electromechanical Properties of (Na_{1/2}Bi_{1/2})TiO₃-Based Ferroelectrics Through A-Site Non-Stoichiometry**T. Frömling^{*1}; S. Steiner¹; A. Ayrikian²; M. Dürrschnabel¹; M. Leopoldo¹; H. Kleebe¹; H. Hutter³; K. G. Webber²; M. Acosta⁴1. Technische Universität Darmstadt, Materials Science, Germany
2. Friedrich-Alexander-Universität Erlangen-Nürnberg, Materials Science and Engineering, Germany
3. Technische Universität Wien, Institute of Chemical Technologies and Analytics, Austria
4. University of Cambridge, Materials Science and Metallurgy, United Kingdom**(EAM-P030-2018) Fractal Hull of Grains Cluster Boundary of Ceramics and Micro Impedances**V. Mitic^{*1}; V. Paunovic²; L. Kocic²1. Serbian Academy of Sciences, Institute of Technical Sciences, Serbia
2. Faculty of Electronic Engineering, University of Nis, Serbia**(EAM-P031-2018) Lead Free Thick Films Produced via Aerosol Deposition**E. Gorzkowski^{*1}; E. Patterson³; S. D. Johnson¹; D. Park²1. Naval Research Laboratory, USA
2. Korea Institute of Materials Science, Republic of Korea
3. ASEE, USA**(EAM-P032-2018) Cold Sintering Process of Magnetodielectrics for Radio Frequency (RF) Applications**S. El-Faouri^{*1}; I. M. Reaney¹

1. University of Sheffield, Materials Science and Engineering, United Kingdom

(EAM-P033-2018) Investigation of the Sintering and Microstructural Evolution of CuO-doped Ternary Relaxor-PbTiO₃ CeramicsB. H. Watson^{*1}; M. J. Brova¹; Y. Chang¹; E. R. Kupp¹; J. Wu¹; M. A. Fanton¹; R. J. Meyer¹; G. L. Messing¹

1. Pennsylvania State University, Materials Science & Engineering, USA

(EAM-P034-2018) Giant Energy Storage Performances and Wide Temperature Range of Lead-free Capacitors with Different Orientation on LSMO buffersZ. Sun^{*1}; M. Liu¹

1. Xi'an Jiaotong University, School of Microelectronics, China

(EAM-P035-2018) Processing and properties of textured polycrystalline LiTaO₃ ceramicsJ. Ivy^{*1}; G. L. Brennecke¹

1. Colorado School of Mines, USA

(EAM-P036-2018) Interfacial Charge Polarization in a Nano-Domained Polymer-Derived Amorphous SiAlCN CeramicH. Li^{*1}; L. An¹

1. University of Central Florida, Materials Science and Engineering, USA

(EAM-P037-2018) Temperature Stable Dielectrics Based on BaTiO₃-Bi(Zn_{1/2}Ti_{1/2})O₃-La(Zn_{1/2}Ti_{1/2})O₃-Pb(Ni_{1/3}Nb_{2/3})O₃Z. Colton^{*1}; D. Cann¹

1. Oregon State Univ, School of Mechanical, Industrial, and Manufacturing Engineering, USA

(EAM-P038-2018) Investigation of the Structural Changes of HfO₂ Powders through Doping with Gd and SrJ. Brodie^{*1}; B. S. Johnson¹; J. L. Jones¹

1. North Carolina State University, Materials Science and Engineering, USA

Basic Science Division Tutorial: Defect Chemistry in Perovskite Ceramics and its impact on Materials Processing and Properties

Room: Citrus A

7:40 PM

Introduction

7:45 PM

Derek Sinclair, Univ of Sheffield

8:25 PM

Roger de Souza, RWTH Aachen Univ

9:05 PM

Elizabeth Dickey, NC State Univ

Thursday, January 18, 2018

Plenary Session II

Room: Orange D

Session Chair: Brady Gibbons, Oregon State University

8:30 AM

Introduction

8:40 AM

(EAM-PLEN- 002-2018) New Materials Paradigm In Oxide Epitaxial Nanocomposite Thin Films and The Realisation of Enhanced Functionalities

J. MacManus-Driscoll*¹

1. University of Cambridge, Dept. of Materials Science, United Kingdom

9:30 AM

Break

BASIC SCIENCE DIV S5: Morphology Evolution and Microstructure Characterization

Processing to Control Microstructure

Room: Nautilus B

Session Chair: Scott Misture, Alfred University

10:00 AM

(EAM-BASIC-S5-014-2018) Electric-field induced rapid sintering and welding of ceramics (Invited)

L. An*¹

1. University of Central Florida, USA

10:30 AM

(EAM-BASIC-S5-015-2018) Characterization and Microscopy of Yttrium-doped Barium Zirconate with Nickel Additions for Catalysis Applications

D. Jennings*¹; M. Knight¹; I. Reimanis¹

1. Colorado School of Mines, Materials and Metallurgical Engineering, USA

10:45 AM

(EAM-BASIC-S5-016-2018) Electric Field Effects on Crystallization and Microstructure Evolution in BaTiO₃ (Invited)

E. C. Dickey*¹

1. North Carolina State University, Materials Science and Engineering, USA

11:15 AM

(EAM-BASIC-S5-017-2018) Epitaxial and Atomically-Thin Metal Films on Graphene: Unique Properties of a Morphologically Constrained System (Invited)

F. M. Alamgir*¹

1. Georgia Institute of Technology, School of Materials Science and Technology, USA

11:45 AM

(EAM-BASIC-S5-018-2018) Plane-like monocrystalline ABi₂Nb₂O₉ (A=Ca, Sr, Ba) with preferential (00l) facets for enhancement photocatalytic activity

Y. Zhang*¹

1. Sichuan University, Materials Science and Engineering, China

Joint Session: Basic Science Symp 1 and Electronics Symp 4

Defect Physics and Chemistry

Room: Nautilus C

Session Chairs: Ming Tang, Rice University; Jeffrey Rickman, Lehigh University

10:00 AM

(EAM-JOINT-014-2018) Mn doping in SrTiO₃ : A combined DFT and experimental investigation (Invited)

E. Cockayne*¹; K. F. Garrity¹; R. A. Maier¹; I. Levin¹

1. NIST, USA

10:30 AM

(EAM-JOINT-015-2018) Formation of Un-common Valences and Defects in Perovskite Lattice via Revisiting Madelung Energy and Site Potential (Invited)

M. Yoshimura*¹

1. Tokyo Institute of Technology, Materials and Structures Laboratory, Japan

11:00 AM

(EAM-JOINT-016-2018) Energetics of Intrinsic and Extrinsic Defects in Lead-based Hybrid Perovskites from First Principles Computations

A. Mannodi-Kanakkithodi*¹; D. H. Cao²; N. Jeon²; A. Martinson²; M. K. Chan¹

1. Argonne National Lab, Center for Nanoscale Materials, USA

2. Argonne National Lab, Materials Science Division, USA

11:15 AM

(EAM-JOINT-017-2018) Multiferroism in Iron-based Oxyfluoride Perovskites

S. T. Hartman*¹; S. B. Cho²; A. S. Thind¹; R. Mishra²

1. Washington University in St. Louis, Institute of Materials Science and Engineering, USA

2. Washington University in St. Louis, Mechanical Engineering and Materials Science, USA

11:30 AM

(EAM-JOINT-018-2018) Multi-Scale Modeling of Sintering of Ceramic Materials with Tailored Structure (Invited)

E. A. Olefsky*¹

1. San Diego State University, USA

12:00 PM

(EAM-JOINT-019-2018) Study of Tritium Solubility and Diffusivity in Lithium Aluminate and Lithium Zirconate pellets

H. P. Paudel*¹

1. National Energy Technology Lab, Functional Material Designs, USA

12:15 PM

(EAM-JOINT-020-2018) Exploring the rich defect chemistry of amorphous carbon using a combination of experiments and theory

T. W. Surta*¹; Z. Li¹; D. Fast¹; X. Ji¹; P. A. Greaney²; M. Dolgos¹

1. Oregon State University, Chemistry, USA

2. University of California, Riverside, USA

ELECTRONICS DIV S1: Complex Oxide and Chalcogenide Semiconductors: Research and Applications

Emerging Chalcogenide Materials for Electronic, Photonic and Energy Applications

Room: Citrus A

Session Chair: Jayakanth Ravichandran, Columbia University

10:00 AM

(EAM-ELEC-S1-001-2018) Chalcogenide Perovskites for Photovoltaics (Invited)

S. Zhang*¹

1. Rensselaer Polytechnic Institute, Physics, USA

10:30 AM

(EAM-ELEC-S1-002-2018) Kesterite-Inspired Chalcogenide Semiconductors for Thin-Film Photovoltaics (Invited)

D. Mitzi*¹

1. Duke Univ., USA

11:00 AM

(EAM-ELEC-S1-003-2018) Functional electronic responses from chalcogenide materials: New opportunities (Invited)

A. M. Rappe*¹

1. University of Pennsylvania, Chemistry, USA

11:30 AM

(EAM-ELEC-S1-004-2018) Complex Sulfide Materials for Electrochemical Energy Storage Applications (Invited)

R. Seshadri*¹

1. University of California Santa Barbara, Materials, USA

ELECTRONICS DIV S3: Multiscale Structure-property Relationships and Advanced Characterization of Functional Ceramics

Imaging and Analytical Techniques I

Room: Magnolia A/B

Session Chairs: David McComb, The Ohio State University; Arno Merkle, XRE

10:00 AM

(EAM-ELEC-S3-001-2018) Oxide scale structures and mechanisms of oxidation on Ni and Ti alloys (Invited)

T. Barth¹; K. Chou¹; P. Chu¹; E. Marquis*¹

1. University of Michigan, USA

10:30 AM

(EAM-ELEC-S3-002-2018) Characterization of Advanced Materials using X-ray Tomography and X-ray Fluorescence (Invited)

B. M. Patterson*¹; K. Henderson¹; N. Cordes¹; J. Mertens¹; J. Williams²; N. Chawla²; X. Xiao³

1. Los Alamos National Lab, Materials Science and Technology, USA
2. Arizona State University, 4D Materials Science, USA
3. Argonne National Lab, X-ray Sciences Division, USA

11:00 AM

(EAM-ELEC-S3-003-2018) Leveraging Navigation and Sampling Strategies for Multiscale Imaging and Characterization of Functional Materials (Invited)

W. Harris*¹; L. Lavery¹; H. Bale¹; T. Volkenandt¹; S. Freitag¹

1. Carl Zeiss Microscopy, USA

11:30 AM

(EAM-ELEC-S3-004-2018) Development of Multiscale Correlative 3D Imaging for Ceramics

D. W. McComb*¹; I. Boona¹

1. The Ohio State University, USA

11:45 AM

(EAM-ELEC-S3-005-2018) Ferroelectric Domain Continuity over Grain Boundaries

S. Mantri*¹; J. Oddershede²; D. Damjanovic²; J. Daniels¹

1. University of New South Wales, Materials Science and Engineering, Australia
2. EPFL, Switzerland
3. Xnovo Technology, Denmark

ELECTRONICS DIV S7: Mesoscale Phenomena in Ceramic Materials

Mesoscale Phenomena in Ceramic Materials

Room: Cypress A/B

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

10:00 AM

(EAM-ELEC-S7-001-2018) Mesoscopic Modeling of Electrocaloric, Elastocaloric and Flexocaloric Properties of Ferroelectrics (Invited)

P. Alpay*¹; T. Patel¹; H. Khassaf¹

1. University of Connecticut, Materials Science and Engineering, USA

10:30 AM

(EAM-ELEC-S7-002-2018) New developments in Ferret, an open-source code for simulating complex behavior of electroactive materials at mesoscale

J. Mangeri¹; L. Kuna¹; K. Pitike²; P. Alpay²; O. Heinonen³; S. Nakhmanson*²

1. University of Connecticut, Physics, USA
2. University of Connecticut, Materials Science and Engineering, USA
3. Argonne National Laboratory, USA

10:45 AM

(EAM-ELEC-S7-003-2018) Real nanoparticles have curves: Exploring polar phase transformations in Superellipsoidal nanoparticles

H. Whitelock*¹; K. Pitike²; J. Mangeri¹; T. Patel²; P. Dyer²; P. Alpay²; S. Nakhmanson*²

1. University of Connecticut, Physics, USA
2. University of Connecticut, Materials Science & Engineering, USA

11:00 AM

(EAM-ELEC-S7-004-2018) Predicting ferroelectric phase-transition temperatures in perovskite oxides: Influence of exchange-correlation functional choice

K. Pitike*¹; S. F. Yuk²; Y. Li³; M. Eisenbach³; S. Nakhmanson¹; V. R. Cooper²

1. University of Connecticut, Materials Science and Engineering, USA
2. Oak Ridge National Laboratory, Materials Science and Technology Division, USA
3. Oak Ridge National Laboratory, National Center for Computational Sciences, USA

11:15 AM

(EAM-ELEC-S7-005-2018) Mesoscale modeling of electro- and elasto-optic effects in polycrystalline ceramics

L. Kuna*¹; J. Mangeri¹; E. Gorzkowski²; J. Wollmershauser²; S. Nakhmanson³

1. University of Connecticut, Physics, USA
2. Office of Naval Research, USA
3. University of Connecticut, Institute of Materials Science, USA

11:30 AM

(EAM-ELEC-S7-006-2018) Effect of Ga-V co-doping in dielectric properties of TiO₂

N. Khatun*¹; S. Sen¹

1. Indian Institute of Technology Indore, Physics, India

11:45 AM

(EAM-ELEC-S7-007-2018) Electric Properties of Thermally Grown TiO₂ Layer on Ti Metal for Perovskite Solar Cells

S. Lee*¹; J. Lee¹

1. University of Pittsburgh, Mechanical Engineering and Materials Science, USA

ELECTRONICS DIV S8: Multifunctional Nanocomposites

Coupling between Ferroelectricity and Ferromagnetism

Room: Orange D

Session Chair: Daisuke Kan, Institute for Chemical Research

10:00 AM

(EAM-ELEC-S8-009-2018) Room temperature strain and charge-mediated magnetoelectric effects in multiferroic complex oxide heterostructures (Invited)

R. V. Chopdekar^{*1}; Y. Takamura¹

1. University of California, Davis, Materials Science and Engineering, USA

10:30 AM

(EAM-ELEC-S8-010-2018) New Vertical Aligned Nanocomposite Films with Strong Room Temperature Converse Magnetolectric Effect (Invited)

R. Wu^{*1}; S. Cho¹; A. Kursumovic¹; J. MacManus-Driscoll¹

1. University of Cambridge, United Kingdom

11:00 AM

(EAM-ELEC-S8-011-2018) Tuning Spin Relaxations in Ultrathin Epitaxial SrIrO₃ Thin Films via Ferroelectric Gating

L. Zhang^{*1}; M. Han²; X. Zhang¹; X. Jiang¹; X. Xu¹; Y. Zhu²; X. Hong¹

1. University of Nebraska - Lincoln, Physics and Astronomy, USA
2. Brookhaven National Laboratory, Condensed Matter Physics and Materials Science, USA

11:15 AM

(EAM-ELEC-S8-017-2018) Emergent and Tunable Toroidal Order and Phase Coexistence in Ferroc Superlattices (Invited)

L. W. Martin^{*1}

1. University of California, Berkeley, Materials Science and Engineering, USA

11:45 AM

(EAM-ELEC-S8-013-2018) Revealing the hidden magnetic interfaces by polarized neutron reflectometry (Invited)

E. Guo^{*1}

1. Oak Ridge National Lab, USA

ELECTRONICS DIV S9: Substitution and Sustainability in Functional Materials and Devices

Substitution and Sustainability in Functional Materials II

Room: Citrus B

Session Chair: Ian Reaney, University of Sheffield

10:00 AM

(EAM-ELEC-S9-010-2018) High Temperature Dielectric and Pb-free Piezoelectric Ceramics based on Relaxor Ferroelectrics: Properties and Challenges in Determining Mechanisms (Invited)

A. Zeb³; Z. Aslam¹; A. Brown¹; R. Brydson¹; J. Forrester¹; D. A. Hall²; S. ullah Jan³; T. Roncal-Herrero¹; S. J. Milne^{*1}

1. University of Leeds, Materials, United Kingdom
2. University of Manchester, School of Materials, United Kingdom
3. Islamia College, Pakistan

10:30 AM

(EAM-ELEC-S9-011-2018) High strain (0.4%) Bi(Mg_{2/3}Nb_{1/3})O₃-BaTiO₃-BiFeO₃ lead-free piezoelectrics

S. Murakami^{*1}; A. Mostaed¹; D. Wang¹; A. Khesro¹; A. Feteira²; D. C. Sinclair¹; I. M. Reaney¹

1. The University of Sheffield, Materials Science and Engineering, United Kingdom
2. Sheffield Hallam University, Materials Engineering and Research Institute, United Kingdom

10:45 AM

(EAM-ELEC-S9-012-2018) High Temperature PbO-free Piezoelectrics

I. M. Reaney^{*1}

1. University of Sheffield, Materials Science and Engineering, United Kingdom

*Denotes Presenter

11:00 AM

(EAM-ELEC-S9-013-2018) Suppression of electrical conductivity and switching of conduction mechanisms in 'stoichiometric' (Na_{0.5}Bi_{0.5}TiO₃)_{1-x}(BiAlO₃)_x (0 ≤ x ≤ 0.08) solid solutions

F. Yang²; Y. Wu²; D. C. Sinclair^{*1}

1. University of Sheffield, Materials Science & Engineering, United Kingdom
2. University of Sheffield, United Kingdom

11:15 AM

(EAM-ELEC-S9-014-2018) Aqueous Deposition of Thin Film Potassium Sodium Niobate Using Simple Cluster Precursors

D. Fast¹; M. Clark¹; M. Dolgos^{*1}

1. Oregon State University, Chemistry, USA

11:30 AM

(EAM-ELEC-S9-015-2018) Electronic and Ionic Conduction in (Bi_{0.5}Na_{0.5})TiO₃-(Bi_{0.5}K_{0.5})TiO₃-based Thin Films (Invited)

J. Walenza-Slabe¹; A. Fox¹; K. Grove¹; M. Bahmer¹; B. Gibbons^{*1}

1. Oregon State University, USA

12:00 PM

(EAM-ELEC-S9-016-2018) Electron transport and visible light absorption in a plasmonic photocatalyst based on strontium niobate

D. Wan^{*1}; B. Yan¹; T. C. Asmara²; M. R. Motapothula¹; T. V. Venkatesan¹

1. National University of Singapore, NUSNNI, Singapore
2. National University of Singapore, Singapore Synchrotron Light Source, Singapore

12:15 PM

(EAM-ELEC-S9-017-2018) Simulations of High Entropy Materials (Invited)

C. Freeman^{*1}; G. Anand¹; C. Handley¹; R. Ward¹; J. Harding¹

1. University of Sheffield, Dept of Materials Science and Engineering, United Kingdom

ELECTRONICS DIV S13: Advanced Electronic Materials: Processing, Structure, Properties, and Applications

Lead Free Piezoelectric and Dielectrics for Energy Storage and Conversion

Room: Orange C

Session Chairs: Jiwei Zhai, Tongji University; Sahn Nahm, Korea University

10:00 AM

(EAM-ELEC-S13-016-2018) Enhancing Piezoelectric Properties in (K,Na)NbO₃-Based Ceramics by Texture Engineering (Invited)

J. Zhai^{*1}

1. School of Materials Science and Engineering, Tongji University, China

10:30 AM

(EAM-ELEC-S13-017-2018) Effect of tetragonal-pseudocubic polymorphic phase transition on the piezoelectric properties of (Na_{0.5}K_{0.5})(Nb_{1-x}Sb_x)O₃-SrTiO₃ ceramics (Invited)

D. Kim¹; T. Lee²; S. Cho¹; K. Lee¹; C. Kang³; S. Nahm^{*1}

1. Korea University, Department of Materials Science and Engineering, Republic of Korea
2. Korea University, Nano-Bio-Information-Technology Convergeng, KU-KIST Graduate School of Convergeng Science and Technology, Republic of Korea
3. Korea Institute of Science and Technology, Electronic Materials Center, Republic of Korea

11:00 AM

(EAM-ELEC-S13-018-2018) Small-scale Flexible Energy Devices using Lead-free Piezoelectric Thin Films

S. Kim^{*1}; S. Won¹; M. Kawahara²; C. Koo³; A. Kingon¹

1. Brown University, School of Engineering, USA
2. Kojundo Chemical Laboratory, Japan
3. Quintess Co. L.Td., Republic of Korea

11:15 AM**(EAM-ELEC-S13-019-2018) Lead-free Piezoelectric Thin Films: Materials and Devices**S. Won*¹; C. Koo²; A. Kingon¹; S. Kim²

1. Brown University, USA
2. Brown University, School of Engineering, USA
3. Quintess Co. Ltd., Republic of Korea

11:30 AM**(EAM-ELEC-S13-020-2018) The Energy Storage Behavior of Lead Free Perovskite Dielectric Ceramics**S. Zhang*¹

1. University of Wollongong, ISEM, Australia

11:45 AM**(EAM-ELEC-S13-021-2018) Atmosphere Controlled Sintering of Textured (Na,K)NbO₃ Ceramic for Enhanced Piezoelectric Properties**L. Gao*¹; S. Dursun¹; E. Hennig²; S. Zhang³; C. Randall¹

1. Pennsylvania State University, USA
2. PI Ceramic GmbH, Germany
3. University of Wollongong, Australia

12:00 PM**(EAM-ELEC-S13-022-2018) Growth and electrical properties of NaNbO₃ thin film grown on TiN/Si substrate using PLD**J. Woo*¹; T. Lee²; H. Hwang¹; S. Nahm²

1. Korea University, Nano-Bio-Information-Technology Converging KU-KIST Graduate School of Converging Science and Technology, Republic of Korea
2. Korea University, Materials Science and Engineering, Republic of Korea

12:15 PM**(EAM-ELEC-S13-023-2018) Electrical leakage and loss in rare-earth modified bismuth ferrite ceramics**J. Walker*¹; M. Makarovic²; S. M. Selbach³; S. E. Trolrier-McKinstry¹; T. Rojac²

1. Pennsylvania State University, Materials Research Institute, USA
2. Jozef Stefan Institute, Electronic Ceramics Department, Slovenia
3. Norwegian University of Science and Technology, Department of Materials Science and Engineering, Norway

BASIC SCIENCE DIV S1: Computational and Data Sciences for 21st Century Ceramics Research**Ferroelectrics and Other Functional Ceramics**

Room: Nautilus C

Session Chair: Jeffrey Rickman, Lehigh University

2:00 PM**(EAM-BASIC-S1-001-2018) Computational Understanding and Prediction of Polar States in Ferroelectric Heterostructures Using Phase-field Method (Invited)**L. Chen*¹; Z. Hong¹

1. The Pennsylvania State University, Materials Science and Engineering, USA

2:30 PM**(EAM-BASIC-S1-002-2018) The search for new materials: Blending smart algorithms and deep physics (Invited)**A. M. Rappe*¹

1. University of Pennsylvania, Chemistry, USA

3:00 PM**(EAM-BASIC-S1-003-2018) Nanopillars with E-field accessible multi-state (N ≥ 4) magnetization with giant magnetization changes in self-assembled BiFeO₃-CoFe₂O₄/Pb(Mg_{1/3}Nb_{2/3})-38at%PbTiO₃ heterostructures (Invited)**D. Viehland*¹; J. Li¹; X. Tang¹

1. Virginia Tech, Materials Science and Engineering, USA

3:30 PM**Break****Material Interfaces: Structure, Properties and Evolution**

Room: Nautilus C

Session Chair: Jeffrey Rickman, Lehigh University

4:00 PM**(EAM-BASIC-S1-004-2018) Computing Grain Boundary 'Phase' Diagrams: Recent Progresses and Future Directions (Invited)**J. Luo*¹

1. University of California, San Diego, USA

4:30 PM**(EAM-BASIC-S1-005-2018) Atomistic simulations of grain boundary phase transitions (Invited)**T. Frolov*¹; Q. Zhu⁴; A. R. Oganov³; R. E. Rudd¹

1. Lawrence Livermore National Lab, USA
3. Stony Brook University, USA
4. University of Nevada, Las Vegas, USA

5:00 PM**(EAM-BASIC-S1-006-2018) A Framework to Study Heterogeneous Factors that Influence Grain Growth (Invited)**D. Lewis*¹; A. Baskaran¹

1. Rensselaer Polytechnic Institute, Materials Science and Engineering, USA

5:30 PM**(EAM-BASIC-S1-007-2018) Microstructural Evolution of Lithium Electrodeposits in Liquid Electrolytes (Invited)**A. Jana*¹; S. I. Woo¹; K. S. Vikrant¹; R. E. Garcia¹

1. Purdue University, School of Materials Engineering, USA

BASIC SCIENCE DIV S2: Electromagnetic Field Effects on Ceramic Processing: Fundamental Mechanisms and New Applications**Electromagnetic Field Effects on Ceramic Processing**

Room: Nautilus B

Session Chairs: Klaus van Benthem, University of California, Davis; Martha Mecartney

2:00 PM**(EAM-BASIC-S2-007-2018) Flash sintering of ceramics: What is the role of the electric field? (Invited)**R. I. Todd*¹; E. Zapata-Solvas²; S. Falco³; M. Yoshida⁴; W. Ji⁵; Z. Fu⁶

1. University of Oxford, Department of Materials, United Kingdom
2. Imperial College London, Centre for Nuclear Engineering. Dpt. of Materials, United Kingdom
3. University of Oxford, Department of Engineering Science, United Kingdom
4. Gifu University, Japan
5. Wuhan University of Technology, China
6. Wuhan University of Technology, State Key Lab of Advanced Technology for Materials Synthesis and Processing, China

2:30 PM**(EAM-BASIC-S2-001-2018) Thermal Runaway in Flash Spark Plasma and Microwave Sintering (Invited)**E. A. Olefsky*¹

1. San Diego State University, USA

3:00 PM**(EAM-BASIC-S2-003-2018) Flash Sintering of a Two- and Three-Phase Composites Constituted of Alumina, Spinel, and Ytria-Stabilized Zirconia**D. Kok*¹; E. Sortino²; D. Yadav³; S. J. McCormack³; K. Tseng³; W. M. Kriven³; R. Raj²; M. Mecartney¹

1. University of California, Irvine, Chemical Engineering and Material Science, USA
2. University of Colorado, Boulder, USA
3. University of Illinois at Urbana-Champaign, USA

3:15 PM**(EAM-BASIC-S2-008-2018) Impedance studies on flash sintering**Y. Tsur^{*1}; N. Shomrat²; S. Baltianski¹

1. Technion - Israel Institute of Technology, Chemical Engineering, Israel
2. Technion - Israel Institute of Technology, GTEP, Israel

3:30 PM**Break****4:00 PM****(EAM-BASIC-S2-002-2018) Grain Boundary Core Structures Impacted by Electric Field Application in SrTiO₃ Bicrystals (Invited)**L. A. Hughes^{*1}; K. van Benthem¹

1. University of California, Davis, Materials Science and Engineering, USA

4:30 PM**(EAM-BASIC-S2-006-2018) High electric fields and currents in ceramics - Possible contributions to densification (Invited)**G. A. Schneider^{*1}

1. Hamburg University of Technology, Germany

5:00 PM**(EAM-BASIC-S2-005-2018) Electric-current-controlled synthesis of BaTiO₃ under a high DC electric field at elevated temperatures (Invited)**H. Yoshida^{*1}; Y. Nakagawa²; A. Uehashi²; T. Yamamoto²

1. National Institute for Materials Science (NIMS), Japan
2. Nagoya University, Materials Design Innovation Engineering, Japan

5:30 PM**(EAM-BASIC-S2-004-2018) Flash Sintering of Li-ion conducting lithium lanthanum titanate for Li-air batteries**V. L. Blair^{*2}; S. V. Raju³; A. Fry³; M. Kornecki³; J. Wolfenstine¹; R. E. Brennan¹

1. US Army Research Laboratory, USA
2. US Army Research Laboratory, Weapons and Materials Research Directorate, USA
3. ORAU, USA
4. SURVICE Engineering, USA

5:45 PM**(EAM-BASIC-S2-009-2018) Electric Fields Effects on Sintering and Grain Growth in MgAl₂O₄**W. Qin¹; K. van Benthem^{*1}

1. University of California, Davis, Materials Science and Engineering, USA

ELECTRONICS DIV S1: Complex Oxide and Chalcogenide Semiconductors: Research and Applications**Complex Oxide Heterostructures: Effect of Dimensionality and Correlation**

Room: Citrus A

Session Chair: Anderson Janotti, University of Delaware

2:00 PM**(EAM-ELEC-S1-005-2018) Probing electron-boson interactions in 2D electron liquids at the surface of transition metal oxides using ARPES (Invited)**Z. Wang^{*1}

1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China

2:30 PM**(EAM-ELEC-S1-009-2018) Resonant X-ray Reflectometry of Oxide Heterostructures**R. J. Green^{*1}; G. Sawatzky¹

1. University of British Columbia, Physics & Astronomy, Canada

2:45 PM**(EAM-ELEC-S1-007-2018) Two-Dimensional Hole Gas at Oxide Interfaces (Invited)**H. Lee^{*1}; N. Campbell²; J. Lee³; T. J. Asel⁴; T. R. Paudel⁵; H. Zhou⁶; J. Lee¹; B. Noesges⁴; L. J. Brillson⁴; S. Oh³; E. Y. Tsybal⁵; M. Rzchowski²; C. Eom¹

1. University of Wisconsin-Madison, Materials Science and Engineering, USA
2. University of Wisconsin-Madison, Department of Physics, USA
3. SungKyunkwan University, Republic of Korea
4. Ohio State University, Department of Physics, USA
5. University of Nebraska-Lincoln, Department of Physics and Astronomy, USA
6. Argonne National Lab, Advanced Photon Source 433E-095, USA

3:15 PM**Break****3:45 PM****(EAM-ELEC-S1-008-2018) Probing Electronic Structure at the Unit Cell Level with Standing-Wave Photoemission (Invited)**A. Gray^{*1}

1. Temple University, Department of Physics, USA

4:15 PM**(EAM-ELEC-S1-010-2018) FTIR study of SmNiO₃ thin films: Electron-phonon coupling, polarons, and a bad metal**R. Jaramillo^{*1}

1. Massachusetts Institute of Technology, USA

4:30 PM**(EAM-ELEC-S1-011-2018) Verification of oxygen exchange processes during resistive switching in SrTiO₃ based memristive devices**T. Heisig^{*2}; U. Gries¹; C. Baeumer²; M. P. Müller¹; D. Mueller²; R. A. De Souza¹; R. Dittmann²

1. RWTH Aachen University, Institute of Physical Chemistry, Germany
2. Forschungszentrum Juelich, Peter Gruenberg Institute, Germany

4:45 PM**(EAM-ELEC-S1-006-2018) Synchrotron light exposes buried physical phenomena: Low dimensional electronic system at Transition Metal Oxides**M. Radovic^{*1}

1. Paul Scherrer Institut, Swiss Light Source, Switzerland

ELECTRONICS DIV S3: Multiscale Structure-property Relationships and Advanced Characterization of Functional Ceramics**Multiscale Structure-property Relationships I**

Room: Magnolia A/B

Session Chairs: Abhijit Pramanick, City University of Hong Kong;

Julian Walker, Pennsylvania State University

2:00 PM**(EAM-ELEC-S3-006-2018) Characterizing disordered ensembles of 2-D materials: Massively defective MnO₂ nanosheet assemblies (Invited)**S. T. Misture^{*1}

1. Alfred University, MSE, USA

2:30 PM**(EAM-ELEC-S3-007-2018) Study of the local structure and domain wall motion under application of electric fields of (1-x) BaZr_{0.2}Ti_{0.8}O₃-xBa_{0.7}Ca_{0.3}TiO₃**A. M. Manjón Sanz^{*2}; C. M. Culbertson²; D. Hou¹; J. L. Jones¹; M. Dolgos²

1. North Carolina State University, Dept. of Materials Science & Engineering, USA
2. Oregon State University, Chemistry, USA

2:45 PM**(EAM-ELEC-S3-008-2018) Coupling of emergent octahedral rotations to polarization in (K,Na)NbO₃**I. Levin^{*1}; V. Krayzman¹

1. NIST, USA

3:00 PM**(EAM-ELEC-S3-009-2018) In situ synthesis and discovery of functional inorganic materials (Invited)**D. P. Shoemaker*¹

1. University of Illinois at Urbana-Champaign, Materials Science and Engineering, USA

3:30 PM**Break****4:00 PM****(EAM-ELEC-S3-010-2018) Domain Reorientation in Declamped {001} Pb(Zr_{0.3}Ti_{0.7})O₃ Thin Films**L. M. Denis*¹; G. Esteves²; J. Walker¹; J. L. Jones²; S. Trolier-McKinstry¹

1. Pennsylvania State University, Materials Science and Engineering, USA
2. North Carolina State University, Materials Science and Engineering, USA

4:15 PM**(EAM-ELEC-S3-011-2018) In operando texture analysis of electroceramics at phase boundaries**M. Hinterstein*¹; K. Lee¹; D. U. Seifert¹; A. Studer²; M. Etter³; M. J. Hoffmann¹

1. Karlsruhe Institute of Technology, Institute of Applied Materials, Germany
2. Australian Nuclear Science and Technology Organization, Bragg Institute, Australia
3. Deutsches Elektronensynchrotron, Germany

4:30 PM**(EAM-ELEC-S3-012-2018) Combined total scattering and first principles approach to understand structural disorder (Invited)**S. M. Selbach*¹; B. Jiang¹; S. Skjærvo¹; Q. Meier²; E. Bozin³; S. Billinge⁴; M. Feygenson⁵; N. Spaldin⁶; T. Grande¹

1. NTNU Norwegian University of Science and Technology, Department of Materials Science and Engineering, Norway
2. ETH Zurich, Materials Theory, Switzerland
3. Brookhaven National Laboratory, Condensed Matter Physics and Materials Science Department, USA
4. Columbia University, Department of Applied Physics and Applied Mathematics, USA
5. Forschungszentrum Juelich, Germany

5:00 PM**(EAM-ELEC-S3-013-2018) Characterizing local atomic dynamics in real space and time (Invited)**T. Egami*¹

1. University of Tennessee, Materials Science and Engineering, USA

5:30 PM**(EAM-ELEC-S3-014-2018) The local structural origin of temperature-stable permittivity in BaTiO₃ – Bi(Zn_{1/2}Ti_{1/2})O₃ ceramics (Invited)**T. Usher*¹; D. Hou²; J. S. Forrester³; N. Raengthon⁴; N. Triamnak⁵; D. Cann⁶; K. L. Page¹; J. L. Jones²

1. Oak Ridge National Lab, Chemical and Engineering Materials, USA
2. North Carolina State University, Materials Science and Engineering, USA
3. University of Leeds, School of Chemical and Process Engineering, United Kingdom
4. Chulalongkorn University, Department of Materials Science, Thailand
5. Silpakorn University, Department of Materials Science and Engineering, Thailand
6. Oregon State Univ, School of Mechanical, Industrial, and Manufacturing Engineering, USA

ELECTRONICS DIV S4: Agile Design of Electronic Materials: Aligned Computational and Experimental Approaches**Materials by Design: Computational/experimental Emerging Strategies for Searching, Designing, and Discovering New Electronic Materials**

Room: Citrus B

Session Chair: Venkatesh Botu, Corning Incorporated

2:00 PM**(EAM-ELEC-S4-001-2018) Learning from data to guide experiments to find materials with targeted properties (Invited)**T. Lookman*¹

1. Los Alamos National Lab, Theoretical Division, USA

2:30 PM**(EAM-ELEC-S4-002-2018) High-Throughput Prediction of Two-Dimensional MX₃ for Spintronics Applications**Y. Zhang¹; M. Ashton¹; J. T. Paul*¹; J. Gabriel¹; D. Gluhovic¹; R. G. Hennig¹

1. University of Florida, Material Science and Engineering, USA

2:45 PM**(EAM-ELEC-S4-003-2018) Topological states and phonon couplings in electronic materials under large strains (Invited)**Y. Chen*¹

1. The University of Hong Kong, Department of Mechanical Engineering, Hong Kong

3:15 PM**(EAM-ELEC-S4-004-2018) High-Temperature Quantum Anomalous Hall Effect on Post-Transition-Metal-Decorated Graphane**L. Zhang*¹; C. Park¹; M. Yoon¹

1. Oak Ridge National Laboratory, Center for Nanophase Materials Science, USA

3:30 PM**Break****4:00 PM****(EAM-ELEC-S4-005-2018) Autonomous phase mapping for the lab and the beamline (Invited)**A. Kusne*¹; B. DeCost¹; J. Hattrick-Simpers¹; I. Takeuchi²

1. National Institute of Standards and Technology, USA
2. University of Maryland, USA

4:30 PM**(EAM-ELEC-S4-006-2018) Atomic and Electronic Structure in Amorphous InGaZnO₄**D. Fast*¹

1. Oregon State University, Chemistry, USA

4:45 PM**(EAM-ELEC-S4-007-2018) Prediction of hybrid organic-inorganic elpasolite formation via convex hull phase diagram analysis**S. Xie*¹; M. Sexton¹; J. Xue¹; S. R. Phillpot¹; R. G. Hennig¹

1. University of Florida, Materials Science and Engineering, USA

5:00 PM**(EAM-ELEC-S4-008-2018) Computational Discovery of Candidate Replacements for Pb in orthorhombic CH₃NH₃PbI₃ for solar cell applications**J. J. Gabriel*¹; S. Xie¹; K. Choudhary²; M. Sexton¹; S. R. Phillpot¹; J. Xue¹; R. G. Hennig¹

1. University of Florida, Materials Science and Engineering, USA
2. National Institute of Standards and Technology, USA

ELECTRONICS DIV S5: Ion-conducting Ceramics**Cation Conducting Ceramics for Energy Storage**

Room: Cypress A/B

Session Chairs: Hui Xiong, Boise State University; Erik Spoeke, Sandia National Laboratories

2:00 PM**(EAM-ELEC-S5-001-2018) Safe, High-Energy-Density, Solid-State Li Batteries (Invited)**E. D. Wachsmann*¹

1. University of Maryland, USA

2:30 PM**(EAM-ELEC-S5-002-2018) Strain Effects on Ionic Transport in Perovskite Oxides**R. Gao*¹; A. Jain²; S. Pandya¹; Y. Dong³; L. Dedon¹; S. Saremi¹; A. Luo¹; H. Zhou³; T. Chen⁴; N. H. Perry⁴; D. Trinkle²; L. W. Martin¹

1. University of California, Berkeley, Materials Science and Engineering, USA
2. University of Illinois at Urbana-Champaign, Materials Science and Engineering, USA
3. Argonne National Lab, X-ray Science Division, Advanced Photon Source, USA
4. Kyushu University, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Japan

2:45 PM**(EAM-ELEC-S5-003-2018) Fabrication and excellent Li⁺ conductivity of a novel NASICON-type solid electrolyte**S. Kumar*; T. Pareek¹; S. Dwivedi¹; A. Yadav¹; A. Verma¹; S. Sen¹

1. Indian Institute of Technology Indore, Metallurgy Engineering and Materials Science, India

3:00 PM**(EAM-ELEC-S5-004-2018) Understanding Electrochemical and Structural Behaviors of Irradiation Induced Defects in TiO₂**K. A. Smith*; A. Savva¹; Y. Wang²; D. Su³; S. Hwang³; J. Wharry⁴; H. Xiong¹

1. Boise State University, Material Science and Engineering, USA
2. Los Alamos National Laboratory, Ion Beam Materials Laboratory, USA
3. Brookhaven National Laboratory, Center for Functional Nanomaterials, USA
4. Purdue University, Nuclear Engineering, USA

3:15 PM**(EAM-ELEC-S5-005-2018) Compositional Changes of Chemically Exfoliated Lithium Cobalt Oxide**K. G. Pachuta*; A. Sehirlioglu¹; E. Pentzer²

1. Case Western Reserve University, Materials Science and Engineering, USA
2. Case Western Reserve University, Chemistry, USA

3:30 PM**Break****Mechanisms for Ion Transport**

Room: Cypress A/B

Session Chairs: Hui Xiong, Boise State University; Miaofang Chi, Oak Ridge National Lab

4:00 PM**(EAM-ELEC-S5-006-2018) Towards New All Solid State Li and Na Batteries: Glass the Enabling Material (Invited)**S. W. Martin*¹

1. Iowa State University, Materials Science & Engineering, USA

4:30 PM**(EAM-ELEC-S5-007-2018) Microscopic Insights into Conductivity and Stability of Solid Electrolyte Interface (Invited)**M. Chi*; J. Sakamoto²; N. Dudney¹

1. Oak Ridge National Lab, Materials Science and Technology Division, USA
2. University of Michigan, USA

5:00 PM**(EAM-ELEC-S5-008-2018) SIMS Study of Oxygen Diffusion in Monoclinic HfO₂**M. P. Müller*; R. A. De Souza¹

1. RWTH Aachen University, Institute for Physical Chemistry, Germany

5:15 PM**(EAM-ELEC-S5-009-2018) Electrical conductivity and microstructure in sintered Li₄Ti₅O₁₂ anodes for structural batteries**W. Huddleston*; F. Dynys²; A. Sehirlioglu¹

1. Case Western Reserve University, Department of Materials Science and Engineering, USA
2. NASA Glenn Research Center, USA

5:30 PM**(EAM-ELEC-S5-010-2018) Effect of thickness on epitaxial growth and transport properties of solid electrolyte LiLaTiO₃ thin film fabricated by pulsed laser deposition**E. Farghadany*; A. Sehirlioglu¹

1. Case Western Reserve University, Materials Science and Engineering, USA

ELECTRONICS DIV S8: Multifunctional Nanocomposites**Strain Effect**

Room: Orange D

Session Chair: Rui Wu, University of Cambridge

2:00 PM**(EAM-ELEC-S8-014-2018) Strain control of oxygen exchange kinetics in Ruddlesden-Popper oxides (Invited)**H. Lee*¹

1. Oak Ridge National Lab, USA

2:30 PM**(EAM-ELEC-S8-015-2018) Enhanced magnetic properties in microstructured manganites (Invited)**A. Biswas*; H. Jeon²; I. Kwak¹; D. Grant¹

1. University of Florida, Physics, USA
2. Pusan National University, Physics, Republic of Korea

3:00 PM**(EAM-ELEC-S8-016-2018) Nanoscale Strain and Doping Modulation of Magnetic Anisotropy in (La,Sr)MnO₃ Nanostructures and Heterostructures (Invited)**X. Hong*¹

1. University of Nebraska-Lincoln, Physics and Astronomy, USA

3:30 PM**Break****Ferroelectricity**

Room: Orange D

Session Chair: Robert Green, University of Saskatchewan

4:00 PM**(EAM-ELEC-S8-012-2018) Phase Coexistence in Multiferroic BiFeO₃-based Superlattices (Invited)**J. Mundy*¹

1. Harvard University, USA

4:30 PM**(EAM-ELEC-S8-018-2018) Room-temperature relaxor ferroelectricity and photovoltaic effects in SnTiO₃/Si thin film heterostructures (Invited)**S. Hong*³; R. Agarwal¹; Y. Sharma¹; S. Chang⁵; C. Sohn¹; K. Pitike²; S. Nakhmanson²; C. Takoudis⁵; H. Lee¹; J. F. Scott⁶; R. Katiyar⁴

1. Oak Ridge National Lab, Materials Science and Technology Division, USA
2. University of Connecticut, Materials Science and Engineering, USA
3. Korea Advanced Institute of Science and Engineering (KAIST), Materials Science and Engineering, Republic of Korea
4. University of Puerto-Rico, Department of Physics and Institute for Functional Nanomaterials, USA
5. University of Illinois at Chicago, Department of Chemical Engineering, USA
6. University of St. Andrews, School of Physics and Astronomy, United Kingdom

5:00 PM**(EAM-ELEC-S8-019-2018) Permanent ferroelectric retention of BiFeO₃ mesocrystal in a BiFeO₃-CoFe₂O₄ nanocomposite (Invited)**Q. He*¹

1. Durham University, Physics, United Kingdom

5:30 PM**(EAM-ELEC-S8-020-2018) Complication of ferroelectricity to enhance electrostrain (Invited)**S. Choi*¹

1. Pohang University of Science and Technology(POSTECH), Materials Science & Engineering, Republic of Korea

ELECTRONICS DIV S13: Advanced Electronic Materials: Processing, Structure, Properties, and Applications

Characterization of Materials I: Crystal Structure

Room: Orange C

Session Chairs: Jacob Jones, North Carolina State University; Zhongming Fan, Iowa State University

2:00 PM

(EAM-ELEC-S13-024-2018) Polarization rotation and field-induced phase transitions in ferroelectric ceramics (Invited)

J. L. Jones^{*1}; D. Hou¹; C. Zhao¹

1. North Carolina State University, Dept. of Materials Science & Engineering, USA

2:30 PM

(EAM-ELEC-S13-025-2018) Correlating local chemistry with local structure in relaxor ferroelectrics

M. J. Cabral^{*1}; S. Zhang²; B. Reich³; E. C. Dickey¹; J. LeBeau¹

1. North Carolina State University, Materials Science and Engineering, USA
2. University of Wollongong, Institute for Superconducting & Electronic Materials, Australia
3. North Carolina State University, Department of Statistics, USA

2:45 PM

(EAM-ELEC-S13-026-2018) In situ TEM study of polarization fatigue in a BZT-BCT ceramic

Z. Fan^{*1}; X. Tan¹

1. Iowa State University, USA

3:00 PM

(EAM-ELEC-S13-027-2018) In-situ Piezoelectric Response Measurements of Lead-free, Bismuth-based, Piezoelectric Thin Films

A. Fox^{*1}; B. Gibbons¹; H. Funakubo²

1. Oregon State University, MIME, USA
2. Tokyo Institute of Technology, Japan

3:15 PM

(EAM-ELEC-S13-028-2018) Thin film stress in piezoelectrics for adjustable optics

J. Walker^{*2}; T. Liu³; M. Tendulkar³; D. N. Burrows⁴; C. DeRoo⁵; E. Hertz²; V. Cotroneo⁵; P. Reid⁵; E. D. Schwartz⁵; T. Jackson³; S. E. Trolier-McKinstry²

2. Pennsylvania State University, Materials Research Institute, USA
3. Pennsylvania State University, Electrical Engineering, USA
4. Pennsylvania State University, Astronomy and Astrophysics, USA
5. Harvard University, Harvard Smithsonian Center for Astrophysics, USA

3:30 PM

Break

Advanced Electronic Materials III: Piezoelectric Crystals

Room: Orange C

Session Chairs: Qiang Li, Tsinghua University; Andrew Bell, University of Leeds

4:00 PM

(EAM-ELEC-S13-029-2018) Domain configuration evolution in PMN-PT single crystals near MPB under a radial poling field (Invited)

Q. Li^{*1}; Y. Zhou¹; C. XU¹; Q. Yan¹

1. Tsinghua University, Department of Chemistry, China

4:30 PM

(EAM-ELEC-S13-030-2018) Low Temperature Properties of Ferroelectric and Relaxor Materials (Invited)

A. J. Bell^{*1}

1. University of Leeds, School of Chemical and Process Engineering, United Kingdom

5:00 PM

(EAM-ELEC-S13-031-2018) High-Temperature Solution Growth and Characterization of (1-x)PbTiO₃-xBi(Zn_{2/3}Nb_{1/3})O₃ Piezo-/ferroelectric Single Crystals

A. Paterson^{*1}; J. Zhao²; Z. Liu²; X. Wu²; W. Ren²; Z. Ye¹

1. Simon Fraser University, Canada
2. Xi'an Jiaotong University, China

5:15 PM

(EAM-ELEC-S13-032-2018) Ferroic and Multiferroic Behavior in Fe doped BaTiO₃ single crystals

M. Staruch^{*1}; M. Cain²; P. Thompson³; P. Finkel¹

1. U.S. Naval Research Laboratory, USA
2. Queen Mary University of London, United Kingdom
3. European Synchrotron Radiation Facility, France

5:30 PM

(EAM-ELEC-S13-033-2018) Highly sensitive mechanical pressure detection by piezoelectric AlN thin films

H. Bishara^{*1}; S. Berger¹

1. Technion - Israel Institute of Technology, Materials Science and Engineering, Israel

5:45 PM

(EAM-ELEC-S13-034-2018) Combinatorial studies on the effect of boron addition to the aluminum-scandium nitride system

K. R. Talley^{*1}; G. L. Brennecke¹; S. Manna¹; A. Zakutayev²; C. Packard¹; C. Ciobanu¹; Y. Chen¹

1. Colorado School of Mines, Metallurgical Materials and Engineering, USA
2. National Renewable Energy Laboratory, USA

Friday, January 19, 2018

Joint Session: Basic Science Symp 1 and Electronics Symp 4

Data Science and High-throughput Approaches I

Room: Citrus B

Session Chair: Mina Yoon, Oak Ridge National Laboratory

8:30 AM

(EAM-JOINT-001-2018) Informatics and the Materials Tetrahedron (Invited)

R. LeSar^{*1}

1. Iowa State University, Materials Science and Engineering, USA

9:00 AM

(EAM-JOINT-002-2018) Data Analytics using Canonical Correlation Analysis and Monte Carlo Simulation (Invited)

J. Rickman^{*1}

1. Lehigh University, Materials Science and Engineering, USA

9:30 AM

(EAM-JOINT-003-2018) Disrupting the Ceramic R&D Model and Discovery of Processing-Structure-Property Relationships through Automated Characterization and Data Science

M. C. Golt^{*1}

1. U.S. Army Research Laboratory, USA

9:45 AM

Break

10:15 AM

(EAM-JOINT-004-2018) Informatics Driven Design of Ceramics (Invited)

K. Rajan^{*1}

1. University at Buffalo: the State Univ. of New York, Materials Design and Innovation, USA

10:45 AM**(EAM-JOINT-005-2018) Density functional theory calculations and data mining for new thermoelectrics discovery (Invited)**A. Jain*¹

1. Lawrence Berkeley National Laboratory, USA

11:15 AM**(EAM-JOINT-006-2018) High-throughput powder exploration method for materials informatics**K. Fujimoto*¹; A. Aimi¹; S. Maruyama²

1. Tokyo University of Science, Japan
2. Tohoku University, Japan

11:30 AM**(EAM-JOINT-007-2018) Scoping the Polymer Genome: Rational Design of Polymer Dielectrics (Invited)**A. Mannodi-Kanakithodi*¹; H. D. Tran²; C. Kim²; R. Ramprasad²

1. Argonne National Lab, Center for Nanoscale Materials, USA
2. University of Connecticut, USA

12:00 PM**(EAM-JOINT-008-2018) Beyond High-throughput: Towards an Optimal, Autonomous Computational Materials Discovery Platform (Invited)**R. Arroyave*¹; A. Talapatra¹; S. Boluki²; X. Qian²; E. R. Dougherty²

1. Texas A&M University, Materials Science and Engineering, USA
2. Texas A&M University, Electrical and Computer Engineering, USA

ELECTRONICS DIV S1: Complex Oxide and Chalcogenide Semiconductors: Research and Applications**Chalcogenide Thin Films and Heterostructures**

Room: Citrus A

Session Chairs: Jayakanth Ravichandran, Columbia University; Rafael Jaramillo, Massachusetts Institute of Technology

8:30 AM**(EAM-ELEC-S1-012-2018) New Phase Transitions in Atomically Thin Quantum Materials (Invited)**A. Tsen*¹

1. University of Waterloo, Canada

9:00 AM**(EAM-ELEC-S1-013-2018) High-quality growth of chalcogenide topological insulators (Invited)**S. Law*¹

1. University of Delaware, Materials Science and Engineering, USA

9:30 AM**(EAM-ELEC-S1-014-2018) Single crystal growth, characterization, and in situ manipulation of van der Waals gapped $\text{CuInP}_2\text{S}_6/\text{In}_4\text{P}_3\text{P}_2\text{S}_6$ heterostructures**M. A. Susner*¹; M. McGuire²; P. Ganesh²; M. Chyavnavichyus²; P. Maksymovych²

1. AFRL, Aerospace Systems Directorate, USA
2. Oak Ridge National Lab, USA

9:45 AM**(EAM-ELEC-S1-015-2018) Persistent photoconductivity due to hole-hole correlation in chalcogenides, with applications to neuromorphic computing and chemical sensors**R. Jaramillo*¹

1. Massachusetts Institute of Technology, USA

10:00 AM**Break****10:30 AM****(EAM-ELEC-S1-016-2018) Laser-Assisted Synthesis, Processing, and Spectroscopy of 2D Metal Chalcogenides and Heterostructures (Invited)**M. Mahjouri-Samani*¹

1. Auburn University, Electrical and Computer Engineering, USA

11:00 AM**(EAM-ELEC-S1-017-2018) Electronic and optical properties of 2D- In_2Se_3** A. Janotti*¹; W. Li¹; F. Sabino¹

1. University of Delaware, Materials Science and Engineering, USA

11:15 AM**(EAM-ELEC-S1-018-2018) Imaging orbitals and defects in superconducting $\text{FeSe}/\text{SrTiO}_3$** C. E. Matt*¹; T. Webb¹; H. Pirie¹; D. Huang¹; S. Fang¹; E. Kaxiras¹; J. Hoffman¹

1. Harvard University, Dept. of Physics, USA

11:30 AM**(EAM-ELEC-S1-020-2018) Cross-interface coupling of electrons and phonons in oxide-chalcogenide heterostructures**R. Moore*¹

1. SLAC National Accelerator Laboratory, USA

ELECTRONICS DIV S3: Multiscale Structure-property Relationships and Advanced Characterization of Functional Ceramics**Imaging and Analytical Techniques II**

Room: Magnolia A/B

Session Chairs: David McComb, The Ohio State University; Julian Walker, Pennsylvania State University; Abhijit Pramanick, City University of Hong Kong; Hugh Simons, Technical University of Denmark

8:30 AM**(EAM-ELEC-S3-015-2018) Relaxor-ferroelectric domain structure in $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ and $\text{Pb}(\text{Sc}_{1/2}\text{Nb}_{1/2})\text{O}_3$ -based polycrystalline materials determined by piezo-response force microscopy (Invited)**H. Uršič*¹; M. Otonicar¹; T. Rojac¹; M. Vrabelj¹; B. Malic¹

1. Jozef Stefan Institute, Electronic Ceramics Department, Slovenia

9:00 AM**(EAM-ELEC-S3-016-2018) Nanoscale three-dimensional imaging of ferroelectric and electronic properties in multiferroic BiFeO_3 thin films**J. Steffes*¹; B. Huey¹; R. Ramesh²

1. University of Connecticut, Materials Science and Engineering, USA
2. University of California, Berkeley, Materials Science and Engineering, USA

9:15 AM**(EAM-ELEC-S3-017-2018) Probing strain in oxide heterostructures and ultrathin films by Raman spectroscopy (Invited)**J. Kreisel*¹

1. Luxembourg Institute of Science and Technology, Materials Research and technology, Luxembourg

9:45 AM**(EAM-ELEC-S3-018-2018) In-situ imaging of long-range symmetry breaking in ferroelectric ceramics**H. W. Simons*²; A. B. Haugen²; C. Detlefs²; H. F. Poulsen³; J. Daniels⁴; D. Damjanovic¹

1. Swiss Federal Institute of Technology in Lausanne - EPFL, Ceramics Laboratory, Switzerland
2. Technical University of Denmark, Energy conversion and storage, Denmark
3. Technical University of Denmark, Physics, Denmark
4. University of New South Wales, Materials Science & Engineering, Australia
5. ESRF, France

9:45 AM**Break**

Multiscale Structure Property Relationships II

Room: Magnolia A/B

Session Chairs: Abhijit Pramanick, City University of Hong Kong; Julian Walker, Pennsylvania State University

10:30 AM**(EAM-ELEC-S3-019-2018) Synergetic Effects between Experimental Studies and Simulation to Reveal Mechanisms Involved in Resistance Degradation (Invited)**T. J. Bayer*¹; J. Wang¹; J. Carter¹; R. Wang¹; S. Sahu¹; A. Klein²; L. Chen¹; C. Randall¹

1. Pennsylvania State University, Materials Science and Engineering, USA
2. TU Darmstadt, Institute of Materials Science, Germany

11:00 AM**(EAM-ELEC-S3-020-2018) Actuation Mechanisms in Core-Shell Structured BiFeO₃-BaTiO₃ Ceramics (Invited)**D. A. Hall*¹

1. University of Manchester, School of Materials, United Kingdom

11:30 AM**(EAM-ELEC-S3-021-2018) Polarization and strain dynamics in polycrystalline ferroelectric/ferroelastic materials: An experimental approach and mechanistic description**J. Schultheiß¹; Y. A. Genenko¹; R. Khachatryan¹; L. Liu²; J. Daniels²; J. Koruza*¹

1. TU Darmstadt, Germany
2. University of New South Wales, Australia

11:45 AM**(EAM-ELEC-S3-022-2018) Stabilization of Polar Nano Regions in Pb-free ferroelectrics**A. Pramanick*¹; W. Dmowski²; T. Egami²; A. Budisuharto¹; F. Weyland¹; N. Novak²; A. Christianson²; D. Abernathy³; M. Jorgensen⁴

1. City University of Hong Kong, Hong Kong
2. Oak Ridge National Lab, USA
3. Technical University Darmstadt, Germany
4. Aarhus University, Denmark

12:00 PM**(EAM-ELEC-S3-023-2018) Electric field-induced transitions in electro-active materials (Invited)**G. Viola*²; J. Walker¹; Y. Tian⁵; M. Salvo²; M. Reece³; H. Yan³

1. Pennsylvania State University, Materials Research Institute, USA
2. Politecnico di Torino, Italy
3. Queen Mary University of London, United Kingdom
5. Jiatong University, China

ELECTRONICS DIV S5: Ion-conducting Ceramics**Novel Ion Conducting Materials**

Room: Cypress A/B

Session Chairs: Fanlin (Frank) Chen, University of South Carolina; Ho Nyung Lee, Oak Ridge National Lab

8:30 AM**(EAM-ELEC-S5-011-2018) 3D Printing of Protonic ceramic Energy devices (Invited)**S. MU²; Y. Hong¹; J. Lei¹; Z. Zhao¹; F. Peng¹; H. Xiao¹; J. Tong*¹

1. Clemson University, USA
2. Clemson University, USA

9:00 AM**(EAM-ELEC-S5-012-2018) Ion intercalation induced structural change and phase transitions in epitaxial oxide thin film (Invited)**Y. Du*¹

1. Pacific Northwest National Lab, USA

9:30 AM**(EAM-ELEC-S5-013-2018) Assessment of Sr₂Fe_{1-x}MoO₆ as Potential Cr-tolerant Solid Oxide Fuel Cell Electrode**L. Lei*¹; F. Chen¹

1. University of South Carolina, USA

9:45 AM**(EAM-ELEC-S5-014-2018) A New Hybrid SOFC Catalyst for Enhanced Stability and Performance**R. Murphy*¹; Y. Chen¹; S. Yoo¹; K. Pei¹; B. Doyle¹; M. Liu¹

1. Georgia Institute of Technology, Materials Science and Engineering, USA

10:00 AM**Break****Oxygen Conductors**

Room: Cypress A/B

Session Chairs: Yingge Du, PNNL; Jianhua Tong, Clemson University

10:30 AM**(EAM-ELEC-S5-015-2018) High ionic conductivity at (111) fluorite-bixbyite interfaces (Invited)**H. Lee*¹

1. Oak Ridge National Lab, USA

11:00 AM**(EAM-ELEC-S5-016-2018) Influence of Gallium-Based Additives on Microstructure and Ionic Conductivity of Doped-Lanthanum Gallate**S. L. Reis²; E. N. Muccillo*¹

1. Energy and Nuclear Research Institute, Brazil
2. Institute of Nuclear Energy Research, CCTM, Brazil

11:15 AM**(EAM-ELEC-S5-017-2018) On the ionic conduction mechanism in B-Site acceptor doped Na_{0.5}Bi_{0.5}TiO₃**S. Steiner¹; L. Koch¹; K. Meyer¹; S. In-Tae¹; K. Albe¹; T. Frömling*¹

1. Technische Universität Darmstadt, Materials Science, Germany

11:30 AM**(EAM-ELEC-S5-018-2018) p-type electronic conductivity in yttria-stabilised zirconia ceramic electrolytes**A. R. West*¹

1. University of Sheffield, Materials Science & Engineering, United Kingdom

11:45 AM**(EAM-ELEC-S5-019-2018) Conductivity Study of B-site Ga³⁺ Doped Na_{0.54}Bi_{0.46}TiO_{3-δ}**R. Bhattacharyya*¹; S. Omar¹

1. Indian Institute of Technology Kanpur, Materials Science and Engineering, India

12:00 PM**(EAM-ELEC-S5-020-2018) Optimisation of oxide-ion conductivity in acceptor-doped Na_{0.5}Bi_{0.5}TiO₃ perovskite: approaching the limit?**F. Yang²; M. Li¹; L. Li²; Y. Wu²; E. Pradal Velazquez²; D. C. Sinclair*¹

1. University of Sheffield, Materials Science & Engineering, United Kingdom
2. University of Sheffield, United Kingdom
4. University of Nottingham, United Kingdom

ELECTRONICS DIV S8: Multifunctional Nanocomposites**Transport**

Room: Orange D

Session Chair: Zhongchang Wang, World Premier International Research Center, Advanced Institute for Materials Research

8:30 AM**(EAM-ELEC-S8-021-2018) Dielectric performance of polymer-based composites containing core-shell Ni-TiO₂ particle fillers**G. Jian*¹; C. Zhang¹; H. Shao¹; C. Wong²

1. Jiangsu University of Science and Technology, Materials Science and Engineering, China
2. Georgia Institute of Technology, Materials Science and Engineering, USA

8:45 AM**(EAM-ELEC-S8-022-2018) Novel Radical-based Molecular Beam Epitaxy Approach for Metal Oxide Films Containing Elements of Low Oxidation Potential (Invited)**B. Jalan*¹

1. University of Minnesota, USA

9:15 AM**(EAM-ELEC-S8-023-2018) Revealing electron correlations effects in the ultraclean perovskite metal SrVO₃**M. Brahlek*²; L. Zhang²; T. Biroli³; R. Engel-Herbert²

2. Pennsylvania State University, Materials Science and Engineering, USA
3. University of Minnesota, Department of Chemical Engineering and Materials Science, USA

9:30 AM**(EAM-ELEC-S8-024-2018) Reversible redox reaction of SrFe_{0.8}Co_{0.2}O_{3-δ} thin films in ambient gas condition**J. Lee¹; E. Ahn²; T. Jeon³; J. Cho¹; H. Jeon*¹

1. Pusan National University, Department of Physics, Republic of Korea
2. Pusan National University, Extreme Physics Institute, Republic of Korea
3. Pohang University of Science and Technology(POSTECH), Pohang Accelerator Laboratory, Republic of Korea
4. Pusan National University, Department of Physics Education, Republic of Korea

9:45 AM**(EAM-ELEC-S8-025-2018) Tailoring mixed-ionic electronic conductivity in PCO/STO heterostructures**G. Harrington*¹; N. H. Perry²; K. Sasaki¹; B. Yildiz⁵; H. L. Tuller³

1. Kyushu University, Center for Co-Evolutional Social Systems, Japan
2. Kyushu University, International Institute for Carbon-Neutral Energy Research (I2CNER), Japan
3. Massachusetts Institute of Technology, Department of Materials Science and Engineering, USA
4. Kyushu University, Center for Co-Evolutional Social Systems, Japan
5. Massachusetts Institute of Technology, Department of Nuclear Science and Engineering, USA

10:00 AM**Break****Magnetism**

Room: Orange D

Session Chair: Xia Hong, University of Nebraska-Lincoln

10:30 AM**(EAM-ELEC-S8-026-2018) Two-Phase Pillars in Nanocomposites Grown by Molecular Beam Epitaxy**R. Comes*¹; D. E. Perea²; S. Spurgeon²; M. Blanchet¹; U. Ubeh¹

1. Auburn University, Physics, USA
2. Pacific Northwest National Lab, USA

10:45 AM**(EAM-ELEC-S8-027-2018) Interface engineering of transition metal oxides as a new route for exploring functional properties (Invited)**D. Kan*¹

1. Institute for Chemical Research, Japan

11:15 AM**(EAM-ELEC-S8-028-2018) Controlling magnetic spin reconstructions by geometrical lattice engineering (Invited)**I. Hallsteinsen*¹; K. Kjærnes¹; M. Moreau¹; A. Grutter²; M. Nord³; R. Holmestad⁴; S. Selbach⁴; E. Arenholz⁵; T. Tybell¹

1. Norwegian University of Science and Technology, Department of Electronic Systems, Norway
2. National Institute for Science and Technology, Center for Neutron Research, USA
3. Norwegian University of Science and Technology, Department of Physics, Norway
4. Norwegian University of Science and Technology, Department of Material science and engineering, Norway
5. Lawrence Berkeley National Laboratory, Advanced Light Source, USA

11:45 AM**(EAM-ELEC-S8-029-2018) Multifunctional Oxide-Metal Vertically Aligned Nanocomposite Thin Films (Invited)**J. Huang*¹; L. Li¹; Q. Su³; H. Wang¹

1. Purdue University, USA
3. University of Nebraska, Lincoln, USA

ELECTRONICS DIV S13: Advanced Electronic Materials: Processing, Structure, Properties, and Applications**Materials Design, New Materials and Structures, Their Emerging Applications (I)**

Room: Orange C

Session Chair: Tadej Rojac, Jozef Stefan Institute

8:30 AM**(EAM-ELEC-S13-035-2018) Microwave Ceramics: 5G and beyond (Invited)**I. M. Reaney*¹

1. University of Sheffield, Materials Science and Engineering, United Kingdom

9:00 AM**(EAM-ELEC-S13-036-2018) Tunable and Multistate Infrared Plasmonics via Ferroelectric Domain Reconfiguration**T. E. Beechem*¹; M. Goldflam¹; M. Sinclair¹; D. Peters¹; J. Ihlefeld²

1. Sandia National Laboratories, Optical Sciences, USA
2. University of Virginia, Department of Materials Science and Engineering, USA

9:15 AM**(EAM-ELEC-S13-037-2018) Metal oxide transistors via polyethylenimine doping: Interplay of doping, microstructure, metal cation, and charge transport**W. Huang*¹; A. Facchetti¹

1. Northwestern University, Chemistry, USA

9:30 AM**(EAM-ELEC-S13-038-2018) Ultrathin α -Fe₂O₃ Nanoflakes on TiO₂ Nanotubes: Effect of Morphology on Photoelectrocatalytic Water Splitting Hydrogen Generation**H. Han*¹

1. Los Alamos National Lab, USA

9:45 AM**(EAM-ELEC-S13-039-2018) Synaptic Plasticity and Metaplasticity Behavior in Ta₂O₅ Thin film for Artificial Synapse Applications**H. Hwang*¹; J. Woo¹; T. Lee²; S. Nahm²

1. Korea University, Nano-Bio-Information-Technology Converging, KU-KIST Graduate School of Converging Science and Technology, Republic of Korea
2. Korea University, Department of Materials Science and Engineering, Republic of Korea

10:00 AM**Break****Characterization of Materials II: Crystal Structure and Properties**

Room: Orange C

Session Chairs: Jun Chen, University of Science and Technology Beijing; Brian Foley, Georgia Institute of Technology

10:30 AM**(EAM-ELEC-S13-040-2018) Origin of High Performance Piezoelectrics of Pb-Based Perovskites (Invited)**J. Chen*¹; L. Fan¹; H. Liu¹; Y. Ren²; X. Xing¹

1. University of Science and Technology Beijing, Department of Physical Chemistry, China
2. Argonne National Lab, X-ray Science Division, USA

11:00 AM

(EAM-ELEC-S13-041-2018) Intrinsic and Extrinsic Influences on Phonon Thermal Transport Processes in Electronic Materials (Invited)B. Foley*¹

1. Georgia Institute of Technology, George W. Woodruff School of Mechanical Engineering, USA

11:30 AM

(EAM-ELEC-S13-042-2018) Pump-probe measurements of Vanadium dioxide above and below the bandgapE. Radue*¹; S. Kittiwatanakul¹; P. E. Hopkins¹

1. University of Virginia, Mechanical and Aerospace Engineering, USA

11:45 AM

(EAM-ELEC-S13-043-2018) Identifying the fundamental mechanisms that limit the performance of modern microwave ceramicsN. Newman*¹; A. Sayyadishahraki²; J. Gonzales¹

1. Arizona State University, Materials Program, USA
2. Tarbiat Modares University, Department of Materials Science and Engineering, Islamic Republic of Iran

12:00 PM

(EAM-ELEC-S13-044-2018) Probing the trap levels in the wide band gap TiO₂ by Deep Level Transient SpectroscopyA. Kumar*¹; S. Mondal²; G. Aman³; K. Rao²

1. Indira Gandhi National Tribal University, Amarkantak, MP, INDIA, Department of Physics, India
2. Indian Institute of Science, Department of Physics, India
3. University of Cincinnati, Department of Electrical Engineering, USA

12:15 PM

(EAM-ELEC-S13-045-2018) Engineering ferroelectric domain architectures in PbTiO₃ thin filmsE. Langenberg*²; N. Domingo¹; E. Smith²; H. Nair²; H. Paik²; G. Catalan¹; D. Schlom²

1. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC, Barcelona Institute of Science and Technology, Spain
2. Cornell University, Department of Materials Science and Engineering, USA

Joint Session: Basic Science Symp 1 and Electronics Symp 4**Data Science and High-throughput Approaches II**

Room: Citrus B

Session Chair: Ming Tang, Rice University

2:00 PM

(EAM-JOINT-009-2018) Enhancing agile chemical selection for multifunctional ceramic through informatics (Invited)K. Rajan*¹

1. University at Buffalo: the State Univ. of New York, Materials Design and Innovation, USA

2:30 PM

(EAM-JOINT-010-2018) High-Throughput Computational Studies of Two-Dimensional Transition Metal DichalcogenidesL. Li*¹

1. Boise State University, Micron School of Materials Science and Engineering, USA

2:45 PM

(EAM-JOINT-011-2018) Functional Defects by Design: A High-Throughput Approach to Energy Materials Discovery (Invited)P. Ganesh*¹

1. Oak Ridge National Lab, USA

3:15 PM

(EAM-JOINT-012-2018) High Throughput Scanning Probe Microscopy of Multiferroic Thin Film PropertiesJ. Steffes¹; P. Ashby²; R. Cordier¹; B. Huey*¹

1. University of Connecticut, Institute of Materials Science, USA
2. LBNL, Molecular Foundry, USA

3:30 PM

(EAM-JOINT-013-2018) Towards Efficient Optoelectronic Material Design using Density Functional Theory, Experiments and Machine LearningK. Choudhary*¹

1. National Institute of Standards and Technology, MML, USA

ELECTRONICS DIV S1: Complex Oxide and Chalcogenide Semiconductors: Research and Applications**Growth and Characterization of Oxides**

Room: Citrus A

Session Chair: Abhinav Prakash, University of Minnesota

2:00 PM

(EAM-ELEC-S1-021-2018) Highly Stoichiometric SrTiO₃ Thin Films Grown via Metal-organic Pulsed Laser Deposition (Invited)J. Lee*¹; A. L. Edgeton¹; N. Campbell¹; H. Lee¹; B. Noesges²; T. R. Paudel¹; J. L. Schad¹; Y. Ma¹; E. Y. Tsymbal¹; L. J. Brillson³; D. A. Tenne⁴; M. Rzechowski¹; C. Eom¹

1. University of Wisconsin-Madison, Materials Science and Engineering, USA
2. University of Wisconsin-Madison, Physics, USA
3. Ohio State University, Physics, USA
4. University of Nebraska, Lincoln, Physics and Astronomy, USA
5. Boise State University, Physics, USA

2:30 PM

(EAM-ELEC-S1-022-2018) Atomic and electronic structure of point, line, and planar defects in perovskite oxides (Invited)J. Jeong*¹; H. Yun¹; M. Topsakal¹; P. Xu¹; A. Prakash¹; B. Jalan¹; A. Mkhoyan¹

1. University of Minnesota, Chemical Engineering and Materials Science, USA

3:00 PM

(EAM-ELEC-S1-023-2018) A Semiconductor/VO₂ Hybrid (Invited)Y. Wang¹; J. Shi*¹

1. Rensselaer Polytechnic Institute, USA

3:30 PM

(EAM-ELEC-S1-024-2018) Pathway to p-type doping of metal-oxide semiconductorsF. P. Sabino*¹; A. Janotti¹

1. University of Delaware, Materials Science and Engineering, USA

ELECTRONICS DIV S8: Multifunctional Nanocomposites**Functionalities: Electronic**

Room: Orange D

Session Chair: Ryan Comes, Auburn University

2:00 PM

(EAM-ELEC-S8-030-2018) Origin of Gap State Photoemission in n-SrTiO₃(001) (Invited)S. Chambers*¹

1. Pacific Northwest National Laboratory, Physical and Computational Sciences Directorate, USA

2:30 PM

(EAM-ELEC-S8-031-2018) Application of metamaterial nano-engineering for increasing the superconducting critical temperature (Invited)M. Osofsky*¹; V. Smolyaninova²; T. Gresock²; S. Saha³; B. Yost²; C. Jensen²; J. Prestigiacomi¹; H. Kim¹; N. Bassim²; R. Greene²; I. Smolyaninov³

1. Naval Research Laboratory, USA
2. Towson University, USA
3. University of Maryland, USA
5. McMaster University, Canada

3:00 PM**(EAM-ELEC-S8-032-2018) Tuning the Plasma Frequency in Correlated Transition Metal Oxides (Invited)**T. Biroš*¹

1. University of Minnesota, USA

3:30 PM**Break****Functionalities: Electrochemical**

Room: Orange D

Session Chair: Abhinav Prakash, University of Minnesota

4:00 PM**(EAM-ELEC-S8-033-2018) Self-assembled metal nanopillars embedded in oxide semiconductor photoelectrode for photoelectrochemical water splitting (Invited)**R. Takahashi*¹

1. Institute for Solid State Physics, University of Tokyo, Japan

4:15 PM**(EAM-ELEC-S8-034-2018) Cathode/electrolyte nanocomposite films for enhanced 3D solid-state batteries**M. Huijben*¹

1. University of Twente, Netherlands

4:30 PM**(EAM-ELEC-S8-035-2018) Three-Dimensional Nanostructured Oxides Heterostructures for Enhanced Photoelectrochemical Performance**I. Choi¹; H. Jeong¹; J. Kim*¹

1. Pohang University of Science and Technology(POSTECH), Materials Science and Engineering, Republic of Korea

4:45 PM**(EAM-ELEC-S8-036-2018) Tuning the Electronic Structure of NiO by Li doping for Electrocatalytic Water Oxidation (Invited)**K. H. Zhang*¹

1. Xiamen University, College of Chemistry and Chemical Engineering, China

ELECTRONICS DIV S13: Advanced Electronic Materials: Processing, Structure, Properties, and Applications**Materials Design, New Materials and Structures, Their Emerging Applications II**

Room: Orange C

Session Chair: Ian Reaney, University of Sheffield

2:00 PM**(EAM-ELEC-S13-046-2018) Dynamics of Conducting Domain Walls in Polycrystalline BiFeO₃ and its Effect on Macroscopic Electrical and Electromechanical Properties (Invited)**T. Rojac*¹; A. Bencan¹; H. Uršič²; B. Jancar¹; M. Makarovic¹; A. Bradesko¹; B. Malic¹; G. Drazic³; L. Liu⁴; J. Daniels⁴; D. Damjanovic²

1. Jozef Stefan Institute, Electronic Ceramics Department, Slovenia
2. Swiss Federal Institute of Technology in Lausanne - EPFL, Ceramics Laboratory, Switzerland
3. National Institute of Chemistry, Laboratory for Materials Chemistry, Slovenia
4. University of New South Wales, School of Materials Science and Engineering, Australia

2:30 PM**(EAM-ELEC-S13-047-2018) Oxygen deficient gadolinium doped ceria as colossal dielectric constant and varistor thin film material**M. Hadad¹; P. R. Muralt*¹

1. EPFL, Materials Science and Engineering, Switzerland

2:45 PM**(EAM-ELEC-S13-048-2018) Transparent Heteroepitaxy (Ba, La) SnO₃/Muscovite for Flexible Optoelectronics**C. Yang*¹; M. Yen¹; K. Kim²; Y. Chu¹

1. National Chiao Tung University, Materials Science and Engineering, Taiwan
2. Seoul National University, Physics and Astronomy, Republic of Korea

3:00 PM**(EAM-ELEC-S13-049-2018) Dependence of leakage on polarization and its implications for resistive switching**B. Misirlioglu*²; O. M. Moradi²; C. M. Sen²; L. Pintilie¹; A. Boni¹

1. NIMP, Romania
2. Sabanci University, Faculty of Engineering and Natural Sciences, Turkey

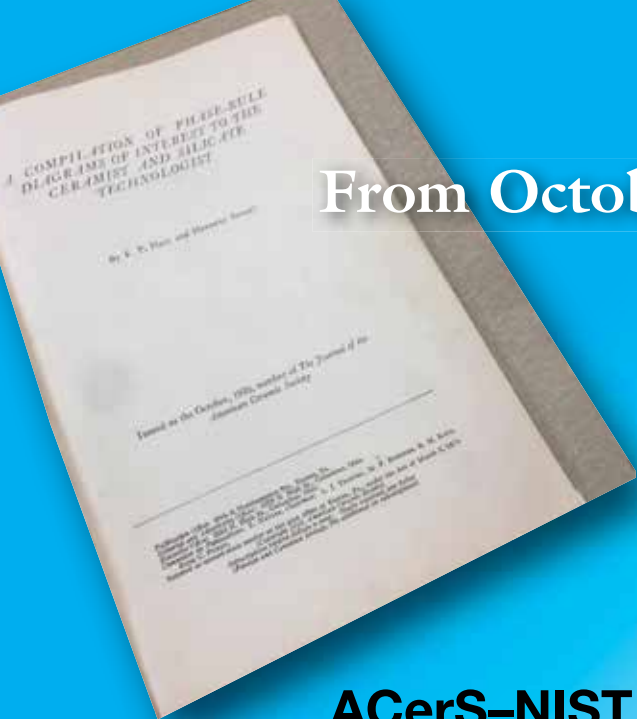
3:15 PM**(EAM-ELEC-S13-050-2018) Detailed Investigation of Thermoelectric Properties of A-site Doped Sr₂TiMoO₆ Based Double Perovskites**M. Saxena*¹; T. Maiti¹

1. Indian Institute of Technology Kanpur, Materials Science and Engineering, India

Failure - the Greatest Teacher

Room: Magnolia A/B

5:15 PM**Introduction****5:25 PM****Jurgen Roedel, TU-Darmstadt****5:55 PM****Nate Orloff, NIST****6:10 PM****Jacob Jones, NC State Univ**



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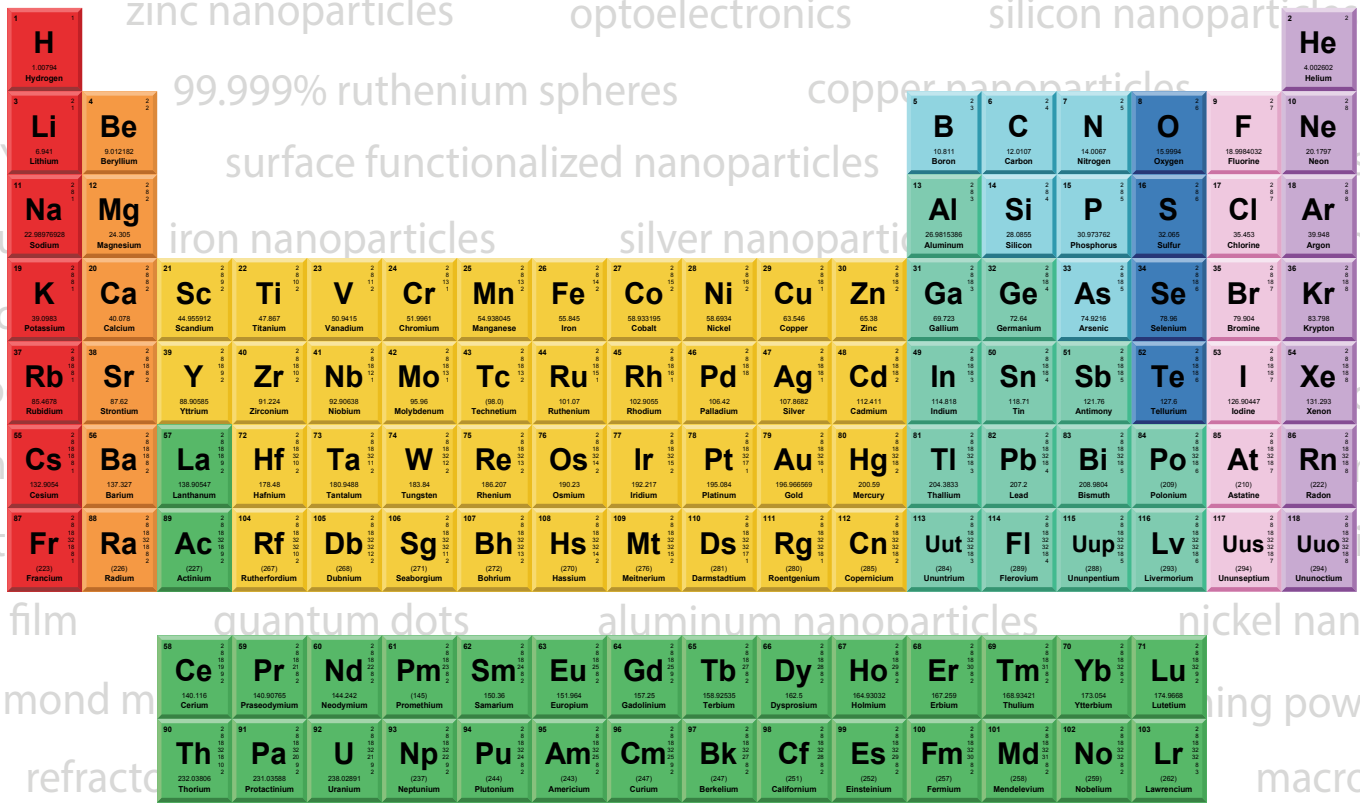
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1 H 1.00794 Hydrogen																	2 He 4.002602 Helium																												
3 Li 6.941 Lithium	4 Be 9.012182 Beryllium											5 B 10.811 Boron	6 C 12.0107 Carbon	7 N 14.0067 Nitrogen	8 O 15.9994 Oxygen	9 F 18.9984032 Fluorine	10 Ne 20.1797 Neon																												
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 58.6934 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 107.8662 Silver	48 Cd 112.411 Cadmium	49 In 114.818 Indium	50 Sn 118.710 Tin	51 Sb 121.76 Antimony	52 Te 127.6 Tellurium	53 I 126.90447 Iodine	54 Xe 131.29 Xenon																												
55 Cs 132.9054 Cesium	56 Ba 137.327 Barium	57 La 138.90547 Lanthanum	72 Hf 178.49 Hafnium	73 Ta 180.94788 Tantalum	74 W 183.84 Tungsten	75 Re 186.207 Rhenium	76 Os 190.23 Osmium	77 Ir 192.222 Iridium	78 Pt 195.084 Platinum	79 Au 196.966569 Gold	80 Hg 200.59 Mercury	81 Tl 204.3833 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 (271) Seaborgium	107 Bh (272) Bohrium	108 Hs (277) Hassium	109 Mt (276) Meitnerium	110 Ds (281) Darmstadtium	111 Rg (280) Roentgenium	112 Cn (285) Copernicium	113 Uut (284) Ununtrium	114 Fl (289) Flerovium	115 Uup (288) Ununpentium	116 Lv (293) Livermorium	117 Uus (294) Ununseptium	118 Uuo (294) Ununoctium																												
<table border="1"> <tr> <td>58 Ce 140.116 Cerium</td> <td>59 Pr 140.90765 Praseodymium</td> <td>60 Nd 144.242 Neodymium</td> <td>61 Pm (145) Promethium</td> <td>62 Sm 150.36 Samarium</td> <td>63 Eu 151.964 Europium</td> <td>64 Gd 157.25 Gadolinium</td> <td>65 Tb 158.92535 Terbium</td> <td>66 Dy 162.5 Dysprosium</td> <td>67 Ho 164.93032 Holmium</td> <td>68 Er 167.259 Erbium</td> <td>69 Tm 168.93421 Thulium</td> <td>70 Yb 173.054 Ytterbium</td> <td>71 Lu 174.9668 Lutetium</td> </tr> <tr> <td>90 Th 232.03806 Thorium</td> <td>91 Pa 231.03688 Protactinium</td> <td>92 U 238.02891 Uranium</td> <td>93 Np (237) Neptunium</td> <td>94 Pu (244) Plutonium</td> <td>95 Am (243) Americium</td> <td>96 Cm (247) Curium</td> <td>97 Bk (247) Berkelium</td> <td>98 Cf (251) Californium</td> <td>99 Es (252) Einsteinium</td> <td>100 Fm (257) Fermium</td> <td>101 Md (258) Mendelevium</td> <td>102 No (259) Nobelium</td> <td>103 Lr (262) Lawrencium</td> </tr> </table>																		58 Ce 140.116 Cerium	59 Pr 140.90765 Praseodymium	60 Nd 144.242 Neodymium	61 Pm (145) Promethium	62 Sm 150.36 Samarium	63 Eu 151.964 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.92535 Terbium	66 Dy 162.5 Dysprosium	67 Ho 164.93032 Holmium	68 Er 167.259 Erbium	69 Tm 168.93421 Thulium	70 Yb 173.054 Ytterbium	71 Lu 174.9668 Lutetium	90 Th 232.03806 Thorium	91 Pa 231.03688 Protactinium	92 U 238.02891 Uranium	93 Np (237) Neptunium	94 Pu (244) Plutonium	95 Am (243) Americium	96 Cm (247) Curium	97 Bk (247) Berkelium	98 Cf (251) Californium	99 Es (252) Einsteinium	100 Fm (257) Fermium	101 Md (258) Mendelevium	102 No (259) Nobelium	103 Lr (262) Lawrencium
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