

**Sunday, May 7, 2017**

7:30 AM - 5:00 PM	<b>Registration</b> Wenn Student Center		
	<b>Tutorials</b>		
8:30 AM - 10:00 AM	<b>Challenging in Processing of Bulk and Thin Film Ferroelectric Oxides</b> <i>Alp Sehirliglu and Brady Gibbons</i> Wenn Student Center - Room 319	<b>Electro-mechanical Surface Properties by Force Microscopy</b> <i>Neus Domingo</i> Wenn Student Center - Room 320	
10:00 AM - 10:30 AM	<b>Refreshment Break</b>		
10:30 AM - 12:00 PM	<b>Mechanical Properties, Reliability and Failure in Ferroelectric Materials</b> <i>Chris Lynch</i> Wenn Student Center - Room 319	<b>PFM - Can one Escape from the Artifacts all Around this Technique?</b> <i>Elisabeth Soergel</i> Wenn Student Center - Room 320	
12:00 PM - 1:00 PM	<b>Lunch Break</b>		
12:30 PM - 2:30 PM	<b>Piezoelectric Sensors, Actuators and Transducers: Design, Fabrication, Characterization and Applications</b> <i>Xiaoning Jiang</i> (1:00pm - 2:30pm) Wenn Student Center - Room 319	<b>Morphotropic Phase Boundary and Defects and Domain Walls</b> <i>Dragan Damjanovic</i> (1:00pm - 2:30pm) Wenn Student Center - Room 320	<b>Hands-on Workshop Session I</b> <i>Rama Vasudevan, Nina Balke, and Stephen Jesse</i> (12:30pm - 2:30pm) Love Building - Room 183
2:30 PM - 3:00 PM	<b>Refreshment Break</b>		
3:00 PM - 4:30 PM	<b>Piezoelectric Films in FBARs and Other Devices</b> <i>Sandy Cochran</i> (3:00pm - 4:30pm) Wenn Student Center - Room 319	<b>Thermal Characterization of Ferroelectric Materials</b> <i>Brian Foley</i> (3:00pm - 4:30pm) Wenn Student Center - Room 320	<b>Hands-on Workshop Session II</b> <i>Rama Vasudevan, Nina Balke, and Stephen Jesse</i> (3:00pm - 5:00pm) Love Building - Room 185
6:00 PM - 8:00 PM	<b>Welcome Reception</b> Rooftop of the Clough Building		

Monday, May 8, 2017

8:00 AM - 8:30 AM	<b>Welcome and Introductory Remarks</b> Wenn Student Center Ballroom			
8:30 AM - 9:30 AM	<b>Plenary Session I</b> Wenn Student Center Ballroom Session Chair: Nazanin Bassiri-Gharb  <b>Cold Sintering - Rethinking What We Thought We Knew in Electroceramics, Prof. Clive Randall</b>			
9:30 AM - 10:00 AM	<b>Refreshment Break</b>			
10:00 PM - 12:00 PM	<b>SESSION I</b>			
	<b>PNR and Domains</b> Room 1456	<b>Bi-based Materials</b> Room: 2443	<b>Strain via Elastic and Piezoelectric Measurement</b> Room: 1443	<b>Array-based Devices and MEMS</b> Room: 2456
	Session Chair: Elena Buixaderas	Session Chair: Barbara Malic	Session Chair: John Daniels	Session Chair: Takeshi Yoshimura
10:00AM	INVITED - (10:00AM - 10:30AM) <b>Why Nanopolar Regions Matter in Tunable Dielectrics, Flexoelectrics, and Photovoltaics</b> <i>Lauren M. Garten, David Moore, Shyam Dwaraknath, Sanjini Nanayakkara, Matthew Burch, Arnab Sen Gupta, Ryan Haislmaier, Venkataraman Gopalan, Elizabeth Dickey, Kristin Persson, David Ginley, and Susan Trolrier-McKinstry</i>	INVITED - (10:00AM - 10:30AM) <b>Piezoelectric Properties of BiFeO<sub>3</sub>-BaTiO<sub>3</sub> Ceramics and Thin Films</b> <i>Tae Kwon Song, J.S. Kim, D.J. Kim, M.H. Lee, M.H. Kim, and W.J. Kim</i>	INVITED - (10:00AM - 10:30AM) <b>Elastic Measurements of Ferroelectrics for Probing the Piezoelectric Response and Structural Defects</b> <u>Francesco Cordero</u>	<b>What Is Needed for the PiezoMEMS Applications of the Future?</b> <i>R.Q. Rudy and R.G. Polcawich</i>
10:15AM - 10:30AM				<b>Evaluation on Operation of a Lead-Zirconium-Titanate (PZT) Actuator Array for Highly Integrated Biochip Application</b> <i>Tue Trong Phan, R. Shimura, T. Shimoda, and Y. Takamura</i>
10:30AM - 10:45AM	<b>Manipulation of Domain Structure in {100} Tetragonal Pb(Zr, Ti)O<sub>3</sub> Nanorods by Charge Screening</b> <u>Tomoaki Yamada, D. Ito, T. Sluka, N. Setter, O. Sakata, T. Namazu, H. Funakubo, M. Yoshino, and T. Nagasaki</u>	<b>Piezoelectrics: Putting the "Squeeze" on New Materials</b> <u>Michelle Dolgos</u>	<b>In-situ X-ray Investigation of Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-PbTiO<sub>3</sub> Polycrystalline Ceramics in an External Electric Field</b> <u>Dong Hou, Tedi-Marie Usher, Marko Vrabelj, Lovro Fulanovic, Hana Ursic, Barbara Malic, Igor Levin, and Jacob L. Jones</u>	<b>Simultaneous Mechanical Displacement and Ferroelectric Pulse Switching Measurements of Piezoelectric MEMS Devices</b> <u>Glen R. Fox, R.Q. Rudy, K. Grove, M. Rivas, and R.G. Polcawich</u>

10:45AM - 11:00AM	<p><b>Digital Holographic Tomography of Periodically Poled Lithium Niobate: A Challenge for Artificial Neural Networks</b>  <u>Pavel Mokrý, Pavel Psota, Jan Václavík, Roman Doleček, David Vápenka, Juraj Sládek, and Vít Lédl</u></p>		<p><b>Simultaneous Time-Resolved Measurements of Polarization and Strain Dynamics to Explore Switching in Ferroelectric/Ferroelastic Materials</b>  <u>Jan Schultheiss, Y.A. Genenko, S. Zhukov, R. Khachatryan, L. Liu, J.E. Daniels, and J. Koruza</u></p>	<p><b>Piezoelectric Microelectromechanical Systems (PiezoMEMS) for Adjustable X-Ray Optics</b>  <u>Julian Walker, T. Liu, M. Tendulkar, D. Burrows, T.N. Jackson, and S. Trolier-McKinstry</u></p>
11:00AM - 11:15AM	<p><b>Interactions Between Point Defects and Ferroelectric Domain Walls</b>  <u>D.R. Småbråten, L. Xia, S.H. Skjærvø, T. Tybell, and Sverre Magnus Selbach</u></p>	<p><b>In situ Poling and the Strong Post-poling Relaxation of non-180° Domain Texture in Bismuth Ferrite Ceramics</b>  <u>Lisha Liu and John E Daniels</u></p>	<p><b>Measuring Absolute Piezoelectric Displacement with an AFM</b>  <u>Joe T. Evans, S.T. Smith, N.B. Montross, and S.P. Chapman</u></p>	<p><b>Finite Element Simulation of Switchable and Tunable Resonators</b>  <u>Daw Adersah and T.S. Kalkur</u></p>
11:15AM - 11:30AM	<p><b>Optical Properties of Domain Walls in Periodically Poled LiNbO<sub>3</sub> and LiTaO<sub>3</sub> Studied by First-Principle Calculation and Raman Spectroscopy</b>  <u>Michael Rüsing, S. Neufeld, S. Sanna, G. Berth, W. G. Schmidt, and A. Zrenner</u></p>	<p><b>Rare-Earth Modified Bismuth Ferrite Ceramics: Composition, Structure and Properties from Local to Macroscopic Scales</b>  <u>Julian Walker, D. Alikin, S. Trolier-McKinstry, and T. Rojac</u></p>	<p><b>Large Piezoelectricity in Electric-Field Modified Single Crystals of SrTiO<sub>3</sub></b>  <u>Semën Gorfman, E. Mehner, C. Richter, B. Khanbabaee, J. Hanzig, H. Stöcker, M. Zschornak, T. Leisegang, U. Pietsch, and D.C. Meyer</u></p>	<p><b>Finite Element Modeling of Piezoelectric Nanobeams with Surface and Flexoelectricity Effects</b>  <u>Shijie Zheng and H.T. Wang</u></p>
11:30AM - 11:45AM	<p><b>Ferroelectric Domain Continuity Over Grain Boundaries</b>  <u>Sukriti Mantri, Jette Oddershede, Dragan Damjanovic, and John E. Daniels</u></p>		<p><b>INVITED - (11:30AM - 12:00PM) Lattice Strain and Domain Contributions in Piezoelectric PZT</b>  <u>Nan Zhang, Semën Gorfman, Hiroko Yokota, A.M. Glazer, Wei Ren, and Z.-G. Ye</u></p>	<p><b>Design of “Hard” BiScO<sub>3</sub>-PbTiO<sub>3</sub> Ceramics for Shear-Bending Mode Actuator Using at High Temperature</b>  <u>Jianguo Chen, Jianxin Wei, and Jinrong Cheng</u></p>
11:45AM - 12:00PM	<p><b>Domain Configuration in (1-x)Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-xPbTiO<sub>3</sub> Ceramics Analysed by Transmission Electron Microscopy</b>  <u>Mojca Otonicar, H. Ursic, D. Alikin, M. Vrabelj, A. Bencan, B. Malic and T. Rojac</u></p>	<p><b>Exploring Next Generation High Temperature Ferroelectrics: 35Bi(Mg<sub>1/2</sub>Ti<sub>1/2</sub>)O<sub>3</sub>-65PbTiO<sub>3</sub> Thin Films</b>  <u>Carl S. Morandi, S. Trolier-McKinstry, K.R. Udayakumar, S. Bhaskar, and J. Rodriguez</u></p>		<p><b>High Power Multilayer Co-Fired Step-Up Piezoelectric Transformers</b>  <u>A. Erkan Gurdal, S. Tuncdemir, S. Dursun, D. Fridkin, and C. A. Randall</u></p>
12:00 PM - 2:00 PM	<b>Lunch Break</b>			

## POSTER SESSION I

Klaus Building Atrium - 12:00 PM - 2:00 PM

### Student Poster Competition Finalists

#### I.1 Quantification of Defect-Defect Interactions in Ferroelectric Materials

Steven J. Brewer, S.C. Williams, H. Zhou, R.Q. Rudy, M. Rivas, R.G. Polcawich, C.D. Cress, E.R. Glaser, J.L. Jones, and N. Bassiri-Gharb

#### I.2 Atomistic Modeling of Ageing in Ferroelectrics

Jacob B.J. Chapman, R.E. Cohen, A.V. Kimmel and D.M. Duffy

#### I.3 Point Defects in (001)-strained BiFeO<sub>3</sub>

Lu Xia and Sverre M. Selbach

#### I.4 Photoelectromotive Force under Transverse-Moving Pulsed Illumination in the Bi<sub>1-x</sub>SiO<sub>20</sub> and Bi<sub>1-x</sub>TiO<sub>20</sub> Single Crystals \*

Tatiana A. Kornienko, S.M. Shandarov, M.G. Kisteneva, and A.L. Tolstik

#### I.5 Ferroelectric Domain Continuity over Grain Boundaries

Sukriti Mantri, Jette Oddershede, Dragan Damjanovic, and John E. Daniels

#### I.6 *In-situ* Poling and the Strong Post-poling Relaxation of non-180° Domain Texture in Bismuth Ferrite Ceramics

Lisha Liu and John E Daniels

#### I.7 Influence of Process Conditions on Structural and Electrical Properties of Hf<sub>1-x</sub>Zr<sub>x</sub>O<sub>2</sub>: Dead Layer Effect and Defect Trapping

Franz Fengler, T. Mittmann, M.H. Park, C. Richter, T. Mikolajick, and U. Schroeder

#### I.8 Improving Reliability in Piezoelectric Films

Betul Akkopru-Akgun, M.T. Lanagan, and S. Trolier-McKinstry

#### I.9 Mechanical Reliability of Piezoelectric Microelectromechanical Systems Pb[(Zr<sub>0.52</sub>Ti<sub>0.48</sub>)<sub>0.98</sub>Nb<sub>0.02</sub>]O<sub>3</sub> Films

Kathleen Coleman, J. Walker, H.G. Yeo, and S. Trolier-McKinstry

#### I.10 Probing the Role of Surface Water in Ferroelectric Domain Charge Dynamics

Iaroslav Gaponenko, N. Domingo, N. Stucki, A. Verdaguer, and P. Paruch

#### I.11 Tuning Light-induced Polarization Screening of Ferroelectric Materials by Water

Fanmao Liu, I. Fina, F. Sánchez, and J. Fontcuberta

#### I.12 Local Writing and Characterization of Individual Charged Conducting Domain Walls in y-cut LiNbO<sub>3</sub> (MgO 5% mol) Single Crystals

James P.V. McConville, M.P. Campbell, A. Kumar, and J.M. Gregg

#### I.13 Simultaneous Time-Resolved Measurements of Polarization and Strain Dynamics to Explore Switching in Ferroelectric/Ferroelastic Materials

Jan Schultheiss, Y. A. Genenko, S. Zhukov, R. Khachatryan, L. Liu, J.E. Daniels and J. Koruza

#### I.14 Domain Reorientation and Extrinsic Scaling Effects in Polycrystalline, {001} Textured PbZr<sub>0.3</sub>Ti<sub>0.7</sub>O<sub>3</sub> Thin Films

Lyndsey M. Denis, G. Esteves, J. Walker, H. Zhou, M. Wallace, C. Fancher, J.L. Jones, and S. Trolier-McKinstry

#### I.15 Electric-field-induced Polarization Rotation in PbZb<sub>0.5</sub>Ti<sub>0.5</sub>O<sub>3</sub> Revealed by *in-situ* Pair Distribution Function Study

Changhao Zhao, Dong Hou, Ching-Chang Chung, Jacob L. Jones

#### I.16 Periodic Nano-domain Patterns in Relaxor Single Crystals

Wei-Yi Chang, Ching-Chang Chung, Chih-hao Chang, Jacob L. Jones, Jian Tian, and Xiaoning Jiang

#### I.17 Losses and Heat Generation of Piezoelectric Ceramics by Polarization Orientation

Minkyu Choi, T. Scholehwar, E. Hennig, and K. Uchino

**I.18 EMAT Phased Array Probe for Detecting Surface Cracks**

Julio Isla and Frederic Cegla

**I.19 Current Construction Advancements of an Ultrasonic Phased Array Transducer for Future Deployment Within an Advanced Test Reactor Loop for in-use Monitoring**

Galestan Mackertich Sengerdy, and B.R. Tittmann

**I.20. Highly (100)-Oriented Metallic LaNiO<sub>3</sub> Grown by RF Magnetron Sputtering**

Xiao Di and P. Muralt

**I.21 Self-Assembled Monolayer-Assisted Inkjet Printing of PZT Films on Platinized Silicon**

Nicholas Godard, D. Sette, S. Glinsek, and E. Defay

**I.22 Strongly {001} Oriented Bimorph Thick PZT Films Grown by High Temperature rf- Magnetron Sputtering for a Non-resonant Piezoelectric Energy Harvester**

Hong Goo Yeo, Tiancheng Xu, Shad Roundy, and Susan Trolier-McKinstry

**I.23 Optimization of a Novel Transducer Design for a Pavement Embedded Energy Harvesting Application**

Gregory Yesner, A. Jasim, H. Wang, B. Basily, A. Maher, and A. Safari

**I.24 Anomalous Enhancement in Photocatalytic Rate by Stabilizing a Metastable Phase in a BiFeO<sub>3</sub>-Based Photocatalyst**

Narayan Bastola, Sangeeta Adhikari, Giridhar Madras, and Rajeev Ranjan

**I.25 How does Cyclic Electrical Loading Influence the Electrocaloric Effect in PMN-xPT?**

Andraz Bradeško, M. Vrabelj, L. Fulanović, M. Otoničar, Z. Kutnjak, B. Malič, and T. Rojac

**I.26 Solid state Cooling Device Based on Electrocaloric Ceramic Multilayers**

Tian Zhang, Xiaoshi Qian, Haiming Gu, and Q. M. Zhang

**I.27 Nonlinear Electric Field Dependence of Electrocaloric Effect in (001)-epitaxial (Ba,Sr)TiO<sub>3</sub> Thin Films**

Shogo Matsuo, T. Yamada, T. Kamo, H. Funakubo, M. Yoshino, and T. Nagasaki

**I.28 Tunable Interdigital Capacitors and Phase Shift Unit Cell Fabricated on Ba<sub>0.29</sub>Sr<sub>0.71</sub>TiO<sub>3</sub> Grown by Hybrid MBE**

Cedric J. G. Meyers, C.R. Freeze, S. Stemmer, X. Lan, L. Chau, and R.A. York

**I.29 Fabrication and Testing of Electromechanical Actuation Devices Based on Gd-doped Ceria Thin Films**

Eran Mishuk, E. Makagon, E. Wachtel, S. Cohen, A.D. Ushakov, D.O. Alikin, A.A. Esin, A. Tselev, K. Rechav, R. Popovitz-Biro, V. Ya. Shur, A.L. Kholkin, and I. Lubomirsky

**I.30 Controlled Functionalization of Poly(4-methyl-1-pentene) Films for High Energy Storage**

Guan Wang, M. Zhang, Z. Xu, and L. Zhang

## Contributed Posters

**I.31 Effects of Sintering Temperature on Structure, Ferroelectric and Piezoelectric Properties of 0.71BF-0.29BT Ceramic**

Jian-Xin Wei, Jin-Rong Cheng, and Jian-Guo Chen

**I.32 Lead-free KN-NBZ Piezoelectric Ceramics**

Stephan Collins and A.J. Bell

**I.33 Hard-Piezoelectric Ceramics for Low Temperature Co-Fired Multilayer Piezoelectric Transformers**

Sinan Dursun, A.E. Gurdal, S. Tuncdemir, D. Fridkin, and C.A. Randall

**I.34 Stabilizing High Energy Piezoelectric Polymorphs**

Lauren M. Garten, Riley Whitehead, John Magnum, Shyam Dwaraknath, Laura Schelhas, Michael F. Toney, Julian Walker, Brian Gorman, Paul Ndione, Susan Trolier-McKinstry, Kristin Persson, and David Ginley

- I.35 Textured Lead-free Piezoelectrics for High-Frequency Ultrasound Imaging**  
Astri Bjørnetun Haugen, Erling Ringgaard, and Franck Levassort
- I.36 Room Temperature Crystallographic Phase analysis of (1-x) KNbO<sub>3</sub>-xCaZrO<sub>3</sub> lead-free piezoelectric materials.**  
Samuel J. Parry and A.J. Bell
- I.37 Synthesis, Dielectric and Ferroelectric Behaviour of Lead-free KBT-BT Ceramics**  
Karuppanan Aravinth and P. Ramasamy
- I.38 Investigation of Electrical Properties in a New Lead-free (100-x)(Li<sub>0.12</sub>Na<sub>0.88</sub>)NbO<sub>3</sub>-xBaTiO<sub>3</sub> (0 ≤ x ≤ 40) Piezoelectric System**  
Ajit Kulkarni and Supratim Mitra
- I.39 Bi(Mg<sub>2/3</sub>Nb<sub>1/3</sub>)O<sub>3</sub>-BaTiO<sub>3</sub>-BiFeO<sub>3</sub> PbO-free Piezoelectric Ceramics**  
Shunsuke Murakami, Dawei Wang, Amir Khesro, Antonio Feteira, Derek C. Sinclair, and Ian M. Reaney
- I.40 Properties and Structures of Nonstoichiometric (K,Na)NbO<sub>3</sub>-based Lead-free Ceramics**  
Jie Xing, Zhi Tan, Lixu Xie, Jiagang Wu, Dingquan Xiao, and Jianguo Zhu
- I.41 Observation of Room Temperature Ferroelectricity in LiNbO<sub>3</sub>, KNbO<sub>3</sub> and Na<sub>0.9</sub>Li<sub>0.1</sub>NbO<sub>3</sub> Ceramics Synthesized by Conventional Solid State Reaction**  
Viancy Isaza-Zapata, C. Maya, A. Gómez, V.H. Zapata, O. Morán, and J.L. Izquierdo
- I.42 Synthesis of Single-Crystalline Lithium Tantalate Nanorods - Piezoelectric and Non-Linear Optic Properties**  
Prem Jaschin and K.B.R. Varma
- I.43 Effects of SiO<sub>2</sub> Coating on the Dielectric and Ferroelectric Properties of BaTiO<sub>3</sub>-SiO<sub>2</sub> Composites**  
Xu Lu, Yang Tong, Hossein Talebinezhad, Jiachen Liu, Yancen Cai and Z.-Y. Cheng
- I.44 Structure, Ferroelectric and Mechanical Performance of Polycrystalline Gadolinium Doped Lead Lanthanum Zirconate Titanate Ceramics**  
S.F. Mansour, L. Abd El-Latif, A.M. Eid, M.M. Rashad, S. Ducharme, Mohamed Afifi, and J.A. Turner
- I.45 High Performance PZT Chemical Coating Solution and Films for Piezoelectric MEMS Devices**  
Masami Kawahara, S.S. Won, M. Hochido A.I. Kingon, and Seung- Hyun Kim
- I.46 Structure-Processing Relations in PbZr<sub>x</sub>Ti<sub>1-x</sub>O<sub>3</sub> Films Processed Far From Equilibrium on Glass and Polymer Substrates**  
Aaron B. Naden, C. Deng, Y. Yulian, S. Neumayer, B. Rodriguez, N. Bassiri-Gharb, and A. Kumar
- I.47 Far-From-Equilibrium Processing of PbZr<sub>x</sub>Ti<sub>1-x</sub>O<sub>3</sub> Thin Films on Glass and Polymeric Substrates**  
Yulian Yao, C. Deng, A.B. Naden, S. Neumayer, A. Kumar, P.C. Joshi, B. Rodriguez, and N. Bassiri-Gharb
- I.48 Targets Modification During NBT Thin Film Deposition**  
Sergey A. Popov, T.V. Kruzina, Yu.N. Potapovich, M.P. Trubitsyn, and O.S. Rutskyi
- I.49 Multifunctional Molecular Ferroelectric Thin Films**  
Zhuolei Zhang, Peng-Fei Li, Yuanyuan Tang, Andrew J Wilson, Katherine Willets, Manfred Wuttig, Ren-Gen Xiong, and Shenqiang Ren
- I.50 Direct Evidence of Spin Cylcoid in Strained Nanoscale Bismuth Ferrite Thin Film**  
J. Bertinshwa, R. Maran, S.J. Callori, Vidya Ramesh, J. Cheung, S.A. Danilkin, W.T. Lee, S. Hu, J. Seidel, N. Valanoor, and C. Ulrich
- I.51 Stability of Ferroelectric Phase in Epitaxial HfO<sub>2</sub>-based Films**  
Takanori Mimura, Kiriha Katayama, Takao Shimizu, Takanori Kiguchi, Akihiro Akama, Toyohiko J. Konno, Osami Sakata, and Hiroshi Funakubo
- I.52 Fabrication and Characterization of La, Ga Co-modified BiFeO<sub>3</sub>-PbTiO<sub>3</sub> Multiferroic Ceramics with High Magnetic Field Assisted Sintering**  
Shujin Shen, Jianguo Chen, and Jinrong Cheng
- I.53 Remarkably Enhanced Photocatalytic Activity in Bi<sub>1-x</sub>Ba<sub>x</sub>FeO<sub>3</sub> Prepared by Sol-Gel Method**  
Chenlan Zhang, Tong Tong, Jianguo Chen, Dengren Jin, and Jinrong Cheng

**I.54 Ceramic/Polymer Microwave Composites via the Cold Sintering Process**

Dawei Wang, D. Zhou, and I.M. Reaney

**I.55 [001]<sub>c</sub> Textured Ternary Ceramics with Enhanced Piezoelectric Properties by Templated Grain Growth**

Beecher Watson, Yunfei Chang, Libby Kupp, Jie Wu, Mark A. Fanton, Richard J. Meyer Jr., and Gary L. Messing

**I.56 Mechanical Strength and Material Property Evaluation of Textured PMN-PZT Polycrystalline Ceramic**

Richard Pérez-Moyet, D.P. Sherman, A.A. Heitmann, and J.B. Blottman

**I.57 Investigation of Noise Characteristics of Phosphorous Chalcogenide Crystal in the Vicinity of Phase Transition**

Ilona Zamaraitė, Jonas Matukas, Sandra Pralgauskaite, Andrius Džiaugys, Yulian Vysochanskii, and Juras Banys

**I.58 Dynamic Observation of Nanoscale Domain Switching Behaviors in Ferroelectric HfO<sub>2</sub> films Using Scanning Nonlinear Dielectric Microscopy**

Yoshiomi Hiranaga, T. Mimura, T. Shimizu, H. Funakubo, and Y. Cho

**I.59 Dielectric Relaxation in Ca<sub>5</sub>Nb<sub>4</sub>TiO<sub>17</sub> Ceramics**

Chunchun Li, Xiaoyong Wei, Haixue Yan, and Michael J. Reece

**I.60 Vibrational Signatures of Ti and Fe Doped Lithium Niobate**

Peter Mackwitz, M. Rüsing, G. Berth, and A. Zrenner

**I.61 Complex Impedance Spectra of Amorphous and Glass-ceramic Li<sub>2</sub>O-7GeO<sub>2</sub> Compounds**

Oleksii O. Nesterov, M.P. Trubitsyn, S.N. Plyaka, and M.D. Volnyanskii

**I.62 PRAP Version 3.1**

Ron Tasker

**I.63 Reliability in Patterned PZT Films for MEMS Applications**

Jung In Yang, S.Y. Lee, S.W. Ko, and S. Trolier-McKinstry

**I.64 Probing Cracks Induced by Inhomogeneous Stresses in MLCAs**

Jianwei Zhao, Caleb Mooney, Antje Kynast, Michael Toepfer, Eberhard Hennig, Elizabeth C. Dickey, and Jacob L. Jones

**I.65 Ferroelasticity in Organolead Halide Perovskite MAPbI<sub>3</sub>**

Tao Li, E. Strelcov, Q. Dong, J. Chae, Y. Shao, Y. Deng, A. Centrone<sup>2</sup>, J. Huang, A. Gruverman

**II.66 Big/Deep Data Approaches for Investigations of the Tip-Induced Ferroelectric Switching**

A.V. Levlev and S.V. Kalinin

**II.67 Non-destructive Determination of Collagen Fibril Width in Extruded Collagen Fibers by Piezoresponse Force Microscopy**

A. Bazaid, S.M. Neumayer, J. Guyonnet, A. Sorushanova, D. Zeugolis, and Brian J. Rodriguez

2:00 PM - 4:00 PM	<b>SESSION II</b>			
	<b>Synthesis-property Relationship in Thin Films Room: 2456</b>	<b>Processing of Ferroelectric Materials for End Applications Room: 2443</b>	<b>Devices Room: 1443</b>	<b>New Approaches and Defects Room: 1456</b>
	Session Chair: Nathalie Lemee	Session Chair: Mari-Ann Einasrud	Session Chair: Stephen Ducharme	Session Chairs: Raman Vasudevan and Sabine Neumayer
2:00PM	INVITED - (2:00PM - 2:30PM) <b>Lead-free Piezoelectric (Na,Bi)TiO<sub>3</sub>-BaTiO<sub>3</sub> Thin Films and Their Application</b> <i>Eiji Fujii, Y. Tanaka, T. Harigai, and H. Adachi</i>	INVITED - (2:00PM - 2:30PM) <b>Piezoelectric Enhancement of Bismuth-based Piezoelectric Materials with Pseudo-cubic Symmetry Based on Nano/Macro Complex Domain Configurations</b> <i>Satoshi Wada, R. Ariizumi, T. Aizawa, Sarah Najwa, S. Ueno, N. Kumada, C. Moriyoshi, and Y. Kuroiwa</i>	<b>Step-up DC to DC Converter based on Polarization Switching in Ferroelectric Capacitors</b> <i>Abdulaziz Alateeq and Thottam S. Kalkur</i>	<b>G-Mode KPFM: Bringing Kelvin Probe Force Microscopy into the Information Age</b> <i>L. Collins, A. Belianinov, S. Somnath, N. Balke, S.V. Kalinin, and Stephen Jesse</i>
2:15PM - 2:30PM			<b>A Novel Compact Tunable Dual-Band Bandstop Filter (DBBSF) with Spurline and Stepped- Impedance Resonator Loaded with BST Capacitors</b> <i>Hamad Alrwuili and T.S.Kalkur</i>	<b>Smart Correction of SPM Time Series: Can Data Analytics Help Us Extract Correlations?</b> <i>Iaroslav Gaponenko, P. Tückmantel, B. Ziegler, G. Rapin, M. Chhikara, and P. Paruch</i>
2:30PM - 2:45PM	<b>Deposition of Epitaxial PMN-PT on Silicon Wafers for Piezoelectronic Transduction Memory Devices</b> <i>Matthijn Dekkers, M. Nguyen, N. Hildenbrand, S. Abel, F. Eltes, J. Fompeyrine, and P. Wittendorf</i>	<b>Study of Bonding Utilizing Cold Sintering for Ceramic Adhesives for High-temperature Applicable Energy Harvesting Piezoelectric Device</b> <i>Wei-Ting Chen, Ahmet Erkan Gurdal, Safakcan Tuncdemir, Jing Guo, Hanzheng Guo, and Clive. A. Randall</i>		<b>Full Information Acquisition in Piezoresponse Force Microscopy for Ultrafast imaging of Polarization Switching</b> <i>Suhas Somnath, S.V. Kalinin, and S. Jesse</i>
2:45PM - 3:00PM	<b>Implications of Ferroelectricity During the Growth of Ferroelectric Superlattices</b> <i>Rui Liu, Alec Sun, Benjamin Bein, Hsiang-Chun Hsing, Anna Gura, Giulia Bertino, Jin-Wen Lai, and Matthew Dawber</i>	<b>Hydrothermal Assisted Cold Sintering of Lead Zirconate Titanate (PZT-5A) Powder</b> <i>Dixiong Wang, C.S. Morandi, and S. Trolrier-McKinstry</i>	<b>Biocompatible Lithium Niobate for Sensing and Microfluidics Applications</b> <i>N.C. Carville, D. Kilinc, S.M. Neumayer, M. Manzo, A. Blasiak, M.A. Baghban, A. Al-Adli, R.M. Al-Shammari, J.H. Rice, G.U. Lee, K. Gallo, and Brian J. Rodriguez</i>	<b>Machine Learning and Spectroscopic Scanning Probe Microscopy: a Magnetoelectric Composite Case Study</b> <i>Harsh Trivedi, V.V. Shvartsman, D.C. Lupascu, and R.C. Pullar</i>



3:00PM	<p><b>RF Reactive Sputtering AlN Thin Film at Room Temperature for CMOS-compatible MEMS Application</b>  <i>Wenjuan Liu, W.J. Xu, W.Z. Wang, L.M. He, J. Zhou, K. Radhakrishnan, H. Yu, and J.Y. Ren</i></p>	<p><b>Enhanced Piezoelectric Properties in [001]<sub>c</sub> Textured PIN-PMN-PT Ternary Ceramics</b>  <i>Yunfei Chang, B. Watson, E. Kupp, M. Fanton, R. Meyer Jr., and G.L. Messing</i></p>	<p><b>Electrospun PVDF-TrFE Piezoelectric Nanofiber Membrane for Tissue Engineering Applications</b>  <i>Aochen Wang, Ming Hu, Xiaodi Zhang, Jinxi Zhang, and Kailiang Ren</i></p>	<p><b>INVITED - (3:00PM - 3:30PM) Topological Structures in Ferroic Materials as Nanoscale Functional Elements</b>  <i>Jan Seidel</i></p>
3:15PM - 3:30PM	<p><b>Self-limiting Growth of Barium Titanate via Molecular Beam Epitaxy</b>  <i>Timothy A. Morgan, M. Zamani-Alavijeh, G. Story, W. Schroeder, A.V. Kuchuk, M. Benamara and G.J. Salamo</i></p>	<p><b>Manufacturing Grain Textured Piezoelectric Ceramic Transducer Components</b>  <i>Mark A. Fanton, R.J. Meyer, E.R. Kupp, B.H. Watson, Y. Chang, R.L. Walton, H.E. Payne, and G.L. Messing</i></p>		
3:30PM - 3:45PM	<p><b>Influence of Process Conditions on Structural and Electrical Properties of Hf<sub>1-x</sub>Zr<sub>x</sub>O<sub>2</sub>: Dead Layer Effect and Defect Trapping</b>  <i>Franz Fengler, T. Mittmann, M.H. Park, C. Richter, T. Mikolajick, and U. Schroeder</i></p>	<p><b>Textured PMNT Research and Development at PSU</b>  <i>Richard J. Meyer Jr., G Messing, M. Fanton, E. Kupp, Y. Chang, and B. Watson</i></p>	<p><b>A Lightweight, Low Power Consumption De-Icing System for Composite Aircrafts using Macro Fiber Composites</b>  <i>Alan Giles and Thomas Daue</i></p>	<p><b>Local Probe Studies of Switching and Current Dynamics in Pb(Zr<sub>0.2</sub>Ti<sub>0.8</sub>)O<sub>3</sub> Thin Films</b>  <i>Phillippe Tückmantel, I. Gaponenko, S. Gariglio, B. Ziegler, J. Agar, L.W. Martin, and P. Paruch</i></p>
3:45PM - 4:00PM		<p><b>Phase Formation, Crystal Growth, Crystal Structure and Piezoelectric Properties of Ca<sub>3</sub>TaAl<sub>3</sub>Si<sub>2</sub>O<sub>14</sub> Single Crystal</b>  <i>Yuui Yokota, Y. Ohashi, A. Yamaji, S. Kurosawa, K. Kamada, and A. Yoshikawa</i></p>	<p><b>Fabrication and Testing of Electromechanical Actuation Devices based on Gd-doped Ceria Thin Films</b>  <i>Eran Mishuk, E. Makagon, E. Wachtel, S. Cohen, A.D. Ushakov, D.O. Alikin, A.A. Esin, A. Tselev, K. Rechav, R. Popovitz-Biro, V.Ya. Shur, A.L. Kholkin, and I. Lubomirsky</i></p>	<p><b>Chemical State Evolution in Ferroelectric Films During Polarization and Electroresistive Switching: Secondary Ion Mass Spectrometry Study</b>  <i>Anton V. Ievlev, C.C. Brown, P. Maksymovych, S.V. Kalinin, and O.S. Ovchinnikova</i></p>
5:30 PM - 7:30 PM	<p><b>Craft Beer Tasting, Student Social</b>  Monday Night Brewing</p>			

**Tuesday, May 9, 2017**

8:30 AM - 9:30 AM	<p align="center"><b>Plenary Session II</b>          Wenn Student Center Ballroom          Session Chair: Dragan Damjanovic</p> <p align="center"><b>Lattice Defects in Ferroelectric Oxides and Their Interactions with Electric Fields - Prof. Elizabeth Dickey</b></p>			
9:30 AM - 10:00 AM	<p align="center"><b>Refreshment Break</b></p>			
10:00 AM - 12:00 PM	<p align="center"><b>SESSION III</b></p>			
	<p align="center"><b>Polar Interactions and Metastabilities</b>          Room: 1443</p>	<p align="center"><b>Ferroelectric-based Memories and Transistors</b>          Room: 2456</p>	<p align="center"><b>Transducer Materials</b>          Room: 2443</p>	<p align="center"><b>Signal Contribution</b>          Room: 1456</p>
	<p align="center">Session Chair: Lauren Garten</p>	<p align="center">Session Chair: Vincent Garcia</p>	<p align="center">Session Chair: Dragan Damjanovic</p>	<p align="center">Session Chair: Lane Martin</p>
10:00AM	<p>INVITED - (10:00AM - 10:30AM)  <b>Polar Metastable States in Antiferroelectrics</b>  <u>Elena Buixaderas</u></p>		<p><b>High Power Piezoelectric Characterization System - New Generation -</b>  <u>Minkyu Choi and Kenji Uchino</u></p>	<p>INVITED - (10:00AM - 10:30AM)  <b>“Strange Ferroelectrics”: Why So Many Materials Appear to Show Piezo/Ferroelectric Behaviors During Nanoscale Measurements</b>  <u>Rama K. Vasudevan, N. Balke, A. Ievlev, O. Ovchinnikova, P. Maksymovych, S. Jesse and S.V. Kalinin</u></p>
10:15AM - 10:30AM		<p><b>Ferroelectric Properties of an Innovative FeFET with 3.3V Writing, 10<sup>9</sup> Endurance, and Long Retention</b>  <u>Mitsue Takahashi, W. Zhang, and S. Sakai</u></p>	<p><b>Modeling Losses of a Piezoelectric Resonator: Analytical vs. Finite Elements Analysis</b>  <u>Thibaut Meuris and D. Damjanovic</u></p>	
10:30AM		<p><b>Tunable, Multi-State Switching in Ferroelectric Thin Films</b>  <u>Ruijuan Xu, S. Liu, S. Saremi, H. Lu, S. Pandya, R. Gao, E. Bonturim, A.M. Rappe, and L.W. Martin</u></p>	<p>INVITED - (10:30AM - 11:00AM)  <b>Advanced Mechanical Characterization for Piezoelectric Automotive Sensor Applications</b>  <u>Gunnar Picht and S. Frank</u></p>	<p><b>Mechanical Reading of Ferroelectric Polarization</b>  <u>Kumara Cordero-Edwards, A. Abdollahi, J. Sort, N. Domingo, and G. Catalán</u></p>
10:45AM - 11:00AM	<p><b>Non-Classical Electrostriction in Fluorites and Perovskites: Current Understanding and Future Prospects</b>  <u>Nimrod Yavo, Ori Yehekel, Ellen Wachtel, Anatoly Frenkel, and Igor Lubomirsky</u></p>	<p><b>The Piezoelectronic Family of Devices, from RF Switches to Fast Low Power Transistors</b>  <u>Glenn J. Martyna</u></p>		<p><b>Functional Material Properties of Oxide Thin Films Probed by Atomic Force Microscopy on the Nanoscale</b>  <u>Nina Balke and Alexander Tselev</u></p>

11:00AM	<p><b>Defect Dipole Enhanced Electromechanical Coupling</b>  <u>Ronald E. Cohen</u>, <u>Shi Liu</u>, and <u>Muhtar Ahart</u></p>	<p><b>Anti-Ferroelectric HfO<sub>2</sub> or ZrO<sub>2</sub>: a Key Material for Novel Anti-Ferroelectric Non-volatile Memories</b>  <u>M. Pešić</u>, <u>M. Hoffmann</u>, <u>C. Richter</u>, <u>S. Slesazek</u>, <u>T. Mikolajick</u>, and <u>Uwe Schroeder</u></p>	<p>INVITED - (11:00AM - 11:30AM)  <b>Phenomenology of Transducer Materials</b>  <u>George A. Rossetti, Jr.</u></p>	<p><b>Converse Flexoelectric Effects in PFM</b>  <u>Neus Domingo</u>, <u>A. Abdollahi</u> and <u>G. Catalán</u></p>
11:15AM	<p><b>Stress-Dependent Bulk Photovoltaic Effect in Donor-Doped LiNbO<sub>3</sub>: Relation Between Defect Structure, Band Structure and Dielectric Properties</b>  <u>S. Nadupalli</u> and <u>Torsten Granzow</u></p>	<p><b>Ferroelectric Probe Data Storage Using HfO<sub>2</sub>-Based Thin-Film Recording Media</b>  <u>Yoshiomi Hiranaga</u>, <u>T. Mimura</u>, <u>T. Shimizu</u>, <u>H. Funakubo</u>, and <u>Y. Cho</u></p>		<p>INVITED - (11:15AM - 11:45AM)  <b>Probing Genuine Piezoresponse in Piezoresponse Force Microscopy</b>  <u>Yunseok Kim</u></p>
11:30AM - 11:45AM	<p><b>Dielectric Properties of Lithium Niobate from mHz to Optical Frequencies</b>  <u>Charlotte Cochard</u>, <u>T. Spielmann</u>, <u>N. Balhawane</u>, <u>A. Halpin</u>, and <u>T. Granzow</u></p>	<p><b>Controlling Magnetization using Patterned Electrodes on a Piezoelectric Film</b>  <u>Chris S. Lynch</u> and <u>J. Cui</u></p>	<p><b>Modeling the Effect of Porous Structure on Poling Behavior of Ferroelectric Ceramics</b>  <u>James I. Roscow</u>, <u>Y. Zhang</u>, <u>R.W.C Lewis</u>, <u>J. Taylor</u>, and <u>C.R. Bowen</u></p>	
11:45AM - 12:00PM	<p><b>Symmetry Breaking and Direct Evidence of Polar Regions In Paraelectric Phase of BaTiO<sub>3</sub>-Based Ferroelectrics</b>  <u>Sina Hashemi Zadeh</u>, <u>Emad Oveisi</u>, <u>Sandro De Zanet</u>, <u>Andreja Bencan</u>, <u>Goran Drazic</u>, <u>Tadej Rojac</u>, and <u>Dragan Damjanovic</u></p>	<p><b>Non-volatile Ferroelectric Mechanical Memory</b>  <u>Glen R. Fox</u>, <u>J.S. Pulskamp</u>, and <u>R.G. Polcawich</u></p>	<p><b>Manufacturing Technologies for Ultrasonic Transducers in a Broad Frequency Range</b>  <u>S. Gebhardt</u>, <u>P. Günther</u>, <u>K. Hohlfeld</u>, and <u>Holger Neubert</u></p>	<p><b>Observation of Ferroelectric Domain Structure by Direct Piezoelectric Effect</b>  <u>Takeshi Yoshimura</u>, <u>Kento Kariya</u>, and <u>Norifumi Fujimura</u></p>
12:00 PM - 2:00 PM	<b>Lunch Break</b>			

## POSTER SESSION II

Klaus Building Atrium - 12:00 PM - 2:00 PM

### II.1 Dielectric Properties of Multiferroic Ceramics of the $\text{Bi}_{1-x}\text{La}_x\text{Fe}_{0.50}\text{Sc}_{0.50}\text{O}_3$ Metastable Solid Solutions System

I. Zamaraitė, A.V. Konovalova, O.V. Ignatenko, A.V. Pushkarev, Yu.V. Radyush, N.M. Olekhovich, A.D. Shilin, V.V. Rubanik, A. Stanulis, A. Kareiva, M. Ivanov, R. Grigalaitis, Jūras Banys, D.D. Khalyavin, and A.N. Salak

### II.2 Magnetodielectric Properties of $\text{CuO}$ and $\text{MnO}_2$ Modified $\text{BiFeO}_3$ - $\text{BaTiO}_3$ Solid Solution

Amit Kumar, Narayan Bastola, and Rajeev Ranjan

### II.3 Observation of Positive and Negative Magnetodielectric Effects in Relaxor $\text{PbCo}_{1/3}\text{Nb}_{2/3}\text{O}_3$ Ceramic

Adityanarayan H. Pandey, Anand M. Awasthi, and Surya M. Gupta

### II.4 Nd doped $(\text{K}_{0.44}\text{Na}_{0.52}\text{Li}_{0.04})(\text{Nb}_{0.86}\text{Ta}_{0.1}\text{Sb}_{0.04})\text{O}_3$ Multifunctional Ceramics

Juan Du

### II.5 $\text{NaNbO}_3$ Based Lead-free Antiferroelectric Ceramics

Lisheng Gao, Hanzheng Guo, Shujun Zhang, and Clive A. Randall

### II.6 Pressure-Induced Phase Transitions of Perovskite Ferroelectric Crystals: Comparison of Hydrostatic and One-Dimensional Compression Pressure

Junjie Gao, Long Xie, Hao Zhang, Jidong Yu, Ganghua Wang, Gaomin Liu, Yanqin Gu, Hongliang He, and Jingsong Bai

### II.7 Room Temperature Ferroelectricity and Magnetoelectric Coupling in $\text{Sr}_3\text{Co}_2\text{Fe}_{24}\text{O}_{41}$ Hexaferrite

Anurag Gaur and Pawan Kumar

### II.8 Flexoelectric Impact on Spontaneous Formation and Properties of Domain Structures in Thin Ferroelectric Films

Ivan S. Vorotiahin, Eugene A. Eliseev, Li Qian, Sergei V. Kalinin, Anna N. Morozovska, and Yuri A. Genenko

### II.9 Distribution of Local Structures in Lead-Free Relaxor Ferroelectrics: $(\text{Bi}_{1/2}\text{Na}_{1/2})\text{TiO}_3$ - $\text{BaTiO}_3$ Investigated with Na NMR

Pedro B. Groszewicz, H. Breitzke, M. Grötting, W. Jo, R. Dittmer, E. Sapper, K. Albe, G. Buntkowsky, and J. Rödel

### II.10 Zero-temperature Landau-Devonshire Potential for $\text{BiFeO}_3$ from the First Principles

P. Marton, A. Klíč, M. Paściak, and J. Hlinka

### II.11 Relation of the Structure and Magnetic and Dielectric Properties of the Core/Shell Composite $\text{Co}_{1-x}\text{Ni}_x\text{Fe}_2\text{O}_4$

Ulisis Salazar-Kuri, J.O. Estevez, N. R. Silva, and M.E. Mendoza

### II.12 Strain and Magnetic Field Induced Spin-Structure Transitions in Multiferroic $\text{BiFeO}_3$

A. Agbelele, Daniel Sando, C. Toulouse, C. Paillard, R.D. Johnson, R. Ruffer, A.F. Popkov, C. Carrétéro, P. Rovillain, J.-M. Le Breton, B. Dkhil, M. Cazayous, Y. Gallais, M.-A. Méasson, A. Sacuto, A.K. Zvezdin, A. Barthélémy, J. Juraszek, and M. Bibes

### II.13 Domain Wall Orientation and Domain Shape in $\text{KTiOPO}_4$ Crystals

Vladimir Shur, E.M. Vaskina, E.V. Pelegova, M.A. Chuvakova, A.R. Akhmatkhanov, M. Ivanov, and A.L. Kholkin

### II.14 Forward Domain Growth in Uniaxial Ferroelectrics

Vladimir Shur, D.O. Alikin, A.P. Turygin, A.V. Ilevlev, and S.V. Kalinin

### II.15 Periodic Domain Patterning by Electron Beam in Lithium Niobate Single Crystals Modified by Proton Exchange

D.S. Chezganov, E.O. Vlasov, D.K. Kuznetsov, A.R. Akhmatkhanov, L.V. Gimadeeva, M.M. Neradovskiy, E.A. Neradovskaya, M.A. Chuvakova, H. Tronche, F. Doutre, P. Baldi, M. P. De Micheli, and Vladimir Shur

- II.18 In-situ X-ray Diffraction Study of Gamma Irradiation Effects on Ferroelectric Thin Films**  
Hanhan Zhou, S. J. Brewer, M. Rivas, R.Q. Rudy, R.G. Polcawich, E.R. Glaser, C.D. Cress, N. Bassiri-Gharb, and J.L. Jones
- II.19 Ferroelectric Film Dynamics Simulated by a Second-order Time-dependent Landau Model**  
Michael S. Richman, Paul Rulis, and Anthony N. Caruso
- II.20 A Phenomenological Micromechanical Constitutive Model for General Ferroelectric Materials: 95/5 PZT**  
Wen D. Dong and J. Robbins
- II.21 Structural and Dielectric Properties in Nd<sup>3+</sup> Doped Bi-Cobaltite Nanoparticles**  
Muhammad Anis-ur-Rehman, F. Ahmed, and A. Munir
- II.22 Effect of Parameter Variation in UTBB FDSOI-NCFET**  
Bhaskar Awadhiya and P.N. Kondekar
- II.23 Dielectric Properties of BaTiO<sub>3</sub>-KNbO<sub>3</sub> Composites**  
Sergejus Balčiūnas, Maksim Ivanov, Jūras Banys, and Satoshi Wada
- II.24 Focused Ion Beam Methodologies Pave the Way for “Ferroelectronics”: Release the Kraken**  
Stuart R. Burns, J.M. Gregg, and N. Valanoor
- II.25 Bismuth Nickel Niobate with Small Negative Temperature Coefficients of Dielectric Constant**  
Xiukai Cai, Xiaobo Sun, and Lufeng Pang
- II.26 Interface Diffusion of Silver Electrode into Bismuth-based Ceramics and its Effects on the Dielectric Properties**  
Xiukai Cai, Xiaobo Sun, and Lufeng Pang
- II.27 The Structure and Dielectric Properties of Bismuth-Nickel-Niobium Oxide Based Ceramics**  
Xiukai Cai, Xiaobo Sun, and Lufeng Pang
- II.29 Electrocaloric Effect in BNKT-based and PbZrO<sub>3</sub>-based Ceramics**  
Zhongming Fan, Zunping Xu, Xiaoming Liu, and Xiaoli Tan
- II.30 Electrocaloric Effects and Temperature Distribution Analysis of BaTiO<sub>3</sub>-based Ceramics and Multi-layer Capacitor**  
Hiroshi Maiwa
- II.31 Electrocaloric Effect in Ferroelectric Thin Film**  
Jinbin Wang and B. Li
- II.32 Lead Zirconate Titanate Thin Films for a 2D Ultrasound Array**  
Christopher Y. Cheng, Y. Qiu, L. Hay, S. Cochran, and S. Trolrier-McKinstry
- II.33 Embedded Nanotransducer for Ultrahigh-frequency SAW Utilizing AlN/Diamond Layered Structure**  
Lei Wang, S.M. Chen, J.Y. Zhang, X. Ning, Z. Chen, and J.T. Liu
- II.34 Role of Buffer Layer in PZT Film-Based Transparent Stack Deposited on Glass**  
D. Sette, Sebastjan Glinsek, N. Godard, S. Girod, N. Adjeroud, R. Leturcq, and E. Defay
- II.35 Chemical Solution Deposition of Piezo Films for Prototype Microelectromechanical Systems (MEMS)**  
Beth Jones and S. Trolrier-McKinstry

- II.36 Characterization of PiezoMEMS  $\text{PbZr}_{0.52}\text{Ti}_{0.48}\text{O}_3$  with  $\text{IrO}_2/\text{Pt}$ ,  $\text{IrO}_2$ , and Pt Bottom Electrodes**  
Daniel M. Potrepka, H. Yu, M. Aindow, M. Rivas, G.R. Fox, and R.G. Polcawich
- II.37 Determination of Elastic Modulus of  $\text{IrO}_2$  Thin Films for PiezoMEMS Applications**  
Manuel Rivas, G. Song, R.Q. Rudy, B. Hanrahan, S.W. Lee, B. Huey, and R.G. Polcawich
- II.38 Dielectric Behavior and Non-ohmic Behavior of CCTO/ $\text{SiO}_2$  Composites**  
Hossein Talebinezhad, Y. Tong, X. Lu, and Z.Y. Cheng
- II.39 Fabrication and Characterization of Perovskite Oxynitride Dielectrics**  
Takuya Hoshina, A. Sahashi, K. Kanehara, H. Takeda, and T. Tsurumi
- II.40 Reduced Hysteresis Model and Temperature Dependency of Multilayer Piezo Actuators**  
Charles Mangeot
- II.41  $\text{HfO}_2/\text{HfO}_{2-x}$  Bilayer Structures for Multilevel Resistive Switching and Visualization of Oxygen Deficiencies by Electron Holography**  
Gang Niu, M. A. Schubert, S. U. Sharath, P. Zaumseil, S. Vogel, C. Wenger, E. Hildebrandt, S. Bhupathi, E. Perez, L. Alff, M. Lehmann, T. Schroeder, and T. Niermann
- II.42 Paper Transistors with Organic Ferroelectric P(VDF-TrFE) Films**  
Min Gee Kim and Byung Eun Park
- II.43 Process and Microstructure to Achieve High Dielectric Constant in Ceramic-Glass Composites for Energy Storage Applications**  
Yang Tong, H. Talebinezhad, X. Lu, and Z.Y. Cheng
- II.44 Improved Tunability of  $(\text{Ba,Sr})\text{TiO}_3\text{-Ba}_4\text{Ti}_{13}\text{O}_{30}$  Composite Ceramics by Infiltrate  $\text{BaTiO}_3$**   
Rui Zheng, Dengren Jin, Kai Xu, Hanting Dong, Jinrong Cheng, and Jianguo Chen
- II.45 New Methodology to Determine the Dielectric Constant and Loss at the Resonance/Antiresonance Frequency Range**  
Hossein Daneshpajoo, K. Uchino, and M. Choi
- II.46 Influence of the Measurement System on the Nondestructive Pyroelectric Evaluation of Embedded Piezoelectric Transducers**  
Agnes Eydam, G. Suchanek, and G. Gerlach
- II.48 Non-resonant Magnetolectric Energy Harvester**  
Peter Finkel and M. Staruch
- II.49 Efficient Power Generation via Controlled Porosity in Ferroelectric Polymers**  
Mohammad Mahdi Abolhasan, M. Naebe, K. Shirvanimoghadam, and K. Asadi
- II.50 On the Optimal Electric Load for Ultrasound Energy Receivers**  
Mikel Gorostiaga, M. C. Wapler, and U. Wallrabe
- II.51 Piezoelectric Composite Modules for Sensing and Energy Conversion from Road**  
Ruyan Guo, Bryan Gamboa, Dipon Wasim, George Nall, Juan Tamez, Kalyan Chakravavorthy, Mayur Pole, Pratheek Gopalakrishnan, Shuza Binzaid, and Amar Bhalla
- II.52 Pyroelectric Energy Conversion Cycles Tailored for Antiferroelectrics**  
Brendan M. Hanrahan, Y. Espinal, C.J. Neville, and A.N. Smith
- II.53 A New Interface Technique for Vibration-based Energy Harvesting using Synchronous Switch and Intermediate Capacitor**  
Hongtao Wang and Baoqiang Zhang
- II.55 Design, Simulation and Experimental Evaluation of Tri-Phasic Piezoelectric Composite Transducers**  
Amar Bhalla, Juan P. Tamez, and Ruyan Guo

**II.56 High Temperature Poling and Aging Behavior in PIN-PMN-PT Single Crystals**

Adam A. Heitmann, D.P. Sherman, and R. Pérez-Moyet

**II.57 Characterization of Lead Titanate Single Crystals Grown by Self-Flux Technique**

Thomas E. Hooper, A.J. Bell

**II.58 Effect of Heat Treatment on Impedance Spectra of  $\text{Na}_{0.5}\text{Bi}_{0.5}\text{TiO}_3$  Single Crystal**

T.V. Kruzina, Vasyl M. Sidak, M.P. Trubitsyn, S.A. Popov, A. Yu. Tuluk, J. Suchanicz

**II.59 Relaxor to Ferroelectric Phase Transition in  $0.83\text{PbMg}_{1/3}\text{Nb}_{2/3}\text{O}_3$ - $0.17\text{PbTiO}_3$  Single Crystal**

Šarunas Svirskas, J. Banys and S. Kojima

**II.60 Investigation of Morphotropic Phase Boundaries in the PIN-PSN-PT Ferroelectric Systems with High  $T_{rt}$  and  $T_c$  Phase Transition Temperatures**

Dabin Lin, Fei Li, Shujun Zhang, Edward Gorzkowski, and Thomas R. Shrout

**II.61 Comprehensive Analysis for Calculating Extensive Elastic Compliance and Mechanical Loss from a Non-Electrode Sample**

Maryam Majzoubi, Minkyu Choi, Timo Scholehwar, Eberhard Hennig, and Kenji Uchino

**II.62 Finite Element Modeling of Transducers using the ATILA++ Code**

Pascal Mosbah, R.J. Meyer, D.C. Markley, and J. Roland

**II.63 ONR's Research Program on Acoustic Transduction Materials and Devices**

Harold Robinson, W.A. Smith, C. Wu

**II.64 A Hybrid Boundary Element Method for the Simulation of Acoustic Cross-talk in Large Piezoelectric Micromachined Ultrasonic Transducer Arrays in Immersion**

Bernard Shieh, K.G. Sabra, and F.L. Degertekin

**II.65 Multi Bio Ultra Sounds Simulation Application**

Yohachi Yamashita

**II.66 Piezo1D 1.0**

Ron Tasker

**II.67 Modeling of Lamb Waves Excited by Inter-digital Transducers Deposited on Piezoelectric Plates**

Tai-Ho Yu

**II.68 Research on the Fluid Dynamic Characteristics of Piezoelectric Micro-jet**

Kai Li, Jun-kao Liu, Rui Yang and Wei-shan Chen

**II.69 Mechanisms of Thermal Depolarization in Lead-free Relaxor / Semiconductor Composites**

K. V. Lalitha, J. Rodel, L. Riemer, P. Groszewicz and J. Koruza

2:00 PM - 3:30 PM	SESSION IV			
	Organic Piezoelectrics, Composites Room: 2456	Light-interaction Room: 1443	L. Eric Cross Memorial Room: 2443	Role of Interface Room: 1456
	Session Chair: Shireen Adenwalla	Session Chair: Torsten Granzow	Session Chair: Susan Trolrier-McKinstry	Session Chair: Yunseok Kim
2:00PM	INVITED - (2:00PM - 2:30PM) <b>A Nanoporous Piezoelectric Material: Metal-Organic Framework ZIF-8</b> <i>Moiqui van der Veen, M. Ivanov, S. Van Cleuvenbergen, I. Stassen, Y. Zhang, B. Champagne, and A.L. Kholkin</i>		L.E. Cross - In Memorium <i>S. Trolrier-McKinstry</i>	INVITED - (2:00PM - 2:30PM) <b>Non-Ising and Chiral Ferroelectric Domain Walls: Insights from Nonlinear Optical Microscopy</b> <i>Salia Cherifi-Hertel, H. Bulou, R. Hertel, G. Taupier, K. D. Dorkenoo, C. Andreas, J. Guyonnet, I. Gaponenko, K. Gallo, P. Paruch</i>
2:15PM		<b>Anomalous Enhancement in Photocatalytic Rate by Stabilizing a Metastable Phase in a BiFeO<sub>3</sub>-Based Photocatalyst</b> <i>Bastola Narayan, Sangeeta Adhikari, Giridhar Madras and Rajeev Ranjan</i>	INVITED - (2:15PM - 2:45PM) <b>Lead Scandium Tantalate: From B-Sites through Thermal Sights to Cool Nights</b> <i>Roger W. Whatmore, S. Crossley, B. Nair, X. Moya, N.D. Mathur, G.T. Andrews, S. Spencer, M.J. Clouter, and R. Beanland</i>	
2:30PM	<b>Flexible Lead Free Piezoelectric Composites for Energy Harvesting Applications</b> <i>Pim Groen</i>	<b>A Multiferroic on the Brink: Modulation of Ferroelectric, Magnetic, and Optical Response using Strain-induced Transitions in BiFeO<sub>3</sub> films</b> <i>Daniel Sando, T. Young, Y. Zhou, C. Carrétéro, V. Garcia, S. Fusil, A. Barthélémy, M. Bibes, P. Munroe, and V. Nagarajan</i>		<b>Adsorbates and Surface Screening at the Ferroelectric Oxide Surfaces: A Synchrotron Ambient Pressure X-Ray Photoelectron Spectroscopy (XPS) Study</b> <i>Albert Verdaguer, K. Cordero, L. Rodriguez, M.J. Esplandiu, C. Escudero, V. Pérez, A. Caló, and N. Domingo</i>
2:45PM		<b>Optically-Induced Polarization Switching in MoS<sub>2</sub>/BaTiO<sub>3</sub> Heterostructures</b> <i>Tao Li, A. Lipatov, H.-W. Lee, J.-W. Lee, C.-B. Eom, A. Sinitskii, and A. Gruverman</i>	INVITED - (2:45PM - 3:15PM) <b>Ultrafast Switching in Avalanche-driven Ferroelectrics by Supersonic Kink Movements</b> <i>Ekhard K.H. Salje, X. Wang, X. Ding, and J.F. Scott</i>	<b>Effect of Temperature, Humidity and Thickness on Tip Induced Polarization Switching of Single Phase Multiferroic Thin Films</b> <i>Dhiren K. Pradhan, Rama K. Vasudevan, Evgheni Strelcov, Shalini Kumari, Sergei V. Kalinin, A.K. Pradhan, and Ram S. Katiyar</i>



3:00PM	PVDF-Ppy Nanofibric Membranes For Peripheral Nerve Lesion Treatments <u>Liangxi Li and Zhongyang Cheng</u>	INVITED - (3:00PM - 3:30PM) The Bulk Photovoltaic Effect in Polar Oxides for Robust and Efficient Solar Energy Harvesting <u>Andrew M. Rappe, L.Z. Tan, S.M. Young, F. Zheng, F. Wang, Y. Qi, J.E. Spanier, V.M. Fridkin, A.R. Akbashev, A. Polemi, Z. Gu, C.J. Hawley, D. Imbrenda, G. Xiao, A.L. Bennett-Jackson, and C.L. Johnson</u>		INVITED - (3:00PM - 3:30PM) Interface Dependent Domain Growth and Charge Transport Control in Lithium Niobate <u>Sabine M. Neumayer</u>
3:15PM - 3:30PM	Self-Assembled Diphenylalanine Microtubes: Emerging Properties and Applications <u>F. Salehli, S. Kopyl, P. Zelenovskiy, A. Nuraeva, S. Vasilev, A. Esin, V. Shur and Andrei L. Kholkin</u>		Cross-Fertilization: Electrostriction, Devonshire and High Temperature Transducers <u>Andrew J. Bell</u>	
3:30 PM - 4:00 PM	<b>Refreshment Break</b>			

4:00 PM - 5:30 PM	<b>SESSION V</b>			
	<b>Processing Optimization</b> Room: 2456	<b>Local Order and Defects in Lead-free</b> Room: 1443	<b>L. Eric Cross Memorial</b> Room: 2443	<b>Switching Dynamics</b> Room: 1456
	Session Chair: Hisao Suzuki	Session Chair: Kyle Webber	Session Chair: Susan Trolrier-McKinstry	Session Chair: Jan Seidel
4:00PM	Control of PbO Loss during Sintering of PZT: Laboratory vs Industry <u>Martin Safar, M. Zabcik and T. W. Button</u>	INVITED - (4:00 - 4:30) Compositional Dependence of Disorder in $\text{Na}_{1/2}\text{Bi}_{1/2}\text{TiO}_3$ -x%BaTiO <sub>3</sub> <u>P.K.M. Tung, J. Hudspeth, M. Marton and John E. Daniels</u>	INVITED - (4:00PM - 4:30PM) What is so Interesting about Antiferroelectrics: A Walk in Lesser-Known Footsteps of Prof. Eric Cross <u>Nava Setter</u>	INVITED - (4:00PM - 4:30PM) Controlling Emergent Structures and Properties in Epitaxial Ferroelectric Films <u>Lane W. Martin</u>
4:15PM	Release and Transfer of Thin-Film $\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3$ onto Thin Polyimide Substrate <u>Tianning Liu, M. Wallace, Thomas N. Jackson, and S. Trolrier-McKinstry</u>			

4:30PM - 4:45PM	<b>Inkjet Printing of LaNiO<sub>3</sub> Electrodes for Ferroelectric Applications</b> <i>Aleksander Matavž, B. Malič, and V. Bobnar</i>	<b>Structural Disorder of Bi<sub>0.5</sub>K<sub>0.5</sub>TiO<sub>3</sub> Studied by Total Scattering and DFT</b> <i>Bo Jiang, Tor Grande, and Sverre M. Selbach</i>	<b>Recent Advances in Materials for Piezoelectric Transducers</b> <i>Dragan Damjanovic</i>	<b>Mesoscale Correlative Electro-Chemo-Mechanical Response in Ferroelectric Solid Solutions</b> <i>Iaroslav Gaponenko, L.A. Griffin, S. Brewer, R. Vasudevan, S. Zhang, and N. Bassiri-Gharb</i>
4:45PM	<b>Optimizing Lead Content in a Low Temperature Solution Processed PZT Film</b> <i>Reijiro Shimura, P.T. Tue, T. Shimoda, and Y. Takamura</i>	<b>Use of Bayesian Inference in Characterization of Ceramic Materials: An Introduction and Applications in Ferroelectrics</b> <i>Jacob L. Jones, Thanakorn Iamsasri, Jonathon Guerrier, Chris M. Fancher, John E. Daniels, Alexandra Larsen, Alyson G. Wilson, Brian Reich, and Ralph C. Smith</i>	INVITED - (4:45PM - 5:15PM) <b>Journey of a Life-time Down Ferroelectrics-Road with Professor Cross</b> <i>Dwight Viehland</i>	<b>Nanoscale Piezoelectric Response and Domain Relaxation of (K,Na)NbO<sub>3</sub>-Based Lead-Free Perovskite with Abnormal Grain Growth</b> <i>Ke Wang, Tian-Lu Men, Wei Sun and Jing-Feng Li</i>
5:00PM - 5:15PM	<b>A Proposal of New Buffer Layer for Depositing (110)-oriented Perovskite Thin Films on (111)Pt/SiO<sub>2</sub>/Si Substrates</b> <i>Kiyoshi Uchiyama, T. Sato, A. Akama, T. Kiguchi, T.J. Konno, N. Oshima, D. Ichinose, and H. Funakubo</i>	<b>Electrical Fatigue Behavior of Li,Sb and Ta doped KNN Ceramics</b> <i>Orapim Namsar, Chunmanus Uthaisar, and Soodkhet Pojprapai</i>		<b>Structural Phase and Polarization Patterning of Strained BFO Thin Films</b> <i>Sabine M. Neumayer, N. Browne, D. Edwards, A. Naden, N. Bassiri-Gharb, A. Kumar, and B.J. Rodriguez</i>
5:15PM - 5:30PM			<b>Elution of Lead from PZT to Acid Rain</b> <i>Takaaki Tsurumi, B.S. Takezawa, T. Hoshina, and H. Takeda</i>	<b>Size-effects in Layered Ferrielectric CuInP<sub>2</sub>S<sub>6</sub></b> <i>Petro Maksymovych, Marius Chyasnovichyus, Michael A. Susner, and Michael A. McGuire</i>

## Wednesday, May 10, 2017

8:00 AM - 9:00 AM	<b>Plenary Session III</b> Wenn Student Center Ballroom Session Chair: Takaaki Tsurumi  <b>Seeking Simple Truth in Complex Materials: Wrestling with Ferroelectrics, Prof. Marty Gregg</b>
9:00 AM - 10:00 AM	<b>Plenary Session IV</b> Wenn Student Center Ballroom Session Chair: Takaaki Tsurumi  <b>Medical Ultrasound Transducers: Piezoelectrics at Work, Dr. Scott Smith</b>
10:00 AM - 10:30 AM	<b>Refreshment Break</b>

## SESSION VI

SESSION VI				
10:30 AM - 12:00 PM	Lead-Free Piezoelectrics Room: 2456	Domains and Domain Walls Room: 1443	Thermal and Dynamic Behaviors of PZT Room: 1456	Energy Harvesting Room: 2443
	Session Chair: Julia Glaum	Session Chair: Andreja Bencan	Session Chair: Francesco Cordero	Session Chair: Takeshi Yoshimura
10:30AM	<p>INVITED - (10:30AM - 11:00AM) Influence of Compressive Stress on the Piezoelectric and Dielectric Behavior of Lead-Free Ferroelectrics: Shifting Phase Boundaries <u>Kyle G. Webber and F.H. Schader</u></p>	<p>Domain and Domain Wall Imaging with Low Energy Electrons <u>Nicholas Barrett, J.E. Rault, T.O. Montes, A. Locatelli, G.F. Nataf, M. Guennou, J. Kreisel, P. Hicher, R. Haumont, L. Tortech, C. Mathieu, and D. Martinotti</u></p>	<p>Temperature Dependence of Field-responsive Mechanisms in Lead Zirconate Titanate Investigated Using Laboratory X-ray Diffraction <u>Ching-Chang Chung, C.M. Fancher, R. Chen, C. Isaac, A. Kynast, J. Nikkel, E. Hennig, and J.L. Jones</u></p>	<p>INVITED - (10:30AM - 11:00AM) Metamaterial-enhanced Elastic Wave Energy Harvesting Concepts <u>Serife Tol, F.L. Degertekin, and Alper Erturk</u></p>
10:45AM - 11:00AM		<p>A New Technique Based on Current Measurement for Nanoscale Ferroelectricity Assessment: Nano-Positive Up Negative Down <u>S. Martin, D. Albertini, N. Baboux, and Brice Gautier</u></p>	<p>Domain Reorientation and Extrinsic Scaling Effects in Polycrystalline, {001} Textured <math>\text{PbZr}_{0.3}\text{Ti}_{0.7}\text{O}_3</math> Thin Films <u>Lyndsey M. Denis, G. Esteves, J. Walker, H. Zhou, M. Wallace, C. Fancher, J.L. Jones, and S. Trolier-McKinstry</u></p>	
11:00AM - 11:15AM	<p>Leakage Currents in Bi-Based Piezoelectric Thin Films <u>Joel Walenza-Slabe and Brady Gibbons</u></p>	<p>Backscattered Scanning Electron Microscopy Domain Imaging of Ferroelectric Films: <i>in operando</i> Ferroelectric Domain Structure Characterization <u>Jon F. Ihlefeld, Joseph R. Michael, Bonnie B. McKenzie, David A. Scrymgeour, Jon-Paul Maria, Andrew Kitahara, and Elizabeth A. Paisley</u></p>	<p>Thermal Conductivity of Lead Zirconate Titanate across the Phase Diagram <u>Brian M. Foley, E.A. Paisley, J.F. Ihlefeld and P.E. Hopkins</u></p>	<p>Optimization of a Novel Transducer Design for a Pavement Embedded Energy Harvesting Application <u>Gregory Yesner, A. Jasim, H. Wang, B. Basily, A. Maher, and A. Safari</u></p>
11:15AM - 11:30AM	<p>Dielectric and Piezoelectric Properties of <math>\text{Ba}_{1-x}\text{Ca}_x\text{Ti}_{1-y}\text{Zr}_y\text{O}_3</math> Thin Films <u>C.J.M. Daumont, Q. Simon, S. Payan, P. Gardes, P. Poveda, B. Negulescu, M. Maglione, and Jerome Wolfman</u></p>	<p>Observation, Injection and Controlled Motion of Conducting Domain Walls in Improper Ferroelectric Cu-Cl Boracite <u>Raymond G. P. McQuaid, Michael P. Campbell, Roger W. Whatmore, J. Marty Gregg, and Amit Kumar</u></p>	<p>Characterization of Domain wall Dynamics in <math>\text{PbZr}_{1-x}\text{Ti}_x\text{O}_3</math> Using X-Ray Photon Correlation Spectroscopy <u>Semën Gorfman, A. Bokov, M. Reiser, N. Zhang, Z.-G. Ye, A. Zozulya, and C. Gutt</u></p>	<p>Direct Writing of <math>\text{BaTiO}_3</math> Nanocomposites with Tailored Microstructure for Energy Harvesting <u>Mohammad Malakooti, A. Nafari, F. Jule, and Henry A. Sodano</u></p>

<p>11:30AM</p>           <p>11:45AM - 12:00PM</p>	<p><b>Cu Co-fired (Na, K)NbO<sub>3</sub> Multilayer Structure toward Piezoelectric Applications</b>  <u>Lisheng Gao, Hanzheng Guo, Eberhard Hennig, Shujun Zhang, and Clive A. Randall</u></p>	<p><b>Local Writing and Characterization of Individual Charged Conducting Domain Walls in <math>\gamma</math>-cut LiNbO<sub>3</sub> (MgO 5% mol) Single Crystals</b>  <u>James McConville, M.P. Campbell, A. Kumar, and J.M. Gregg</u></p>          <p><b>Manipulating the DWC in Bulk LiNbO<sub>3</sub></b>  <u>C. Razzaghi, M. Becker, and Elisabeth Soergel</u></p>	<p><b>INVITED - (11:30AM - 12:00PM) Linking Pyroelectric Energy Conversion Theory to Practice</b>  <u>Brendan Hanrahan, Y. Espinal, A. Smith, H. Khassaf, R. Polcawich, and S. Pamir Alpay</u></p>	<p><b>Large-scale and Flexible Energy Harvester Based on ZnO Conical Nanostructures by Nano-Imprint Lithography and Atomic Layer Deposition</b>  <u>D. Spirito, E. Defay, K. Menguetti, J. Kreisel, and D. Lenoble</u></p>           <p><b>Bio-compatible Lead-free Piezoelectric Thin Films for Small-scale Flexible Energy Harvesting and Storage Devices</b>  <u>Seung-Hyun Kim, M. Kawahara, S.S. Won, T. Shibayama, M. Hochido, I.W. Kim, and A.I. Kingon</u></p>
<p>12:00 PM - 2:00 PM</p>	<p style="text-align: center;"><b>Lunch Break</b></p>			

12:00 PM - 2:00 PM	<b>Women in Engineering</b> Moderator: Brady Gibbons Klaus Building - Room 1447
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2:00 PM - 3:30 PM		SESSION VII			
		Multiferroics, BFO Part I Room: 1456	Ferroelectrics, Reliability Room: 2456	Jan Fousek Memorial Room: 1443	Transducers I Room: 2443
		Session Chair: Sverre Selbach	Session Chair: Doru Lupascu	Session Chair: Elena Buixaderas	Session Chair: Mark Fanton
2:00PM		<b>INVITED - (2:00PM - 2:30PM)</b> Mapping the Phase Diagram of Multiferroic BiFeO <sub>3</sub> -LaFeO <sub>3</sub> Superlattices <u>Patrycja Paruch</u>	<b>Improving Reliability in Piezoelectric Films</b> <u>Betul Akkopru-Akçun, M.T. Lanagan, and S. Troler-McKinstry</u>	<b>INVITED - (2:00PM - 2:30PM)</b> Domain Wall Mobility in Ferroelectric Films <u>Susan Troler-McKinstry</u>	(2:00PM - 2:15PM) <b>EMAT Phased Array Probe for Detecting Surface Cracks</b> <u>Julio Isla and Frederic Cegla</u>
2:15PM - 2:30PM			<b>Functional Response of Monolithic and Hetero-Layered Ferroelectric Thin Films</b> <u>Evelyn S. Chin and N. Bassiri-Gharb</u>		
2:30PM		<b>New Route to Design Vertically Aligned Multiferroic Nanocomposites</b> <u>Sergey Basov, C. Elissalde, and L. Piraux</u>	<b>Investigation of (non) polar Crystallographic Structures of (un) doped HfO<sub>2</sub> Bulk Ceramics and Nanoparticles</b> <u>Brienne S. Johnson, C.C. Chung, J. Brodie, S. Jones, W. Straka, B. Zoellner, P. Maggard, and J.L. Jones</u>	<b>INVITED - (2:30PM - 3:00PM)</b> Tuning Domain Wall Thickness in Non-magnetic Ferroics <u>Alexander K. Tagantsev</u>	<b>INVITED - (2:30PM - 3:00PM)</b> Piezoelectric Sensors and Transducers for Advancing Structural Health Monitoring Technologies <u>Kui Yao, Shuting Chen, Szu Cheng Lai, Lei Zhang, Chin Yaw Tan, and Yifan Chen</u>
2:45PM - 3:00PM		<b>Magnetic Ion Partitioning in Multiferroic Aurivillius Bismuth Iron Manganese Titanate</b> <u>L. Keeney, A. Faraz, M. Schmidt, C. Downing, V. Nicolisi, M.E. Pemble, and Roger W. Whatmore</u>	<b>Partial Discharge Characteristics of Ferroelectric Ceramics</b> <u>T. Hang, Julia Glaum, Yuri Genenko, T. Phung, and M. Hoffman</u>		
3:00PM		<b>Fabrication and Characterization of Nanoimprinted Organic-Inorganic Multiferroic Nanocomposites</b> <u>Pedro Sá, Bernard Nysten, Luc Piraux, and Alain M. Jonas</u>	<b>Dielectric Failure in Nb-doped {001} Textured Lead Zirconate Titanate Films</b> <u>Wanlin Zhu, T. Borman, K. DeCesaris, S.W. Ko, P. Mardilovich, and S. Troler-McKinstry</u>	<b>INVITED - (3:00PM - 3:30PM)</b> Role of Domain Patterns in Ferroelectrics: From Basic Ideas to Phase-field Simulations <u>Pavel Mokry</u>	<b>A Performance Study of Various Piezoelectric Crystals Based Through Wall Data Communication Systems at Elevated Temperature</b> <u>Suresh Kaluvan and Haifeng Zhang</u>

3:15PM - 3:30PM	<b>Photovoltaic Enhancement Accompanied by Polar-instability: BiFeO<sub>3</sub> vs MAPbI<sub>3</sub></b> <i>Junling Wang and Andrew M. Rappe</i>	<b>Advances in Piezoelectric Thin Film Characterization and Reliability Testing</b> <i>Thorsten Schmitz-Kempen, S. Tiedke, R. Kessels, P. Mardilovich, T. Ebefors, and S. Trolier-McKinstry</i>	<b>Fabrication and Acoustic Characterization of BNT-Based Ultrasonic Therapeutic Transducer</b> <i>Elaheh Taghaddos, T. Ma, Q. Zhou, H. Zhong, M. X. Wan, and A. Safari</i>	
3:30 AM - 4:00 PM	<b>Refreshment Break</b>			

4:00 PM - 5:30 PM	<b>SESSION VIII</b>			
	<b>Multiferroics, BFO Part II</b> Room: 1456	<b>Surfaces and Interfaces</b> Room: 2456	<b>Jan Fousek Memorial</b> Room: 1443	<b>Transducers II</b> Room: 2443
	Session Chair: Tae Kwon Song	Session Chair: Elisabeth Soergel	Session Chair: Elena Buixaderas	Session Chair: Kui Yao
4:00PM	<b>Deterministic Control over Symmetry States in Mixed Phase BiFeO<sub>3</sub></b> <i>Davie Edwards, N. Browne, K. Holsgrove, A. Naden, S.O. Sayedaghaee, B. Xu, S. Prosandeev, D. Wang, D. Mazumdar, A. Gupta, S. Neumayer, B. Rodriguez, N. Bassiri-Gharb, S.V. Kalinin, M.A. Arredondo, R.G.P. McQuaid, L. Bellaiche, J.M. Gregg, and A. Kumar</i>	<b>Tailoring Ferroelectric Surfaces for Demanding Applications from the Bottom Up</b> <i>B. Bein, M.H. Yusuf, A. Gura, G. Bertino, J.-W. Lai, B. Pamuk, M.V. Fernandez Serra, and Matthew Dawber</i>	INVITED - (4:00PM - 4:30PM) <b>A Tribute to Jan Fousek: Domains and Polar Clusters in Modern Non-Linear Dielectric Materials</b> <i>Clive Randall</i>	<b>End-Fire Ring Driven Flexensional Transducer</b> <i>Alex L. Butler and John L. Butler</i>
4:15PM - 4:30PM	<b>Point Defects in (001)-strained BiFeO<sub>3</sub></b> <i>Lu Xia and Sverre M. Selbach</i>	<b>Ferroionic States: Coupling Between Surface Electrochemical and Bulk Ferroelectric Functionalities on the Nanoscale</b> <i>Rama Vasudevan, S.V. Kalinin, Ye Cao, Evgheni Eliseev, and Anna N. Morozovska</i>		<b>Mechanical Pre-Stressing a Transducer through a Negative DC Bias Field</b> <i>Stephen C. Butler</i>
4:30PM	<b>Ferromagnetism in BiFe<sub>1-x</sub>Co<sub>x</sub>O<sub>3</sub> Thin Films and the Correlation Between Ferroelectric and Ferromagnetic Domains</b> <i>Hajime Hojo, R. Kawabe, K. Shimizu, H. Yamamoto, K. Mibu, and M. Azuma</i>	<b>Probing the Role of Surface Water in Ferroelectric Domain Charge Dynamics</b> <i>Iaroslav Gaponenko, N. Domingo, N. Stucki, A. Verdaguer, and P. Paruch</i>	INVITED - (4:30PM - 5:00PM) <b>Domain-Enhanced Electromechanical Properties of Ferroelectrics Using Numerical Simulations</b> <i>Pavel Marton, P. Ondrejokvic, V. Stepkova, A. Klíč, I. Rychetský, and J. Hlinka</i>	<b>Temperature and Stress-dependent Single Crystal Properties for High Power SONAR Applications</b> <i>Raphaël Lardat, Thomas Leissing, and Thomas Pastureauud</i>

4:45PM	<b>INVITED - (4:45PM - 5:15PM)</b> <b>Magnetoelectric Heterostructures With Vinylidene Fluoride Oligomers</b> <i>Shireen Adenwalla, K. Foreman, E. Echeverria, M. A. Koten, R. M. Lindsay, N. Hong, J. Shields, S. Poddar, A. Workman, S. Callori, and Stephen Ducharme</i>	<b>In Situ TEM Study of Charge Compensation in Ferroelectric Thin Films</b> <i>Myung-Geun Han, Joseph Garlow, Matthew S. J. Marshall, Frederick J. Walker, Charles H. Ahn, and Yimei Zhu</i>		<b>INVITED - (4:45PM - 5:15PM)</b> <b>Modeling of Phononic Crystals based on Piezoelectric Materials: Effective Properties and Tunability</b> <i>Anne-Christine Hladky-Hennion, C. Vasseur, B. Dubus, A. Bâlé, F. Levasort, and M. Pham Thi</i>
5:00PM		<b>Tuning Light-induced Polarization Screening of Ferroelectric Materials by Water</b> <i>Fanmao Liu, I. Fina, F. Sánchez, and J. Fontcuberta</i>	<b>INVITED - (5:00PM - 5:30PM)</b> <b>Ferroelectric Domains – Formation, Engineering and Dynamics</b> <u>Wenwu Cao</u>	
5:15PM - 5:30PM	<b>EuTiO<sub>3</sub>: A Magneto-Optical Device for Light Modulation</b> <i>Annette Busmann-Holder, K. Roleder, and J. Köhler</i>	<b>La<sub>1-y</sub>Sr<sub>y</sub>MnO<sub>3</sub> / Ba<sub>1-x</sub>Sr<sub>x</sub>TiO<sub>3</sub> Junction Band Structure Tuning Through Combinatorial Interface Chemical Modulation</b> <i>Antoine Ruyter, J. Wolfman, B. Negulescu, P. Andreazza, C. Autret, and J. Sakai</i>		<b>Tunable Elastic Metamaterial based on Piezoelectric Transducer</b> <i>Pavel Marton, J. Nečásek, J. Václavík, and P. Mokrý</i>
6:00 PM - 10:00 PM	<b>Banquet Dinner</b> Wenn Student Center Ballroom			

**Thursday, May 11, 2017**

8:30 AM - 9:30 AM	<b>Plenary Session V</b> Wenn Student Center Ballroom Session Chair: Scott Smith  <b>Investigation of Relaxor-PT Single Crystals for Device Applications, Prof. Haosu Luo</b>
9:30 AM - 10:00 AM	<b>Refreshment Break</b>

10:00 AM - 12:00 PM	<b>SESSION IX</b>			
	<b>Superlattices, Films</b> Room: 1443	<b>BFO: Structure and Properties</b> Room: 1456	<b>Processing and Characterization</b> Room: 2456	<b>Single Crystals I</b> Room: 2443
	Session Chair: Eiji Fujii	Session Chair: Gunnar Picht	Session Chair: Brahim Dkhill	Session Chair: Fei Li
10:00AM	<b>INVITED - (10:00AM - 10:30AM)</b> <b>Domain Engineering in Ferroelectric Tricolor Superlattices Probed by X-ray diffraction</b> <i>Nathalie Lemée, A. Boulle, I. C. Infante, C. Hubault, N. Blanc, N. Boudet, V. Demange, and M. G. Karkut</i>	<b>INVITED - (10:00AM - 10:30AM)</b> <b>Atomic-Scale Structural and Chemical Analysis of Domain Walls in Bismuth Ferrite</b> <i>Andreja Bencan, G. Drazic, H. Ursic, N. Sakamoto, B. Jancar, G. Tavcar, M. Makarovic, J. Walker, B. Malic, D. Damjanovic, and T. Rojac</i>	<b>Self-Assembled Monolayer-Assisted Inkjet Printing of PZT Films on Platinized Silicon</b> <i>Nicolas Godard, D. Sette, S. Glinsek, and E. Defay</i>	<b>Piezoelectric Single Crystal Standard</b> <i>Lynn M. Ewart and Zuo-Guang Ye</i>
10:15AM - 10:30AM			<b>Fabrication and Characterization of Mechanical Resonators Integrating Microcontact Printed PZT Films</b> <i>Daisuke Saya, D. Dezest, A.J. Welsh, O. Thomas, F. Mathieu, T. Leichle, L. Nicu, and S. Trolier-McKinstry</i>	<b>Broadband Acoustic Transduction Utilizing Phase Transformation in Ferroic Relaxor Mechanically Biased PIN-PMN-PT Single Crystal</b> <i>Peter Finkel and M. Staruch</i>
10:30AM	<b>Understanding Polarization Asymmetry and Precise Tuning of the Built-in bias in PbTiO<sub>3</sub> Based Superlattice Thin Films</b> <i>Hsiang C. Hsing, Simon Divilov, Joe Garlow, Mohammed H. Yusuf, John Bonini, Joe Bennett, Yimei Zhu, Premala Chandra, Karin M. Rabe, Xu Du, Maria V. Fernandez Serra, and Matthew Dawber</i>	<b>The Moiré Effect in the Scanning Transmission Electron Microscope: High Precision Structural Analysis Over Large Fields of View</b> <i>Aaron B. Naden, K.J. O'Shea, I. Vrejoiu, A. Herpers, R. Dittmann, and D.A. MacLaren</i>	<b>Optimizing Lead Content in a Low Temperature Solution Processed PZT Film</b> <i>Reijiro Shimura, P.T. Tue, T. Shimoda, and Y. Takamura</i>	<b>INVITED - (10:30AM - 11:00AM)</b> <b>The Contribution of Polar Nanoregions to Electromechanical Properties in Ferroelectric Crystals and Ceramics</b> <i>Fei Li, Shujun Zhang, Zhuo Xu, Long-Qing Chen, and Thomas R. Shrout</i>
10:45AM - 11:00AM	<b>Nanoscale Bubble Domains in Ultrathin Ferroelectric Films</b> <i>Nagarajan Valanoor, Qi Zhang, Lin Xie, Guangqing Liu, Sergei Prokhorenko, Yousra Nahas, Xiaoqing Pan, Laurent Bellaiche, and Alexei Gruverman</i>	<b>Deterministic Control over Conducting States in Morphotropic BiFeO<sub>3</sub> using Electrical Bias and Uniaxial Stress: Towards Piezoresistive Applications</b> <i>Niall Browne, D. Edwards, K. Holsgrove, A.B. Naden, S.O. Sayedaghaee, B. Xu, S. Prosandeev, D. Wang, D. Mazumdar, A. Gupta, S.V. Kalinin, M.A. Arredondo, R.G.P. McQuaid, L. Bellaiche, J.M. Gregg, and A. Kumar</i>	<b>Measurement Method of Multi-Layer Piezoelectric Polarity-Inverted Structure Using Scanning Nonlinear Dielectric Microscopy</b> <i>Hiroyuki Odağawa, Y. Tanaka, T. Yanagitani, and Y. Cho</i>	



11:00AM- 11:15AM	<p><b>Nanoscale Origins of Ferroelastic Domain Wall Mobility in Ferroelectric Multilayers</b>  <u>Nagarajan Valanoor, Hsin-Hui Huang, Zijian Hong, Huolin L. Xin, Dong Su, Long-Qing Chen, Guanzhong Huang, and Paul R. Munroe</u></p>	<p><b>Real-Space Imaging of Non-Collinear Antiferromagnetic Order with a Single Spin Magnetometer</b>  <u>Vincent Garcia, I. Gross, W. Akhtar, L.J. Martinez, S. Chouaieb, K. Garcia, C. Carrétéro, A. Barthélémy, P. Appel, P. Maletinsky, J.-V. Kim, J.-Y. Chauleau, N. Jaouen, M. Viret, M. Bibes, S. Fusil, and V. Jacques</u></p>	<p><b>Controlled Functionalization of Poly(4-methyl-1-pentene) Films for High Energy Storage</b>  <u>Guan Wang, M. Zhang, Z Xu, and L. Zhang</u></p>	<p><b>Periodic Nano-domain Patterns in Relaxor Single Crystals</b>  <u>Wei-Yi Chang, Ching-Chang Chung, Chih-hao Chang, Jacob L. Jones, Jian Tian, and Xiaoning Jiang</u></p>
11:15AM - 11:30AM	<p><b>Large Strain Control of Magnetization in Magnetostrictive Films on Single Crystal PIN-PMN-PT</b>  <u>Margo Staruch, S.F. Cheng, K. Bussmann, and P. Finkel</u></p>	<p><b>Enhanced Piezoelectric Response Due to Polarization Rotation in Co-substituted BiFeO<sub>3</sub> Epitaxial Thin Films</b>  <u>Keisuke Shimizu, H. Hojo, Y. Ikuhara, and Masaki Azuma</u></p>	<p><b>Bismuth Based Pyrochlore Dielectric Thin Films Deposited at Low Temperature for Thin Film Multilayer Capacitor Applications</b>  <u>Wei Ren, Fan He, and Peng Shi</u></p>	<p><b>Micromachining of PIN-PMN-PT Crystals Using Ultra-short Pulse Laser Ablation</b>  <u>Alena Kaiser, N. Neumann, A. Günther and M. Panzner</u></p>
11:30AM - 11:45AM	<p><b>Controlling the Intrinsic Polarization State in RF Sputtering Grown Ferroelectric Ultrathin Films</b>  <u>Christian Weymann, C. Lichtensteiger, S. Fernandez-Pena, J.-M. Triscone, and P. Paruch</u></p>		<p><b>Tunable Interdigital Capacitors and Phase Shift Unit Cell Fabricated on Ba<sub>0.29</sub>Sr<sub>0.71</sub>TiO<sub>3</sub> Grown by Hybrid MBE</b>  <u>Cedric J. G. Meyers, C. R. Freeze, S. Stemmer, X. Lan, L. Chau, and R.A. York</u></p>	<p><b>The Impact of Local Structure on Macroscopic Properties of ABO<sub>3</sub> Perovskite Relaxor</b>  <u>Shujun Zhang, Fei Li, Long-Qing Chen, and Thomas R. Shrout</u></p>
11:45AM - 12:00PM	<p><b>Electrical Properties of Epitaxially Grown and Preferentially oriented CSD-derived Pb(Mg<sub>1/3</sub>, Nb<sub>2/3</sub>)O<sub>3</sub>-PbTiO<sub>3</sub> Thin films on Si substrate</b>  <u>Hisao Suzuki, T. Arai, T. Ohno, N. Sakamoto and N. Wakiya</u></p>		<p><b>Structural Differences in Doped HfO<sub>2</sub>: Root Causes for Varying Ferroelectric Properties Across Different Dopants</b>  <u>T. Schenk, M.H. Park, C. Richter, E.D. Grimley, J.M. LeBeau, C. Zhou, J.L. Jones, T. Mikolajick, and Uwe Schroeder</u></p>	<p><b>Probing the Switching Behaviour of PMN-PT Below Room Temperature</b>  <u>Philippa M. Shepley, L.A. Stoica, and A.J. Bell</u></p>
12:00 PM - 1:30 PM	<b>Lunch Break</b>			

1:30 PM - 4:00 PM	SESSION X			
	Nanoscale Ferroelectrics and Modeling Room: 1456	Lead-free, Phase Boundaries Room: 1443	Electrocalorics Room: 2456	Single Crystals II Room: 2443
	Session Chair: Inna Ponomareva	Session Chair: Satoshi Wada	Session Chair: Roger Whatmore	Session Chair: Shujun Zhang
1:30PM	INVITED - (1:30PM - 2:00PM) Nanoscale Polarization in Molecular Ferroelectrics <u>Stephen Ducharme</u>	INVITED - (1:30PM - 2:00PM) Processing of Lead-free Piezoelectrics <u>Mari-Ann Einarsrud</u>	INVITED - (1:30PM - 2:00PM) Exotic Caloric Effects Predicted from First-principles Simulations <u>Inna Ponomareva</u> and <u>S. Lisenkov</u>	Development of PMN-PT Based Single Crystals <u>Jian Tian</u> , <u>H. Pan</u> , <u>H. Marshall</u> , and <u>H. Ganegoda</u>
1:45PM - 2:00PM				Current Status and Future Prospects of High Performance Piezoelectric Single Crystals: "Lead-based" and "Lead-free" <u>J.Y. Lee</u> , <u>D.H. Kim</u> , <u>H.T. Oh</u> , and <u>Ho-Yong Lee</u>
2:00PM - 2:15PM	Polarization Switching Kinetics in Bulk Ferroelectric Ceramics: Correlations due to Depolarization Fields <u>R. Khachatryan</u> , <u>J. Wehner</u> , and <u>Yuri A. Genenko</u>	The MPB of BNT-xBT from the Titanium NMR Point of View <u>Pedro B. Groszewicz</u> , <u>H. Breitzke</u> , <u>W. Jo</u> , <u>Jürgen Rödel</u> , and <u>Gerd Buntkowsky</u>	Looking for Improved Caloric Responses with Ferroelectrics <u>Brahim Dkhil</u>	An Update of Large Size Relaxor-PT Crystal Development at TRS <u>Jun Luo</u> , <u>S. Taylor</u> and <u>W. Hackenberger</u>
2:15PM - 2:30PM	Quantification of Defect-Defect Interactions in Ferroelectric Materials <u>S.J. Brewer</u> , <u>S.C. Williams</u> , <u>H. Zhou</u> , <u>R.Q. Rudy</u> , <u>M. Rivas</u> , <u>R.G. Polcawich</u> , <u>C D. Cress</u> , <u>E.R. Glaser</u> , <u>J.L. Jones</u> , and <u>N. Bassiri-Gharb</u>	Electromechanical Hardening in Lead-Free Relaxor Composites <u>Lalitha Kodumudi Venkataraman</u> , <u>L. Riemer</u> , <u>J. Koruza</u> and <u>J. Rödel</u>	Efficient Electrocaloric Cooling Through Polymer Nanocomposites with High Dielectric Strength <u>Florian Le Goupil</u> , <u>J. Martin</u> , <u>M. Valant</u> , <u>G. Hadziioannou</u> , and <u>N. Stingelin</u>	Single Crystal Growth and Solidification Characteristics of PIN-PMN-PT Ferroelectrics <u>Linghang Wang</u> , <u>F. Li</u> , <u>B. Wang</u> , and <u>Z. Xu</u>
2:30PM - 2:45PM	Quantitative Modeling of High-Response Piezoelectricity Near a Phase Boundary <u>Dennis M. News</u> , <u>M. Kuroda</u> , <u>F. Cipcigan</u> , <u>J. Crane</u> , and <u>G.J. Martyna</u>	Quenching Effects for Electrical Properties on Lead-free (Bi <sub>1/2</sub> Na <sub>1/2</sub> )TiO <sub>3</sub> and Related Solid Solution Ceramics <u>Hajime Nagata</u> , <u>H. Muramatsu</u> , <u>T. Miura</u> , and <u>T. Takenaka</u>	Direct Electrocaloric Effect Measurements in BaTiO <sub>3</sub> -based Ferroelectric Ceramics <u>M. Sanlialp</u> , <u>V.V. Shvartsman</u> , and <u>D.C. Lupascu</u>	Domain Structure, Phase Transitions and Electric Properties of Novel Pb(Mg <sub>1/3</sub> Nb <sub>2/3</sub> )O <sub>3</sub> -PbTiO <sub>3</sub> -Bi(Zn <sub>2/3</sub> Nb <sub>1/3</sub> )O <sub>3</sub> Piezo-/Ferroelectric Single Crystals <u>Zuo-Guang Ye</u> , <u>Zenghui Liu</u> , <u>Alisa Paterson</u> , <u>Hua Wu</u> , and <u>Wei Ren</u>
2:45PM - 3:00PM	Switching Dynamics & Mechanisms in Morphotropic PbZr <sub>x</sub> Ti <sub>1-x</sub> O <sub>3</sub> from Atomistic Modeling <u>Jacob Chapman</u> , <u>O.T. Gindele</u> , <u>A.V. Kimmel</u> , and <u>D.M. Duffy</u>	Influence of Additives on Ferroelectric Properties Of NBT-Based Ceramics <u>Ekaterina D. Politova</u> , <u>N.V. Golubko</u> , <u>D.A. Belkova</u> , <u>A.V. Mosunov</u> , <u>N.V. Sadovskaya</u> , <u>G.M. Kaleva</u> , and <u>S. Yu. Stefanovich</u>	Solid State Cooling Device Based on Electrocaloric Ceramic Multilayers <u>Tian Zhang</u> , <u>Xiaoshi Qian</u> , <u>Haiming Gu</u> , and <u>Q. M. Zhang</u>	

3:00PM - 3:15PM	<p><b>High Dielectric Constant due to the Strain-Induced Phase Transition of BaTiO<sub>3</sub> Nanocubes in an Ordered Assembly</b>  <u>Kyuichi Yasui</u>, <u>Ken-ichi Mimura</u>, and <u>Kazumi Kato</u></p>	<p><b>Influence of Sintering Temperature on Structural, Dielectric and Electrical Properties of NBT-BCT Lead-free Piezoelectric Ceramics</b>  <u>Raj Verr Singh</u>, <u>Meenakshi Gautam</u>, and, <u>R.P. Tandon</u></p>	<p><b>How Does Cyclic Electrical Loading Influence the Electrocaloric Effect in PMN-xPT?</b>  <u>Andraz Bradeško</u>, <u>M. Vrabelj</u>, <u>L. Fulanovič</u>, <u>M. Otoničar</u>, <u>Z. Kutnjak</u>, <u>B. Malič</u>, and <u>T. Rojac</u></p>	<p><b>Performance Comparison of Piezoceramic and Piezocrystal for Low-frequency Power Ultrasonics Application in Surgical Needles</b>  <u>Tingyi Jiang</u>, <u>Zhihong Huang</u>, and <u>Sandy Cochran</u></p>
3:15PM - 3:30PM	<p><b>INVITED</b>  <b>Ferroelectrics and Negative Capacitance</b>  <u>Asif Khan</u></p>	<p><b>Improved Resistivity in Bismuth Deficient Morphotropic Phase Boundary 0.88BNT-0.08BKT-0.04BT Ceramics</b>  <u>Gregory Yesner</u> and <u>A. Safari</u></p>	<p><b>Electrocaloric Ceramic Multilayer Modules - A Critical Step In Realizing High Performance Electrocaloric Cooling Devices</b>  <u>Jinglei Li</u>, <u>Ying Hou</u>, <u>Xiaobo Zhao</u>, <u>Tian Zhang</u>, and <u>Q. M. Zhang</u></p>	<p><b>(K,Na)NbO<sub>3</sub>-based Lead Free Single Crystals: Full Tensor Properties and Anisotropic Behavior</b>  <u>Limei Zheng</u> and <u>Wenwu Cao</u></p>
3:30PM - 3:45PM		<p><b>Domain Investigation in Lead-free Bi<sub>0.5</sub>Na<sub>0.5</sub>TiO<sub>3</sub>-xBaTiO<sub>3</sub> Ceramics by Piezoresponse Force Microscope</b>  <u>Jinyan Zhao</u>, <u>Wei Ren</u>, <u>Nan Zhang</u>, <u>Gang Niu</u>, <u>Lingyan Wang</u>, <u>Ming Liu</u>, <u>Peng Shi</u>, and <u>Zuo-Guang Ye</u></p>		<p><b>Enhanced Piezoelectric and Ferroelectric Properties of (K,Na,Li)(Nb,Ta,Sb)O<sub>3</sub> Single Crystals by Defect Control</b>  <u>Jurij Koruza</u>, <u>H. Liu</u>, <u>P. Veber</u>, <u>D. Rytz</u>, <u>M. Maglione</u>, <u>E.A. Patterson</u>, <u>T. Frömling</u>, and <u>J. Rödel</u></p>
3:45PM - 4:00PM				<p><b>The Charge Release and Its Mechanism for Pb(In<sub>1/2</sub>Nb<sub>1/2</sub>)O<sub>3</sub>-Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-PbTiO<sub>3</sub> Ferroelectric Crystals Under One-Dimensional Shock Wave Compression</b>  <u>Hao Zhang</u>, <u>Junjie Gao</u>, and <u>Long Xie</u></p>
4:00 PM - 4:30 PM	<b>Refreshment Break</b>			
4:30 PM - 5:30 PM	<p><b>Plenary Session VI</b>  Klaus Bldg  Session Chair: Nazanin Bassiri-Gharb</p> <p><b>Pushing the Performance of Electro-Mechanical Thin Films, Prof. Paul Muralt</b></p>			
5:30 PM - 6:00 PM	<b>Conference Closing</b>			