



Preliminary Technical Program

2017 Joint IEEE International Symposium on the Applications of Ferroelectrics
International Workshop on Acoustic Transduction Materials and Devices
Workshop on Piezoresponse Force Microscopy
IEEE ISAF - IWATMD - PFM
Atlanta, Ga, U.S.A.
May 7-11, 2017

SESSIONS

All Technical Sessions are Held in the **Klaus Building**. All Plenary Talks are Held in the **Student Center Ballroom**

Session I	PNR and Domains	Session VI	Lead-free Piezoelectrics
	Bi-based Materials		Domains and Domain Walls
	Strain via Elastic and Piezoelectric Measurement		Thermal and Dynamic Behaviors of PZT
	Array-based Devices and MEMS		Energy Harvesting
Session II	Synthesis-property Relationship in Thin Films	Session VII	Multiferroics, BFO Part I
	Processing of Ferroelectric Materials for End Applications		Ferroelectrics, Reliability
	Devices		Transducers 1
	PFM: New Approaches and Defects		Fousek Memorial Session I
Session III	Polar Interactions and Metastabilities	Session VIII	Multiferroics, BFO Part II
	Ferroelectric-based Memories and Transistors		Surface and Interfaces
	Transducer Materials		Transducers II
	PFM: Signal Contributions		Fousek Memorial Session II
Session IV	Organic Piezoelectrics, Composites	Session XI	Superlattices, Films
	Light-interaction		BFO: Structure and Properties
	Cross Memorial		Processing and Characterization
	PFM: Role of Interfaces		Single Crystals I
Session V	Processing Optimization	Session X	Nanoscale Ferroelectrics and Modeling
	Local Order and Defects in Lead-free		Lead-free, Phase Boundaries
	Cross Memorial		Electrocalorics
	PFM: Switching Dynamics		Single Crystals II

Sunday, May 7, 2017

	Tutorials		
8:30 AM - 10:00 AM	Challenging in Processing of Bulk and Thin Film Ferroelectric Oxides <i>Alp Sehirlioglu and Brady Gibbons</i>	Electro-mechanical Surface Properties by Force Microscopy <i>Neus Domingo</i>	
10:00 AM - 10:30 AM	Refreshment Break		
10:30 AM - 12:00 PM	Mechanical Properties, Reliability and Failure in Ferroelectric Materials <i>Chris Lynch</i>	PFM - Can one Escape from the Artifacts all Around this Technique? <i>Elisabeth Soergel</i>	
12:00 PM - 1:00 PM	Lunch Break		
1:00 PM - 2:30 PM	Piezoelectric Sensors, Actuators and Transducers: Design, Fabrication, Characterization and Applications <i>Xiaoning Jiang</i>	Morphotropic Phase Boundary and Defects and Domain Walls <i>Dragan Damjanovic</i>	PFM Hands-on Workshop Session I <i>Rama Vasudevan, Nina Balke, and Stephen Jesse</i>
2:30 PM - 3:00 PM	Refreshment Break		
3:00 PM - 4:30 PM	Piezoelectric Films in FBARs and Other Devices <i>Sandy Cochran</i>	Insights to Ferroelectric Perovskites by Diffuse Scattering Techniques <i>Jiri Hlinka</i>	PFM Hands-on Workshop Session II <i>Rama Vasudevan, Nina Balke, and Stephen Jesse</i> (Workshop Ends at 5:30 PM)
6:00 PM - 8:00 PM	Welcome Reception Rooftop of the Clough Building		

Monday, May 8, 2017

8:00 AM - 8:30 AM	Welcome and Introductory Remarks Student Center Ballroom			
8:30 AM - 9:30 AM	Plenary Session I Student Center Ballroom Session Chair: Plenary: Prof. Clive Randall Title of Abstract: <i>Cold Sintering - Rethinking What We Thought We Knew in Electroceramics</i>			
9:30 AM - 10:00 AM	Refreshment Break			
10:00 PM - 12:00 PM	SESSION I			
	PNR and Domains	Synthesis-property Relationship in Thin Films	Strain via Elastic and Piezoelectric Measurement	Array-based Devices and MEMS
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
10:00AM	INVITED - (10:00AM - 10:30AM) Why Nanopolar Regions Matter in Tunable Dielectrics, Flexoelectrics, and Photovoltaics <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) Piezoelectric Properties of BiFeO₃-BaTiO₃ Ceramics and Thin Films <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) Elastic Measurements of Ferroelectrics for Probing the Piezoelectric Response and Structural Defects <u>Francesco Cordero</u>	(10:00AM - 10:15AM) What Is Needed for the PiezoMEMS Applications of the Future? <u>R.Q. Rudy and R.G. Polcawich</u>
10:15AM - 10:30AM				Evaluation on Operation of a Lead-Zirconium-Titanate (PZT) Actuator Array for Highly Integrated Biochip Application <u>Tue Trong Phan, R. Shimura, T. Shimoda, and Y. Takamura</u>
10:30AM - 10:45AM	Manipulation of Domain Structure in {100} Tetragonal Pb(Zr, Ti)O₃ Nanorods by Charge Screening <u>Tomoaki Yamada, D. Ito, T. Sluka, N. Setter, O. Sakata, T. Namazu, H. Funakubo, M. Yoshino, and T. Nagasaki</u>	Piezoelectrics: Putting the "Squeeze" on New Materials <u>Michelle Dolgos</u>	In-situ X-ray Investigation of Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃ Polycrystalline Ceramics in an External Electric Field <u>Dong Hou, Tedi-Marie Usher, Marko Vrabelj, Lovro Fulanovic, Hana Ursic, Barbara Malic, Igor Levin, and Jacob L. Jones</u>	Simultaneous Mechanical Displacement and Ferroelectric Pulse Switching Measurements of Piezoelectric MEMS Devices <u>Glen R. Fox, R.Q. Rudy, K. Grove, M. Rivas, and R.G. Polcawich</u>

10:45AM - 11:00AM	<p>Role of Domain Patterns in Ferroelectrics: From Basic Ideas to Phase-Field Simulations <i>Pavel Mokry</i></p>	<p>Enhanced Dielectric and Piezoelectric Properties of the BiFeO₃-PbTiO₃-BaZrO Ternary High Curie Temperature Ceramics <i>Jie Jian, Jianguo Chen, and Jinrong Cheng</i></p>	<p>Simultaneous Time-Resolved Measurements of Polarization and Strain Dynamics to Explore Switching in Ferroelectric/Ferroelastic Materials <i>Jan Schultheiss, Y.A. Genenko, S. Zhukov, R. Khachatryan, L. Liu, J.E. Daniels, and J. Koruza</i></p>	<p>Piezoelectric Microelectromechanical Systems (PiezoMEMS) for Adjustable X-Ray Optics <i>Julian Walker, T. Liu, M. Tendulkar, D. Burrows, T.N. Jackson, and S. Trolier-McKinstry</i></p>
11:00AM - 11:15AM	<p>Interactions Between Point Defects and Ferroelectric Domain Walls <i>D.R. Småbråten, L. Xia, S.H. Skjærvø, T. Tybell, and Sverre Magnus Selbach</i></p>	<p>In situ Poling and the Strong Post-poling Relaxation of non-180° Domain Texture in Bismuth Ferrite Ceramics <i>Lisha Liu and John E Daniels</i></p>	<p>Measuring Absolute Piezoelectric Displacement with an AFM <i>Joe T. Evans, S.T. Smith, N.B. Montross, and S.P. Chapman</i></p>	<p>Finite Element Simulation of Switchable and Tunable Resonators <i>Daw Adersah and T.S. Kalkur</i></p>
11:15AM - 11:30AM	<p>Optical Properties of Domain Walls in Periodically Poled LiNbO₃ and LiTaO₃ Studied by First-Principle Calculation and Raman Spectroscopy <i>Michael Rüsing, S. Neufeld, S. Sanna, G. Berth, W. G. Schmidt, and A. Zrenner</i></p>	<p>Rare-Earth Modified Bismuth Ferrite Ceramics: Composition, Structure and Properties from Local to Macroscopic Scales <i>Julian Walker, D. Alikin, S. Trolier-McKinstry, and T. Rojac</i></p>	<p>Large Piezoelectricity in Electric-Field Modified Single Crystals of SrTiO₃ <i>Semën Gorfman, E. Mehner, C. Richter, B. Khanbabaee, J. Hanzig, H. Stöcker, M. Zschornak, T. Leisegang, U. Pietsch, and D.C. Meyer</i></p>	<p>Finite Element Modeling of Piezoelectric Nanobeams with Surface and Flexoelectricity Effects <i>Shijie Zheng and H.T. Wang</i></p>
11:30AM - 11:45AM	<p>Ferroelectric Domain Continuity Over Grain Boundaries <i>Sukriti Mantri, Jette Oddershede, Dragan Damjanovic, and John E. Daniels</i></p>	<p>Dielectric, Electrical Conduction, Piezoelectric and Impedance Analysis of Bi₃TiNbO₉ Piezoceramics with Ce-Modifications <i>Jing Yuan, Rui Nie, and Jianguo Zhu</i></p>	<p>INVITED (11:30AM - 12:00PM) Lattice Strain and Domain Contributions in Piezoelectric PZT <i>Nan Zhang, Semën Gorfman, Hiroko Yokota, A.M. Glazer, Wei Ren, and Z.-G. Ye</i></p>	<p>Design of “Hard” BiScO₃-PbTiO₃ Ceramics for Shear-Bending Mode Actuator Using at High Temperature <i>Jianguo Chen, Jianxin Wei, and Jinrong Cheng</i></p>
11:45AM - 12:00PM	<p>Domain Configuration in (1-x)Pb(Mg_{1/3}Nb_{2/3})O₃-xPbTiO₃ Ceramics Analysed by Transmission Electron Microscopy <i>Mojca Otonicar, H. Ursic, D. Alikin, M. Vrabelj, A. Bencan, B. Malic and T. Rojac</i></p>	<p>Exploring Next Generation High Temperature Ferroelectrics: 35Bi(Mg_{1/2}Ti_{1/2})O₃-65PbTiO₃ Thin Films <i>Carl S. Morandi, S. Trolier-McKinstry, K.R. Udayakumar, S. Bhaskar, and J. Rodriguez</i></p>		<p>High Power Multilayer Co-Fired Step-Up Piezoelectric Transformers <i>A. Erkan Gurdal, S. Tuncdemir, S. Dursun, D. Fridkin, and C. A. Randall</i></p>
12:00 PM - 2:00 PM	Lunch Break			

POSTER SESSION I / Student Poster Competition

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

Session Chair:

Student Poster Competition Finalists

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

Atomistic Modeling of Ageing in Ferroelectrics

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

Photoelectromotive Force under Transverse-Moving Pulsed Illumination in the $\text{Bi}_{12}\text{SiO}_{20}$ and $\text{Bi}_{12}\text{TiO}_{20}$ Single Crystals *

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

Ferroelectric Domain Continuity over Grain Boundaries

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

Point Defects in (001)-strained BiFeO_3

Lu Xia and Sverre M. Selbach

Highly (100)-Oriented Metallic LaNiO_3 Grown by RF Magnetron Sputtering

Xiao Di and P. Muralt

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

Lisha Liu and John E Daniels

Influence of Process Conditions on Structural and Electrical Properties of $\text{Hf}_{1-x}\text{Zr}_x\text{O}_2$: Dead Layer Effect and Defect Trapping

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

Improving Reliability in Piezoelectric Films

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

Mechanical Reliability of Piezoelectric Microelectromechanical Systems $\text{Pb}[(\text{Zr}_{0.52}\text{Ti}_{0.48})_{0.98}\text{Nb}_{0.02}]_3\text{O}_3$ Films

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

Domain Reorientation and Extrinsic Scaling Effects in Polycrystalline, {001} Textured $\text{PbZr}_{0.3}\text{Ti}_{0.7}\text{O}_3$ Thin Films

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

Probing the Role of Surface Water in Ferroelectric Domain Charge Dynamics

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

Tuning Light-induced Polarization Screening of Ferroelectric Materials by Water

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

Local Writing and Characterization of Individual Charged Conducting Domain Walls in y-cut LiNbO_3 (MgO 5% mol) Single Crystals

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

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

Electric-field-induced Polarization Rotation in $\text{PbZb}_{0.5}\text{Ti}_{0.5}\text{O}_3$ Revealed by *in-situ* Pair Distribution Function Study

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

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

Losses and Heat Generation of Piezoelectric Ceramics by Polarization Orientation

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

EMAT Phased Array Probe for Detecting Surface Cracks

Julio Isla and Frederic Cegla

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

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

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

Anomalous Enhancement in Photocatalytic Rate by Stabilizing a Metastable Phase in a BiFeO₃-Based Photocatalyst

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

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

Self-Assembled Monolayer-Assisted Inkjet Printing of PZT Films on Platinized Silicon

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

Nonlinear Electric Field Dependence of Electrocaloric Effect in (001)-epitaxial (Ba,Sr)TiO₃ Thin Films

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

Tunable Interdigital Capacitors and Phase Shift Unit Cell Fabricated on Ba_{0.29}Sr_{0.71}TiO₃ Grown by Hybrid MBE

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

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

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

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

Solid state Cooling Device Based on Electrocaloric Ceramic Multilayers

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

Contributed Posters

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

Synthesis and Characterization of Intergrowth Bismuth Layer Structured Bi₄Ti₃O₁₂-CaBi₄Ti₄O₁₅ Ceramics

Sam Yeon Cho, G.P. Choi, and S.D. Bu

Lead-free KN-NBZ Piezoelectric Ceramics

Stephan Collins and A.J. Bell

Hard-Piezoelectric Ceramics for Low Temperature Co-Fired Multilayer Piezoelectric Transformers

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

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

Textured Lead-free Piezoelectrics for High-Frequency Ultrasound Imaging

Astri Bjørnetun Haugen, Erling Ringgaard, and Franck Levassort

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

Observation of Room Temperature Ferroelectricity in LiNbO_3 , KNbO_3 and $\text{Na}_{0.9}\text{Li}_{0.1}\text{NbO}_3$ Ceramics Synthesized by Conventional Solid State Reaction

Viancy Isaza-Zapata, C. Maya, A. Gómez, V.H. Zapata, O. Morán, and J.L. Izquierdo

Synthesis of Single-Crystalline Lithium Tantalate Nanorods - Piezoelectric and Non-Linear Optic Properties

Prem Jaschin and K.B.R. Varma

Synthesis, Dielectric and Ferroelectric Behaviour of Lead-free KBT-BT Ceramics

Karuppanan Aravinth and P. Ramasamy

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

Investigation of Electrical Properties in a New Lead-free $(100-x)(\text{Li}_{0.12}\text{Na}_{0.88})\text{NbO}_3$ - $x\text{BaTiO}_3$ ($0 \leq x \leq 40$) Piezoelectric System

Ajit Kulkarni and Supratim Mitra

Effects of SiO_2 Coating on the Dielectric and Ferroelectric Properties of BaTiO_3 - SiO_2 Composites

Xu Lu, Yang Tong, Hossein Talebinezhad, Jiachen Liu, Yancen Cai and Z.-Y Cheng

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

$\text{Bi}(\text{Mg}_{2/3}\text{Nb}_{1/3})\text{O}_3$ - BaTiO_3 - BiFeO_3 PbO-free Piezoelectric Ceramics

Shunsuke Murakami, Dawei Wang, Amir Khesro, Antonio Feteira, Derek C. Sinclair, and Ian M. Reaney

Structure-Processing Relations in $\text{PbZr}_x\text{Ti}_{1-x}\text{O}_3$ 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

Room Temperature Crystallographic Phase analysis of $(1-x)\text{KNbO}_3$ - $x\text{CaZrO}_3$ lead-free piezoelectric materials.

Samuel J. Parry and A.J. Bell

Silicon Doping of Barium Strontium Titanates

D.L. Tjhe, A.V. Berenov, R. Bower, and Peter K. Petrov

Targets Modification During NBT Thin Film Deposition

Sergey A. Popov, T.V. Kruzina, Yu.N. Potapovich, M.P. Trubitsyn, and O.S. Rutskyi

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

Fabrication and Characterization of La, Ga Co-modified BiFeO_3 - PbTiO_3 Multiferroic Ceramics with High Magnetic Field Assisted Sintering

Shujin Shen, Jianguo Chen, and Jinrong Cheng

Remarkably Enhanced Photocatalytic Activity in $\text{Bi}_{1-x}\text{Ba}_x\text{FeO}_3$ Prepared by Sol-Gel Method

Chenlan Zhang, Tong Tong, Jianguo Chen, Dengren Jin, and Jinrong Cheng

Crystalline Phase and Electrical Properties of Lead-Free Piezoelectric KNN-based films with Different Orientations

W. Chen, L.Y. Wang, W. Ren, G. Niu, J.Y. Zhao, N. Zhang, M. Liu, Y. Tian, and M. Dong

Ceramic/Polymer Microwave Composites via the Cold Sintering Process

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

[001]_c 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

Far-From-Equilibrium Processing of $\text{PbZr}_x\text{Ti}_{1-x}\text{O}_3$ 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

Properties and Structures of Nonstoichiometric (K,Na)NbO₃-based Lead-free Ceramics
Jie Xing, Zhi Tan, Lixu Xie, Jiagang Wu, Dingquan Xiao, and Jianguo Zhu

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

Dynamic Observation of Nanoscale Domain Switching Behaviors in Ferroelectric HfO₂ films Using Scanning Nonlinear Dielectric Microscopy
Yoshiomi Hiranaga, T. Mimura, T. Shimizu, H. Funakubo, and Y. Cho

Dielectric Relaxation in Ca₅Nb₄TiO₁₇ Ceramics
Chunchun Li, Xiaoyong Wei, Haixue Yan, and Michael J. Reece

Vibrational Signatures of Ti and Fe Doped Lithium Niobate
Peter Mackwitz, M. Rüsing, G. Berth, and A. Zrenner

Stability of Ferroelectric Phase I in Epitaxial HfO₂-based Films
Takanori Mimura, Kiriha Katayama, Takao Shimizu, Takanori Kiguchi, Akihiro Akama, Toyohiko J. Konno, Osami Sakata, and Hiroshi Funakubo

Complex Impedance Spectra of Amorphous And Glass-ceramic Li₂O-7GeO₂ Compounds
Oleksii O. Nesterov, M.P. Trubitsyn, S.N. Plyaka, and M.D. Volnyanskii

Direct Evidence of Spin Cylindroid 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

PRAP Version 3.1
Ron Tasker

Reliability in Patterned PZT Films for MEMS Applications
Jung In Yang, S.Y. Lee, S.W. Ko, and S. Trolier-McKinstry

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

Smart Correction of SPM Time Series: Can Data Analytics Help us Extract Correlations?
Iaroslav Gaponenko, P. Tückmantel, B. Ziegler, G. Rapin, M. Chhikara, and P. Paruch

2:00 PM - 4:00 PM	SESSION II			
	Synthesis-property Relationship in Thin Films	Processing of Ferroelectric Materials for End Applications	Devices	PFM: New Approaches and Defects
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
2:00PM	INVITED - (2:00PM - 2:30PM) Lead-free Piezoelectric (Na,Bi)TiO₃-BaTiO₃ Thin Films and Their Application <u>Eiji Fujii</u> , <i>Y. Tanaka, T. Harigai, and H. Adachi</i>	INVITED - (2:00PM - 2:30PM) Piezoelectric Enhancement of Bismuth-based Piezoelectric Materials with Pseudo-cubic Symmetry Based on Nano/Macro Complex Domain Configurations <u>Satoshi Wada</u> , <i>R. Ariizumi, T. Aizawa, Sarah Najwa, S. Ueno, N. Kumada, C. Moriyoshi, and Y. Kuroiwa</i>	(2:00PM - 2:15PM) Step-up DC to DC Converter based on Polarization Switching in Ferroelectric Capacitors <u>Abdulaziz Alateeq and Thottam S. Kalkur</u>	(2:00PM - 2:15PM) G-Mode KPFM: Bringing Kelvin Probe Force Microscopy into the Information Age <i>L. Collins, A. Belianinov, S. Somnath, N. Balke, S.V. Kalinin, and Stephen Jesse</i>
2:15PM - 2:30PM			A Novel Compact Tunable Dual-Band Bandstop Filter (DBBSF) with Spurline and Stepped- Impedance Resonator Loaded with BST Capacitors <u>Hamad Alrwuili and T.S.Kalkur</u>	Smart Correction of SPM Time Series: Can Data Analytics Help Us Extract Correlations? <u>Iaroslav Gaponenko, P. Tückmantel, B. Ziegler, G. Rapin, M. Chhikara, and P. Paruch</u>
2:30PM - 2:45PM	Deposition of Epitaxial PMN-PT on Silicon Wafers For Piezoelectronic Transduction Memory Devices <u>Matthijn Dekkers</u> , <i>M. Nguyen, N. Hildenbrand, S. Abel, F. Eltes, J. Fompeyrine, and P. Wittendorp</i>	Study of Bonding Utilizing Cold Sintering for Ceramic Adhesives for High-temperature Applicable Energy Harvesting Piezoelectric Device <u>Wei-Ting Chen</u> , <i>Ahmet Erkan Gurdal, Safakcan Tuncdemir, Jing Guo, Hanzheng Guo, and Clive. A. Randall</i>	A 1-DOF Piezoelectric Micro-positioning Rotary Stage <u>Ignas Grybas</u> , <i>A. Bubulis, V. Jurenas, V. Bakanauskas, and J. Janutenaitė</i>	Full Information Acquisition in Piezoresponse Force Microscopy for Ultrafast Imaging of Polarization Switching <u>Suhas Somnath</u> , <i>S.V. Kalinin, and S. Jesse</i>
2:45PM - 3:00PM	Implications of Ferroelectricity During the Growth of Ferroelectric Superlattices <u>Rui Liu</u> , <i>Alec Sun, Benjamin Bein, Hsiang-Chun Hsing, Anna Gura, Giulia Bertino, Jin-Wen Lai, and Matthew Dawber</i>	Hydrothermal Assisted Cold Sintering of Lead Zirconate Titanate (PZT-5A) Powder <u>Dixiong Wang</u> , <i>C.S. Morandi, and S. Trolrier-McKinstry</i>	Biocompatible Lithium Niobate for Sensing and Microfluidics Applications <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>	Machine Learning and Spectroscopic Scanning Probe Microscopy: a Magnetoelectric Composite Case Study <u>Harsh Trivedi</u> , <i>V.V. Shvartsman, D.C. Lupascu, and R.C. Pullar</i>

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

Tuesday, May 9, 2017

8:30 AM - 9:30 AM	<p align="center">Plenary Session II Student Center Ballroom Session Chair:</p> <p>Plenary: Prof. Elizabeth Dickey Title of Abstract: <i>Lattice Defects in Ferroelectric Oxides and Their Interactions with Electric Fields</i></p>			
9:30 AM - 10:00 AM	<p align="center">Refreshment Break</p>			
10:00 AM - 12:00 PM	<p align="center">SESSION III</p>			
	Polar Interactions and Metastabilities	Ferroelectric-based Memories and Transistors	Transducer Materials	PFM: Signal Contribution
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
10:00AM	<p>INVITED - (10:00AM - 10:30AM) Polar Metastable States In Antiferroelectrics <u>Elena Buixaderas</u></p>	<p>(10:10AM - 10:15AM) Graphene Ferroelectric Field-Effect Transistors: Up-Scaling and Practicality <u>J. Heidler and Kamal Asadi</u></p>	<p>(10:00AM - 10:15AM) High Power Piezoelectric Characterization System - New Generation - <u>Kenji Uchino</u></p>	<p>INVITED - (10:00AM - 10:30AM) "Strange Ferroelectrics": Why So Many Materials Appear to Show Piezo/Ferroelectric Behaviors During Nanoscale Measurements <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>Ferroelectric Properties of an Innovative FeFET with 3.3V Writing, 10⁹ Endurance, and Long Retention <u>Mitsue Takahashi, W. Zhang, and S. Sakai</u></p>	<p>Modeling Losses of a Piezoelectric Resonator: Analytical vs. Finite Elements Analysis <u>Thibaut Meurisse and D. Damjanovic</u></p>	
10:30AM	<p>(10:30AM - 10:45AM) Susceptible Ferroelectric/Antiferroelectric Phase Transition Near the Surface of Typical Antiferroelectric Materials <u>Yun Liu</u></p>	<p>(10:30AM - 10:45AM) Tunable, Multi-State Switching in Ferroelectric Thin Films <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) Advanced Mechanical Characterization for Piezoelectric Automotive Sensor Applications <u>Gunnar Picht and S. Frank</u></p>	<p>(10:30AM - 10:45AM) Mechanical Reading of Ferroelectric Polarization <u>Kumara Cordero-Edwards, A. Abdollahi, J. Sort, N. Domingo, and G. Catalan</u></p>
10:45AM - 11:00AM	<p>Non-Classical Electrostriction in Fluorites and Perovskites: Current Understanding and Future Prospects <u>Nimrod Yavo, Ori Yehekel, Ellen Wachtel, Anatoly Frenkel, and Igor Lubomirsky</u></p>	<p>The Piezoelectronic Family of Devices, from RF Switches to Fast Low Power Transistors <u>Glenn J. Martyna</u></p>		<p>Functional Material Properties of Oxide Thin Films Probed by Atomic Force Microscopy on the Nanoscale <u>Nina Balke and Alexander Tselev</u></p>

11:00AM	(11:00AM - 11:15AM) Defect Dipole Enhanced Electromechanical Coupling <i>Ronald E. Cohen, Shi Liu, and Muhtar Ahart</i>	(11:00AM - 11:15AM) Anti-Ferroelectric HfO₂ or ZrO₂: a Key Material for Novel Anti-Ferroelectric Non-volatile Memories <i>M. Pešić, M. Hoffmann, C. Richter, S. Slesazeck, T. Mikolajick, and Uwe Schroeder</i>	INVITED - (11:00AM - 11:30AM) Phenomenology of Transducer Materials <i>George A. Rossetti, Jr.</i>	(11:00AM - 11:15AM) Converse Flexoelectric Effects in PFM <i>Neus Domingo, A. Abdollahi and G. Catalán</i>
11:15AM	(11:15AM - 11:30AM) Stress-Dependent Bulk Photovoltaic Effect in Donor-Doped LiNbO₃: Relation Between Defect Structure, Band Structure and Dielectric Properties <i>S. Nadupalli and Torsten Granzow</i>	(11:15AM - 11:30AM) Ferroelectric Probe Data Storage Using HfO₂-Based Thin-Film Recording Media <i>Yoshiomi Hiranaga, T. Mimura, T. Shimizu, H. Funakubo, and Y. Cho</i>		INVITED - (11:15AM - 11:45AM) Probing Genuine Piezoresponse in Piezoresponse Force Microscopy <i>Yunseok Kim</i>
11:30AM - 11:45AM	Dielectric Properties of Lithium Niobate From mHz to Optical Frequencies <i>Charlotte Cochard, T. Spielmann, N. Balhawane, A. Halpin, and T. Granzow</i>	Controlling Magnetization using Patterned Electrodes on a Piezoelectric Film <i>Chris S. Lynch and J. Cui</i>	Modeling the Effect of Porous Structure on Poling Behavior of Ferroelectric Ceramics <i>James I. Roscow, Y. Zhang, R.W.C Lewis, J. Taylor, and C.R. Bowen</i>	
11:45AM - 12:00PM	Symmetry Breaking and Direct Evidence of Polar Regions In Paraelectric Phase of BaTiO₃-Based Ferroelectrics <i>Sina Hashemi Zadeh, Emad Oveisi, Sandro De Zanet, Andreja Bencan, Goran Drazic, Tadej Rojac, and Dragan Damjanovic</i>	Non-volatile Ferroelectric Mechanical Memory <i>Glen R. Fox, J.S. Pulskamp, and R.G. Polcawich</i>	Manufacturing Technologies for Ultrasonic Transducers in a Broad Frequency Range <i>S. Gebhardt, P. Günther, K. Hohlfeld, and Holger Neubert</i>	Observation of Ferroelectric Domain Structure by Direct Piezoelectric Effect <i>Takeshi Yoshimura, Kento Kariya, and Norifumi Fujimura</i>
12:00 PM - 2:00 PM	Lunch Break			

POSTER SESSION II

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

Session Chair:

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 Banyš, D.D. Khalyavin, and A.N. Salak

Gamma-ray Irradiation Effects on Electrical Properties of Ferroelectric ABO_3 Perovskite Structure Materials

Sam Yeon Cho, E.Y. Kim, G.J. Lee, M. K. Lee, and S.D. Bu

Effects of the Interface Strain on the Magnetic Transition Temperature of Hexagonal YMnO_3 Films: A First-Principles Study

Dong Chen, Y.L. Zhu, and X.L. Ma

A Phenomenological Micromechanical Constitutive Model for General Ferroelectric Materials: 95/5 PZT

Wen D. Dong and J. Robbins

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

NaNbO_3 Based Lead-free Antiferroelectric Ceramics

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

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

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

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

Distribution of Local Structures in Lead-Free Relaxor Ferroelectrics: $(\text{Bi}_{1/2}\text{Na}_{1/2})\text{TiO}_3$ - BaTiO_3 Investigated with Na NMR

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

Magnetodielectric Properties of CuO and MnO_2 Modified BiFeO_3 - BaTiO_3 Solid Solution

Amit Kumar, Narayan Bastola, and Rajeev Ranjan

Tunable Elastic Metamaterial Based on Piezoelectric Transducer

Pavel Marton, J. Nečásek, J. Václavík, and P. Mokrý

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

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

Strain and Magnetic Field Induced Spin-Structure Transitions in Multiferroic BiFeO_3

A. Agbelele, Daniel Sando, C. Toulouse, C. Paillard, R.D. Johnson, R. Rüffer, 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

Domain Wall Orientation and Domain Shape in KTiOPO_4 Crystals

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

Forward Domain Growth in Uniaxial Ferroelectrics

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

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

Characterization of Photoferroelectric BaTiO₃-based Solid Solutions

Halyna Volkova, P. Gemeiner, P. Nukala, F. Karolak, C. Bogicevic, B. Dkhil, and I.C. Infante

Pressure Dependence of the Soft Mode Close to the Ferroelectric-Paraelectric Transition in PbTiO₃

Hamit Yurtseven and A. Kiraci

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

Observation of Positive and Negative Magnetodielectric Effects in Relaxor PbCo_{1/3}Nb_{2/3}O₃ Ceramic

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

Ferroelectric Film Dynamics Simulated by a Second-order Time-dependent Landau Model

Michael S. Richman, Paul Rulis, and Anthony N. Caruso

Structural and Dielectric Properties in Nd³⁺ Doped Bi-Cobaltite Nanoparticles

Muhammad Anis-ur-Rehman, F. Ahmed, and A. Munir

Effect of Parameter Variation in UTBB FDSOI-NCFET

Bhaskar Awadhiya and P.N. Kondekar

Dielectric Properties of BaTiO₃-KNbO₃ Composites

Sergejus Balčiūnas, Maksim Ivanov, Jūras Banys, and Satoshi Wada

Focused Ion Beam Methodologies Pave the Way for “Ferroelectronics”: Release the Kraken

Stuart R. Burns, J.M. Gregg, and N. Valanoor

Bismuth Nickel Niobate with Small Negative Temperature Coefficients of Dielectric Constant

Xiukai Cai, Xiaobo Sun, and Lufeng Pang

Interface Diffusion of Silver Electrode into Bismuth-based Ceramics and its Effects on the Dielectric Properties

Xiukai Cai, Xiaobo Sun, and Lufeng Pang

The Structure and Dielectric Properties of Bismuth-Nickel-Niobium Oxide Based Ceramics

Xiukai Cai, Xiaobo Sun, and Lufeng Pang

Lead Zirconate Titanate Thin Films for a 2D Ultrasound Array

Christopher Y. Cheng, Y. Qiu, S. Cochran, and S. Trolrier-McKinstry

Preparation and Characterization of Ferroelectric Polymer Nanocomposites

Hongfang Li, Hanting Dong, Susu Wang, Jianguo Chen, and Jinrong Cheng

Electrocaloric Effect in BNKT-based and PbZrO₃-based Ceramics

Zhongming Fan, Zunping Xu, Xiaoming Liu, and Xiaoli Tan

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

Fabrication and Characterization of Perovskite Oxynitride Dielectrics

[Takuya Hoshina](#), A. Sahashi, K. Kanehara, H. Takeda, and T. Tsurumi

Chemical Solution Deposition of Piezo Films for Prototype Microelectromechanical Systems (MEMS)

[Beth Jones](#) and S. Trolier-McKinstry

Electrocaloric Effects and Temperature Distribution Analysis of BaTiO₃-based Ceramics and Multi-layer Capacitor

[Hiroshi Maiwa](#)

Reduced Hysteresis Model and Temperature Dependency of Multilayer Piezo Actuators

[Charles Mangeot](#)

HfO₂/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

Paper Transistors with Organic Ferroelectric P(VDF-TrFE) Films

[Min Gee Kim](#) and Byung Eun Park

Characterization of PiezoMEMS PbZr_{0.52}Ti_{0.48}O₃ with IrO₂/Pt, IrO₂, and Pt Bottom Electrodes

[Daniel M. Potrepka](#), H. Yu, M. Aindow, M. Rivas, G.R. Fox, and R.G. Polcawich

Determination of Elastic Modulus of IrO₂ Thin Films for PiezoMEMS Applications

[Manuel Rivas](#), G. Song, R.Q. Rudy, B. Hanrahan, S.W. Lee, B. Huey, and R.G. Polcawich

Dielectric Behavior and Non-ohmic Behavior of CCTO/SiO₂ Composites

[Hossein Talebinezhad](#), Y. Tong, X. Lu, and Z.Y. Cheng

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

Electrocaloric Effect in Ferroelectric Thin Film

[Jinbin Wang](#) and B. Li

Significantly Enhanced Electric Polarization and Energy Density of All Polymer based Sandwich Structured Composites for Energy Storage Applications

Jie Chen and [Hong Wang](#)

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

Improved Tunability of (Ba,Sr)TiO₃-Ba₄Ti₁₃O₃₀ Composite Ceramics by Infiltrate BaTiO₃

[Rui Zheng](#), Dengren Jin, Kai Xu, Hanting Dong, Jinrong Cheng, and Jianguo Chen

Efficient Power Generation via Controlled Porosity in Ferroelectric Polymers

[Mohammad Mahdi Abolhasan](#), M. Naebe, K. Shirvanimoghadam, and K. Asadi

Performance Comparison of Piezoceramic and Piezocrystal for Low-frequency Power Ultrasonics Application in Surgical Needles

Tingyi Jiang, Zhihong Huang, and [Sandy Cochran](#)

New Methodology to Determine the Dielectric Constant and Loss at the Resonance/Antiresonance Frequency Range

[Hossein Daneshpajooh](#), K. Uchino, and M. Choi

Influence of the Measurement System on the Nondestructive Pyroelectric Evaluation of Embedded Piezoelectric Transducers

Agnes Eydam, G. Suchanek, and G. Gerlach

Piezoelectrets: Novel Transducer Materials for Mechanic and Acoustic Applications

Biao Zhu, Xiaoqing Zhang, Peng Fang, Jie Zheng, Tao Liu, Zeyang Xia, and Guanglin Li

Non-resonant Magnetoelectric Energy Harvester

Peter Finkel and M. Staruch

On the Optimal Electric Load for Ultrasound Energy Receivers

Mikel Gorostiaga, M. C. Wapler, and U. Wallrabe

Design, Simulation and Experimental Evaluation of Tri-Phasic Piezoelectric Composite Transducers

Amar Bhalla, Juan P. Tamez, and Ruyan Guo

Piezoelectric Composite Modules for Sensing and Energy Conversion from Road

Ruyan Guo, Bryan Gamboa, Dipon Wasim, George Nall, Juan Tamez, Kalyan Chakravarthi, Mayur Pole, Pratheek Gopalakrishnan, Shuza Binzaid, and Amar Bhalla

Pyroelectric Energy Conversion Cycles Tailored for Antiferroelectrics

Brendan M. Hanrahan, Y. Espinal, C.J. Neville, and A.N. Smith

High Temperature Poling and Aging Behavior in PIN-PMN-PT Single Crystals

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

Characterization of Lead Titanate Single Crystals Grown by Self-Flux Technique

Thomas E. Hooper, A.J. Bell

Investigation of Morphotropic Phase Boundaries in the PIN-PSN-PT Ferroelectric Systems with High T_r and T_c Phase Transition Temperatures

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

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

Finite Element Modeling of Transducers using the ATILA++ Code

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

Dielectric and Piezoelectric Properties of PNN-PWM-PZT-x BCW Ceramics Sintered at Low Temperature

Rui Nie, Hong Liu, and Jianguo Zhu

Stress and Electric-Field Driven Structural Transformation in $(1-x)\text{Bi}(\text{M}_{1/2}\text{M}_{1/2})\text{O}_3$ - $x\text{PbTiO}_3$ Piezoceramics

Rishikesh Pandey and Rajeev Ranjan

ONR's Research Program on Acoustic Transduction Materials and Devices

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

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

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

Relaxor to Ferroelectric Phase Transition in $0.83\text{PbMg}_{1/3}\text{Nb}_{2/3}\text{O}_3$ - 0.17PbTiO_3 Single Crystal

Šarunas Svirskas, J. Banys and S. Kojima

Piezo1D 1.0

Ron Tasker

A New Interface Technique for Vibration-based Energy Harvesting using Synchronous Switch and Intermediate Capacitor

Hongtao Wang and Baoqiang Zhang

Modeling of Lamb Waves Excited by Inter-digital Transducers Deposited on Piezoelectric Plates

Tai-Ho Yu

Porous PZT with Aligned Porosity and Improved Pyroelectric and Piezoelectric Properties for Energy Harvesting Applications

Yan Zhang, Mengying Xie, James Roscow, and Chris R. Bowen

Big/Deep Data Approaches for Investigations of the Tip-Induced Ferroelectric Switching

A.V. Ievlev and S.V. Kalinin

Ferroelasticity in Organolead Halide Perovskite MAPbI₃

Tao Li, E. Strelcov, Q. Dong, J. Chae, Y. Shao, Y. Deng, A. Centrone, J. Huang, and A. Gruverman

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 - 3:30 PM	SESSION IV			
	Organic Piezoelectrics, Composites	Light-interaction	L. Eric Cross Memorial	PFM: Role of Interface
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
2:00PM	INVITED - (2:00PM - 2:30PM) A Nanoporous Piezoelectric Material: Metal-Organic Framework ZIF-8 <i>Monique A. van der Veen, M. Ivanov, S. Van Cleuvenbergen, I. Stassen, Y. Zhang, B. Champagne, and A.L. Kholkin</i>	INVITED - (2:00PM - 2:30PM) The Bulk Photovoltaic Effect in Polar Oxides for Robust and Efficient Solar Energy Harvesting <i>Andrew M. Rappe, L.Z. Tan, S.M. Young, F. Zheng, F. Wang, Y. Qj, 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</i>	(2:00PM - 2:15PM) L.E. Cross - In Memorium <i>S. Trolier-McKinstry and Kenji Uchino</i>	INVITED - (2:00PM - 2:30PM) Tuning of The Depolarization Field, Built-In Voltage and Nanodomain Structure in Ferroelectric Thin Films and Superlattices <i>Celine Lichtensteiger, S. Fernandez-Pena, C. Weymann, P. Zubko, P. Paruch, and J.-M. Triscone</i>
2:15PM			INVITED - (2:15PM - 2:45PM) Lead Scandium Tantalate: From B-Sites through Thermal Sights to Cool Nights <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 - 2:45PM	<p>Flexible Lead Free Piezoelectric Composites for Energy Harvesting Applications <i>Pim Groen</i></p>	<p>A Multiferroic on the Brink: Modulation of Ferroelectric, Magnetic, and Optical Response using Strain-induced Transitions in BiFeO₃ films <i>Daniel Sando, T. Young, Y. Zhou, C. Carrétéro, V. Garcia, S. Fusil, A. Barthélémy, M. Bibes, P. Munroe, and V. Nagarajan</i></p>		<p>Adsorbates and Surface Screening at the Ferroelectric Oxide Surfaces: A Synchrotron Ambient Pressure X-Ray Photoelectron Spectroscopy (XPS) Study <i>Albert Verdaguer, K. Cordero, L. Rodriguez, M.J. Esplandiú, C. Escudero, V. Pérez, A. Calò, and N. Domingo</i></p>
2:45PM	<p>(2:45PM - 3:00PM) Microstructural Tuning of Piezoelectric Particulate-Polymer-Foam Composites <i>Hamideh Khanbareh, K. de Boom, S. van der Zwaag and W.A. Groen</i></p>	<p>(2:45PM - 3:00PM) Optically-Induced Polarization Switching in MoS₂/BaTiO₃ Heterostructures <i>Tao Li, A. Lipatov, H.-W. Lee, J.-W. Lee, C.-B. Eom, A. Sinitskii, and A. Gruverman</i></p>	<p>INVITED - (2:45PM - 3:15PM) Ultrafast Switching in Avalanche-driven Ferroelectrics by Supersonic Kink Movements <i>Ekhard K.H. Salje, X. Wang, X. Ding, and J.F. Scott</i></p>	<p>Effect of Temperature, Humidity and Thickness on Tip Induced Polarization Switching of Single Phase Multiferroic Thin Films <i>Dhiren K. Pradhan, Rama K. Vasudevan, Evgheni Strelcov, Shalini Kumari, Sergei V. Kalinin, A.K. Pradhan, and Ram S. Katiyar</i></p>
3:00PM	<p>(3:00PM - 3:15PM) PVDF-Ppy Nanofibric Membranes For Peripheral Nerve Lesion Treatments <i>Liangxi Li and Zhongyang Cheng</i></p>	<p>(3:00PM - 3:15PM) EuTiO₃: A Magneto-Optical Device For Light Modulation <i>Annette Bussmann-Holder, K. Roleder, and J. Köhler</i></p>	<p>(3:00PM - 3:15PM) Cross-Fertilization: Electrostriction, Devonshire and High Temperature Transducers <i>Andrew J. Bell</i></p>	<p>INVITED - (3:00PM - 3:30PM) Interface Dependent Domain Growth and Charge Transport Control in Lithium Niobate <i>Sabine M. Neumayer</i></p>
3:15PM - 3:30PM	<p>Self-Assembled Diphenylalanine Microtubes: Emerging Properties And Applications <i>F. Salehli, S. Kopyl, P. Zelenovskiy, A. Nuraeva, S. Vasilev, A. Esin, V. Shur and Andrei L. Kholkin</i></p>			
3:30 PM - 4:00 PM	Refreshment Break			

4:00 PM - 5:30 PM	SESSION V			
	Processing Optimization	Local Order and Defects in Lead-free	L. Eric Cross Memorial	PFM: Switching Dynamics
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
4:00PM	(4:00PM - 4:15PM) Control of PbO Loss during Sintering of PZT: Laboratory vs Industry <u>Martin Safar</u> , <u>M. Zabcik</u> and <u>T. W. Button</u>	(4:00PM - 4:15PM) Compositional Dependence of Disorder in $\text{Na}_{1/2}\text{Bi}_{1/2}\text{TiO}_3$ - $x\%\text{BaTiO}_3$ <u>P.K.M. Tung</u> , <u>J. Hudspeth</u> , <u>M. Marton</u> and <u>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</u> , <u>M. Wallace</u> , <u>Thomas N. Jackson</u> , and <u>S. Trolier-McKinstry</u>	Structural Disorder of $\text{Bi}_{0.5}\text{K}_{0.5}\text{TiO}_3$ Studied By Total Scattering and DFT <u>Bo Jiang</u> , <u>Tor Grande</u> , and <u>Sverre M. Selbach</u>		Mesoscale Correlative Electro-Chemo-Mechanical Response in Ferroelectric Solid Solutions <u>Lee A. Griffin</u> , <u>S. Brewer</u> , <u>R. Vasudevan</u> , <u>S. Zhang</u> , <u>I. Gaponenko</u> , and <u>N. Bassiri-Gharb</u>
4:30PM - 4:45PM	Inkjet Printing of LaNiO_3 Electrodes for Ferroelectric Applications <u>Aleksander Matavž</u> , <u>B. Malič</u> , and <u>V. Bobnar</u>	Local Structure of $(1-x)\text{Na}_{1/2}\text{Bi}_{1/2}\text{TiO}_3$ - $x\text{BaTiO}_3$ Relaxor Ferroelectrics as Function of Temperature <u>Jurgen Rödel</u> , <u>M. Vögler</u> , <u>N. Novak</u> , <u>J. Koruza</u> , <u>K.V. Lalitha</u> , and <u>P. Groszewicz</u>	Recent Advances in Materials for Piezoelectric Transducers <u>Dražan Damjanovic</u>	Nanoscale Piezoelectric Response and Domain Relaxation of $(\text{K},\text{Na})\text{NbO}_3$ -Based Lead-Free Perovskite with Abnormal Grain Growth <u>Ke Wang</u> , <u>Tian-Lu Men</u> , <u>Wei Sun</u> and <u>Jing-Feng Li</u>
4:45PM	(4:45PM - 5:00PM) Optimizing Lead Content in a Low Temperature Solution Processed PZT Film <u>Reijiro Shimura</u> , <u>P.T. Tue</u> , <u>T. Shimoda</u> , and <u>Y. Takamura</u>	(4:45PM - 5:00PM) Use of Bayesian Inference in Characterization of Ceramic Materials: An Introduction and Applications in Ferroelectrics <u>Jacob L. Jones</u> , <u>Thanakorn Iamsasri</u> , <u>Jonathon Guerrier</u> , <u>Chris M. Fancher</u> , <u>John E. Daniels</u> , <u>Alexandra Larsen</u> , <u>Alyson G. Wilson</u> , <u>Brian Reich</u> , and <u>Ralph C. Smith</u>	INVITED - (4:45PM - 5:15PM) Journey of a Life-time Down Ferroelectrics-Road with Professor Cross <u>Dwight Viehland</u>	

5:00PM - 5:15PM	<p>A Proposal of New Buffer Layer for Depositing (110)-oriented Perovskite Thin Films on (111)Pt/SiO₂/Si Substrates <i>Kiyoshi Uchiyama, T. Sato, A. Akama, T. Kiguchi, T.J. Konno, N. Oshima, D. Ichinose, and H. Funakubo</i></p>	<p>Electrical Fatigue Behavior of Li,Sb and Ta doped KNN Ceramics <i>Orapim Namsar, Chunmanus Uthaisar, and <u>Soodkhet Pojprapai</u></i></p>		<p>Structural Phase and Polarization Patterning of Strained BFO Thin Films <i>Sabine M. Neumayer, N. Browne, D. Edwards, A. Naden, N. Bassiri-Gharb, A. Kumar, and B.J. Rodriguez</i></p>
5:15PM - 5:30PM			<p>Elution of Lead from PZT to Acid Rain <i>Takaaki Tsurumi, B.S. Takezawa, T. Hoshina, and H. Takeda</i></p>	<p>Size-effects in layered ferrielectric CuInP₂S₆ <i>Petro Maksymovych, Marius Chyasnachyus, Michael A. Susner, and Michael A. McGuire</i></p>

Wednesday, May 10, 2017

8:00 AM - 9:00 AM	<p align="center">Plenary Session III Student Center Ballroom Session Chair:</p> <p>Plenary: Prof. Marty Gregg Title of Abstract: <i>Seeking Simple Truth in Complex Materials: Wrestling with Ferroelectrics</i></p>			
9:00 AM - 10:00 AM	<p align="center">Plenary Session IV Student Center Ballroom Session Chair:</p> <p>Plenary: Dr. Scott Smith Title of Abstract: <i>Medical Ultrasound Transducers: Piezoelectrics at Work</i></p>			
10:00 AM - 10:30 AM	<p>Refreshment Break</p>			
10:30 AM - 12:00 PM	<p>SESSION VI</p>			
	<p>Lead-Free Piezoelectrics</p>	<p>Domains and Domain Walls</p>	<p>Thermal and Dynamic Behaviors of PZT</p>	<p>Energy Harvesting</p>
	<p>Session Chair:</p>	<p>Session Chair:</p>	<p>Session Chair:</p>	<p>Session Chair:</p>
10:30AM	<p>INVITED - (10:30AM - 11:00AM) Processing of Lead-free Piezoelectrics <u>Mari-Ann Einarsrud</u></p>	<p>(10:30AM - 10:45AM) Domain And Domain Wall Imaging With Low Energy Electrons <u>Nicholas Barrett, J.E. Rault, T.O. Mentes, A. Locatelli, G.F. Nataf, M. Guennou, J. Kreisel, P. Hicher, R. Haumont, L. Tortech, C. Mathieu, and D. Martinotti</u></p>	<p>(10:30AM - 10:45AM) 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>(10:30AM - 10:45AM) Metamaterial-enhanced Elastic Wave Energy Harvesting Concepts <u>Serife Tol, F.L. Degertekin, and A. 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 PbZr_{0.3}Ti_{0.7}O₃ 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>	<p>High Temperature Energy Harvesting Systems <u>Safakan Tuncdemir, A. Erkan Gurdal, W.-T. Chen, D. Fridkin, and C.A. Randall</u></p>
11:00AM - 11:15AM	<p>Dielectric Properties for Ba(Zr_{0.2}Ti_{0.8})O₃-(Ba_{0.7}Ca_{0.3})TiO₃ Ceramics <u>Jinghui Gao, X. Hu, L. Zhong, X. Ke and X. Ren</u></p>	<p>Backscattered Scanning Electron Microscopy Domain Imaging of Ferroelectric Films: in operando 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 $Ba_{1-x}Ca_xTi_{1-y}Zr_yO_3$ Thin Films <i>C.J.M. Daumont, Q. Simon, S. Payan, P. Gardes, P. Poveda, B. Negulescu, M. Maglione, and <u>Jerome Wolfman</u></i></p>	<p>Observation, Injection and Controlled Motion of Conducting Domain Walls in Improper Ferroelectric Cu-Cl Boracite <i>Raymond G. P. McQuaid, Michael P. Campbell, Roger W. Whatmore, J. Marty Gregg, and <u>Amit Kumar</u></i></p>	<p>Characterization of Domain wall Dynamics in $PbZr_{1-x}Ti_xO_3$ Using X-Ray Photon Correlation Spectroscopy <i><u>Semën Gorfman</u>, A. Bokov, M. Reiser, N. Zhang, Z.-G. Ye, A. Zozulya, and C. Gutt</i></p>	<p>Direct Writing of $BaTiO_3$ Nanocomposites with Tailored Microstructure for Energy Harvesting <i>M.H. Malakooti, A. Nafari, F. Jule, and <u>Henry A. Sodano</u></i></p>
11:30AM	<p>(11:30AM - 11:45AM) Cu Co-fired (Na, K)NbO_3 Multilayer Structure toward Piezoelectric Applications <i><u>Lisheng Gao</u>, Hanzheng Guo, Eberhard Hennig, Shujun Zhang, and Clive A. Randall</i></p>	<p>(11:30AM - 11:45AM) Local Writing and Characterization of Individual Charged Conducting Domain Walls in γ-cut $LiNbO_3$ (MgO 5% mol) Single Crystals <i><u>James McConville</u>, M.P. Campbell, A. Kumar, and J.M. Gregg</i></p>	<p>INVITED - (11:30AM - 12:00PM) Linking Pyroelectric Energy Conversion Theory to Practice <i>Brian Hanrahan, Y. Espinal, A. Smith, H. Khassaf, R. Polcawich, and <u>S. Pamir Alpay</u></i></p>	<p>(11:30AM - 11:45AM) Large-scale and Flexible Energy Harvester Based on ZnO Conical Nanostructures by Nano-Imprint Lithography and Atomic Layer Deposition <i><u>D. Spirito</u>, E. Defay, K. Menguelti, J. Kreisel, and D. Lenoble</i></p>
11:45AM - 12:00PM	<p>Sintering Behavior, Phase Structure and Electric Properties of KNNTS-BKNZ Ceramics with Excessive Alkali Metals <i><u>Zhi Tan</u>, Jie Xing, and Jianguo Zhu</i></p>	<p>Manipulating the DWC in Bulk $LiNbO_3$ <i>C. Razzaghi, M. Becker, and <u>Elisabeth Soergel</u></i></p>		<p>Bio-compatible Lead-free Piezoelectric Thin Films for Small-scale Flexible Energy Harvesting and Storage Devices <i><u>Seung-Hyun Kim</u>, M. Kawahara, S.S. Won, T. Shibayama, M. Hochido, I.W. Kim, and A.I. Kingon</i></p>
12:00 PM - 2:00 PM	Lunch Break			
12:00 PM - 2:00 PM	Women in Engineering Location TBD			

2:00 PM - 3:30 PM	SESSION VII			
	Multiferroics, BFO Part I	Ferroelectrics, Reliability	Jan Fousek Memorial	Transducers I
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
2:00PM	INVITED - (2:00PM - 2:30PM) Ferroelectric and Ferromagnetic MPBs of Modified BiFeO₃-PbTiO₃ Solid Solutions <i>Jinrong Cheng, Jianguo Chen, and Dengren Jin</i>	(2:00PM - 2:15PM) Improving Reliability in Piezoelectric Films <i>Betul Akkopru-Akgun, M.T. Lanagan, and S. Trolier-McKinstry</i>	INVITED - (2:00PM - 2:30PM) Domain Wall Mobility in Ferroelectric Films <i>Susan Trolier-McKinstry</i>	(2:00PM - 2:15PM) EMAT Phased Array Probe for Detecting Surface Cracks <i>Julio Isla and Frederic Cegla</i>
2:15PM - 2:30PM		Functional Response of Monolithic and Hetero-Layered Ferroelectric Thin Films <i>Evelyn S. Chin and N. Bassiri-Gharb</i>		Principle and Performance of a Novel Soft Material Loudspeaker <i>Kun Jia, Kai Wang, and Yicheng Zhang</i>
2:30PM	(2:30PM - 2:45PM) New Route to Design Vertically Aligned Multiferroic Nanocomposites <i>Sergey Basov, C. Elissalde, and L. Piraux</i>	(2:30PM - 2:45PM) Investigation of (non) polar Crystallographic Structures of (un) doped HfO₂ Bulk Ceramics and Nanoparticles <i>Brienne S. Johnson, C.C. Chung, J. Brodie, S. Jones, W. Straka, B. Zoellner, P. Maggard, and J.L. Jones</i>	INVITED - (2:30PM - 3:00PM) Tuning Domain Wall Thickness in Non-magnetic Ferroics <i>Alexander K. Tagantsev</i>	INVITED - (2:30PM - 3:00PM) Piezoelectric Sensors and Transducers for Advancing Structural Health Monitoring Technologies <i>Kui Yao, Shuting Chen, Szu Cheng Lai, Lei Zhang, Chin Yaw Tan, and Yifan Chen</i>
2:45PM - 3:00PM	Magnetic Ion Partitioning in Multiferroic Aurivillius Bismuth Iron Manganese Titanate <i>L. Keeney, A. Faraz, M. Schmidt, C. Downing, V. Nicolisi, M.E. Pemble, and Roger W. Whatmore</i>	Partial Discharge Characteristics of Ferroelectric Ceramics <i>T. Hang, Julia Glaum, Yuri Genenko, T. Phung, and M. Hoffman</i>		
3:00PM	(3:00PM - 3:15PM) Fabrication and Characterization of Nanoimprinted Organic-Inorganic Multiferroic Nanocomposites <i>Pedro Sá, Bernard Nysten, Luc Piraux, and Alain M. Jonas</i>	(3:00PM - 3:15PM) Dielectric Failure in Nb-doped {001} Textured Lead Zirconate Titanate Films <i>Wanlin Zhu, T. Borman, K. DeCesaris, S.W. Ko, P. Mardilovich, and S. Trolier-McKinstry</i>	INVITED - (3:00PM - 3:30PM) Role of Domain Patterns in Ferroelectrics: From Basic Ideas to Phase-Field Simulations <i>Pavel Mokry</i>	(3:00PM - 3:15PM) A Performance Study of Various Piezoelectric Crystals Based Through Wall Data Communication Systems at Elevated Temperature <i>Suresh Kaluvan and Haifeng Zhang</i>

3:15PM - 3:30PM	Photovoltaic Enhancement Accompanied by Polar-instability: BiFeO₃ vs MAPbI₃ <i>Junling Wang and Andrew M. Rappe</i>	Advances in Piezoelectric Thin Film Characterization and Reliability Testing <i>Thorsten Schmitz-Kempen, S. Tiedke, R. Kessels, P. Mardilovich, T. Ebefors, and S. Trolier-McKinstry</i>		Fabrication and Acoustic Characterization of BNT-Based Ultrasonic Therapeutic Transducer <i>Elaheh Taghaddos, T. Ma, Q. Zhou, H. Zhong, M. X. Wan, and A. Safari</i>
3:30 AM - 4:00 PM	Refreshment Break			

4:00 PM - 5:30 PM	SESSION VIII			
	Multiferroics, BFO Part II	Surfaces and Interfaces	Jan Fousek Memorial	Transducers II
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
4:00PM	(4:00PM - 4:15PM) Deterministic Control over Symmetry States in Mixed Phase BiFeO₃ <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>	(4:00PM - 4:15PM) Tailoring Ferroelectric Surfaces For Demanding Applications From The Bottom Up <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) A Tribute to Jan Fousek: Domains and Polar Clusters in Modern Non-Linear Dielectric Materials <u><i>Clive Randall</i></u>	(4:00PM - 4:15PM) End-Fire Ring Driven Flexensional Transducer <u><i>Alex L. Butler and John L. Butler</i></u>
4:15PM - 4:30PM	Point Defects in (001)-strained BiFeO₃ <u><i>Lu Xia and Sverre M. Selbach</i></u>	Ferroionic States: Coupling Between Surface Electrochemical and Bulk Ferroelectric Functionalities on the Nanoscale <u><i>Sergei V. Kalinin, Ye Cao, Evgheni Eliseev, and Anna N. Morozovska</i></u>		Mechanical Pre-Stressing a Transducer through a Negative DC Bias Field <u><i>Stephen C. Butler</i></u>
4:30PM	(4:30PM - 4:45PM) Ferromagnetism in BiFe_{1-x}Co_xO₃ Thin Films and the Correlation Between Ferroelectric and Ferromagnetic Domains <u><i>Hajime Hojo, R. Kawabe, K. Shimizu, H. Yamamoto, K. Mibu, and M. Azuma</i></u>	(4:30PM - 4:45PM) Probing the Role of Surface Water in Ferroelectric Domain Charge Dynamics <u><i>Iaroslav Gaponenko, N. Domingo, N. Stucki, A. Verdaguer, and P. Paruch</i></u>	INVITED - (4:30PM - 5:00PM) Domain-Enhanced Electromechanical Properties of Ferroelectrics Using Numerical Simulations <u><i>Pavel Marton, P. Ondrejokvic, V. Stepkova, A. Klíč, I. Rychetský, and J. Hlinka</i></u>	(4:30PM - 4:45PM) Temperature and Stress-dependent Single Crystal Properties for High Power SONAR Applications <u><i>Raphaël Lardat, Thomas Leissing, and Thomas Pastureaud</i></u>

4:45PM	(4:45PM - 5:00PM) Magnetoelectric Heterostructures With Vinylidene Fluoride Oligomers <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>	(4:45PM - 5:00PM) In Situ TEM Study of Charge Compensation in Ferroelectric Thin Films <i>Myung-Geun Han, Joseph Garlow, Matthew S. J. Marshall, Frederick J. Walker, Charles H. Ahn, and Yimei Zhu</i>		INVITED - (4:45PM - 5:15PM) Modeling of Phononic Crystals based on Piezoelectric Materials: Effective Properties and Tunability <i>Anne-Christine Hladky-Hennion, C. Vasseur, B. Dubus, A. Bâlé, F. Levassort, and M. Pham Thi</i>
5:00PM		(5:00PM - 5:15PM) Tuning Light-induced Polarization Screening of Ferroelectric Materials by Water <i>Fanmao Liu, I. Fina, F. Sánchez, and J. Fontcuberta</i>	INVITED - (5:00PM - 5:30PM) Ferroelectric Domains – Formation, Engineering and Dynamics <i>Wenwu Cao</i>	
5:15PM - 5:30PM		La_{1-y}Sr_yMnO₃ / Ba_{1-x}Sr_xTiO₃ Junction Band Structure Tuning Through Combinatorial Interface Chemical Modulation <i>Antoine Ruyter, J. Wolfman, B. Negulescu, P. Andreazza, C. Autret, and J. Sakai</i>		Tunable Elastic Metamaterial based on Piezoelectric Transducer <i>Pavel Marton, J. Nečásek, J. Václavík, and P. Mokrý</i>
6:00 PM - 10:00 PM	Banquet Dinner Student Center Ballroom			

Thursday, May 11, 2017

8:30 AM - 9:30 AM	<p align="center">Plenary Session V Student Center Ballroom Session Chair:</p> <p>Plenary: Prof. Haosu Luo Title of Abstract: <i>Investigation of Relaxor-PT Single Crystals for Device Applications</i></p>			
9:30 AM - 10:00 AM	<p align="center">Refreshment Break</p>			
10:00 AM - 12:00 PM	<p align="center">SESSION XI</p>			
	Superlattices, Films	BFO: Structure and Properties	Processing and Characterization	Single Crystals I
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
10:00AM	<p>INVITED - (10:00AM - 10:30AM) Domain Engineering in Ferroelectric Tricolor Superlattices Probed by X-ray diffraction <i>Nathalie Lemée, A. Boulle, I. C. Infante, C. Hubault, N. Blanc, N. Boudet, V. Demange, and M. G. Karkut</i></p>	<p>INVITED - (10:00AM - 10:30AM) Atomic-Scale Structural and Chemical Analysis of Domain Walls in Bismuth Ferrite <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></p>	<p>(10:00AM - 10:15AM) Self-Assembled Monolayer-Assisted Inkjet Printing of PZT Films on Platinized Silicon <i>Nicolas Godard, D. Sette, S. Glinsek, and E. Defay</i></p>	<p>(10:00AM - 10:15AM) Piezoelectric Single Crystal Standard <i>Lynn M. Ewart and Zuo-Guang Ye</i></p>
10:15AM - 10:30AM			<p>Fabrication and Characterization of Mechanical Resonators Integrating Microcontact Printed PZT Films <i>Daisuke Saya, D. Dezest, A.J. Welsh, O. Thomas, F. Mathieu, T. Leichle, L. Nicu, and S. Trolier-McKinstry</i></p>	<p>Broadband Acoustic Transduction Utilizing Phase Transformation in Ferroic Relaxor Mechanically Biased PIN-PMN-PT Single Crystal <i>Peter Finkel and M. Staruch</i></p>
10:30AM	<p>(10:30AM - 10:45AM) Understanding Polarization Asymmetry and Precise Tuning of the Built-in bias in PbTiO₃ Based Superlattice Thin Films <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></p>	<p>(10:30AM - 10:45AM) The Moiré Effect in the Scanning Transmission Electron Microscope: High Precision Structural Analysis Over Large Fields of View <i>Aaron B. Naden, K.J. O'Shea, I. Vrejoiu, A. Herpers, R. Dittmann, and D.A. MacLaren</i></p>	<p>(10:30AM - 10:45AM) Analyzing Pressure Dependence of a Low-Temperature Solution-Processed PZT Actuator <i>Reijiro Shimura, P.T. Tue, T. Shimoda, and Y. Takamura</i></p>	<p>INVITED - (10:30AM - 11:00AM) The Contribution of Polar Nanoregions to Electromechanical Properties in Ferroelectric Crystals and Ceramics <i>Fei Li, Shujun Zhang, Zhuo Xu, Long-Qing Chen, and Thomas R. ShROUT</i></p>

10:45AM - 11:00AM	<p>Nanoscale Bubble Domains in Ultrathin Ferroelectric Films <u>Qi Zhang</u>, <u>Lin Xie</u>, <u>Guangqing Liu</u>, <u>Sergei Prokhorenko</u>, <u>Yousra Nahas</u>, <u>Xiaoqing Pan</u>, <u>Laurent Bellaiche</u>, <u>Alexei Gruverman</u>, and <u>Nagarajan Valanoor</u></p>	<p>Deterministic Control over Conducting States in Morphotropic BiFeO₃ using Electrical Bias and Uniaxial Stress: Towards Piezoresistive Applications <u>Niall Browne</u>, <u>D. Edwards</u>, <u>K. Holsgrove</u>, <u>A.B. Naden</u>, <u>S.O. Sayedaghaee</u>, <u>B. Xu</u>, <u>S. Prosandeev</u>, <u>D. Wang</u>, <u>D. Mazumdar</u>, <u>A. Gupta</u>, <u>S.V. Kalinin</u>, <u>M.A. Arredondo</u>, <u>R.G.P. McQuaid</u>, <u>L. Bellaiche</u>, <u>J.M. Gregg</u>, and <u>A. Kumar</u></p>	<p>Measurement Method of Multi-Layer Piezoelectric Polarity-Inverted Structure Using Scanning Nonlinear Dielectric Microscopy <u>Hiroyuki Odagawa</u>, <u>Y. Tanaka</u>, <u>T. Yanagitani</u>, and <u>Y. Cho</u></p>	
11:00AM- 11:15AM	<p>Nanoscale Origins of Ferroelastic Domain Wall Mobility in Ferroelectric Multilayers <u>Nagarajan Valanoor</u>, <u>Hsin-Hui Huang</u>, <u>Zijian Hong</u>, <u>Huolin L. Xin</u>, <u>Dong Su</u>, <u>Long-Qing Chen</u>, <u>Guanzhong Huang</u>, and <u>Paul R. Munroe</u></p>	<p>Real-Space Imaging of Non-Collinear Antiferromagnetic Order With a Single Spin Magnetometer <u>Vincent Garcia</u>, <u>I. Gross</u>, <u>W. Akhtar</u>, <u>L.J. Martinez</u>, <u>S. Chouaieb</u>, <u>K. Garcia</u>, <u>C. Carrétéro</u>, <u>A. Barthélémy</u>, <u>P. Appel</u>, <u>P. Maletinsky</u>, <u>J.-V. Kim</u>, <u>J.-Y. Chauleau</u>, <u>N. Jaouen</u>, <u>M. Viret</u>, <u>M. Bibes</u>, <u>S. Fusil</u>, and <u>V. Jacques</u></p>	<p>Controlled Functionalization of Poly(4-methyl-1-pentene) Films for High Energy Storage <u>Guan Wang</u>, <u>M. Zhang</u>, <u>Z Xu</u>, and <u>L. Zhang</u></p>	<p>Periodic Nano-domain Patterns in Relaxor Single Crystals <u>Wei-Yi Chang</u>, <u>Ching-Chang Chung</u>, <u>Chih-hao Chang</u>, <u>Jacob L. Jones</u>, <u>Jian Tian</u>, and <u>Xiaoning Jiang</u></p>
11:15AM - 11:30AM	<p>Large Strain Control of Magnetization in Magnetostrictive Films on Single Crystal PIN-PMN-PT <u>Margo Staruch</u>, <u>S.F. Cheng</u>, <u>K. Bussmann</u>, and <u>P. Finkel</u></p>	<p>Enhanced Piezoelectric Response Due to Polarization Rotation in Co-substituted BiFeO₃ Epitaxial Thin Films <u>Keisuke Shimizu</u>, <u>H. Hojo</u>, <u>Y. Ikuhara</u>, and <u>Masaki Azuma</u></p>	<p>Bismuth Based Pyrochlore Dielectric Thin Films Deposited at Low Temperature for Thin Film Multilayer Capacitor Applications <u>Wei Ren</u>, <u>Fan He</u>, and <u>Peng Shi</u></p>	<p>Micromachining of PIN-PMN-PT Crystals Using Ultra-short Pulse Laser Ablation <u>Alena Kaiser</u>, <u>N. Neumann</u>, <u>A. Günther</u> and <u>M. Panzner</u></p>
11:30AM - 11:45AM	<p>Controlling the Intrinsic Polarization State in RF Sputtering Grown Ferroelectric Ultrathin Films <u>Christian Weymann</u>, <u>C. Lichtensteiger</u>, <u>S. Fernandez-Pena</u>, <u>J.-M. Triscone</u>, and <u>P. Paruch</u></p>		<p>Tunable Interdigital Capacitors and Phase Shift Unit Cell Fabricated on Ba_{0.29}Sr_{0.71}TiO₃ Grown by Hybrid MBE <u>Cedric J. G. Meyers</u>, <u>C. R. Freeze</u>, <u>S. Stemmer</u>, <u>X. Lan</u>, <u>L. Chau</u>, and <u>R.A. York</u></p>	<p>The Impact of Local Structure on Macroscopic Properties of ABO₃ Perovskite Relaxor <u>Shujun Zhang</u>, <u>Fei Li</u>, <u>Long-Qing Chen</u>, and <u>Thomas R. Shrout</u></p>
11:45AM - 12:00PM	<p>Electrical Properties of Epitaxially Grown and Preferentially oriented CSD-derived Pb(Mg_{1/3}, Nb_{2/3})O₃-PbTiO₃ Thin films on Si substrate <u>Hisao Suzuki</u>, <u>T. Arai</u>, <u>T. Ohno</u>, <u>N. Sakamoto</u> and <u>N. Wakiya</u></p>		<p>Structural Differences in Doped HfO₂: Root Causes For Varying Ferroelectric Properties Across Different Dopants <u>T. Schenk</u>, <u>M.H. Park</u>, <u>C. Richter</u>, <u>E.D. Grimley</u>, <u>J.M. LeBeau</u>, <u>C. Zhou</u>, <u>J.L. Jones</u>, <u>T. Mikolajick</u>, and <u>Uwe Schroeder</u></p>	<p>Probing the Switching Behaviour of PMN-PT Below Room Temperature <u>Philippa M. Shepley</u>, <u>L.A. Stoica</u>, and <u>A.J. Bell</u></p>

12:00 PM - 1:30 PM	Lunch Break			
1:30 PM - 4:00 PM	SESSION X			
	Nanoscale Ferroelectrics and Modeling	Lead-free, Phase Boundaries	Electrocalorics	Single Crystals II
	Session Chair:	Session Chair:	Session Chair:	Session Chair:
1:30PM	INVITED - (1:30PM - 2:00PM) Nanoscale Polarization in Molecular Ferroelectrics <u>Stephen Ducharme</u>	INVITED - (1:30PM - 2:00PM) Influence of Compressive Stress on the Piezoelectric and Dielectric Behavior of Lead-Free Ferroelectrics: Shifting Phase Boundaries <u>Kyle G. Webber</u> and <u>F.H. Schader</u>	INVITED - (1:30PM - 2:00PM) Exotic Caloric Effects Predicted From First-principles Simulations <u>Inna Ponomareva</u> and <u>S. Lisenkov</u>	(1:30PM - 1:45PM) 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	Mechanisms of Thermal Depolarization in Lead-Free Relaxor/Semiconductor Composites <u>Jürgen Rödel</u> , <u>L. Riemer</u> , <u>K.V. Lalitha</u> , <u>P. Groszewicz</u> , and <u>J. Koruza</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	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>	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	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>	Quenching Effects for Electrical Properties on Lead-free (Bi _{1/2} Na _{1/2})TiO ₃ 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 ₃ -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 _{1/3} Nb _{2/3})O ₃ -PbTiO ₃ -Bi(Zn _{2/3} Nb _{1/3})O ₃ 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	<p>Quantitative Modeling of High-Response Piezoelectricity Near a Phase Boundary <u>Dennis M. Newns, M. Kuroda, F. Cipcigan, J. Crane, and G.J. Martyna</u></p>	<p>Influence of Additives on Ferroelectric Properties Of NBT-Based Ceramics <u>Ekaterina D. Politova, N.V. Golubko, D.A. Belkova, A.V. Mosunov, N.V. Sadovskaya, G.M. Kaleva, and S. Yu. Stefanovich</u></p>	<p>Solid State Cooling Device Based on Electrocaloric Ceramic Multilayers <u>Tian Zhang, Xiaoshi Qian, Haiming Gu, and Q. M. Zhang</u></p>	<p>In-situ Exploration of the Correlation Between Domain Evolution and First-order Phase Transition in (K, Na)NbO₃ Based Single Crystal <u>Anyang Cui, Guisheng Xu, Zhigao Hu, and Junhao Chu</u></p>
3:00PM - 3:15PM	<p>Switching Dynamics & Mechanisms in Morphotropic PbZr_xTi_{1-x}O₃ from Atomistic Modeling <u>Jacob Chapman, O.T.Gindele, A.V. Kimmel, and D.M. Duffy</u></p>	<p>Influence of Sintering Temperature on Structural, Dielectric and Electrical Properties of NBT-BCT Lead-free Piezoelectric Ceramics <u>Raj Verr Singh, Meenakshi Gautam, and, R.P. Tandon</u></p>	<p>How Does Cyclic Electrical Loading Influence The Electrocaloric Effect in PMN-xPT? <u>Andraz Bradeško, M. Vrabelj, L. Fulanovič, M. Otoničar, Z. Kutnjak, B. Malič, and T. Rojac</u></p>	<p>Ferro-/Piezoelectricity and its Microstructural Origins in (1-x)BiFeO₃-xPbTiO₃ Single Crystals with High Curie Temperature <u>Jian Zhuang, Alexei A. Bokov, Jinyan Zhao, Nan Zhang, Jie Zhang, Hua Wu, Wei Ren, and Zuo-Guang Ye</u></p>
3:15PM - 3:30PM	<p>High Dielectric Constant due to the Strain-Induced Phase Transition of BaTiO₃ Nanocubes in an Ordered Assembly <u>Kyuichi Yasui, Ken-ichi Mimura, and Kazumi Kato</u></p>	<p>Improved Resistivity in Bismuth Deficient Morphotropic Phase Boundary 0.88BNT-0.08BKT-0.04BT Ceramics <u>Gregory Yesner and A. Safari</u></p>	<p>Electrocaloric Ceramic Multilayer Modules - A Critical Step In Realizing High Performance Electrocaloric Cooling Devices <u>Ying Hou, Xiaobo Zhao, Jinglei Li, Tian Zhang, and Q. M. Zhang</u></p>	<p>(K, Na)NbO₃-based Lead Free Single Crystals: Full Tensor Properties and Anisotropic Behavior <u>Limei Zheng and Wenwu Cao</u></p>
3:30PM - 3:45PM	<p>High Energy Density of Polymer Nanocomposites Induced by Modulation of their Topological-Structure <u>Yi Zeng, Zhonghui Shen, Hao Pan, Jianyong Jiang, Xin Zhang, Zhenkang Dan, Mengfan Guo, Yang Shen, Yuanhua Lin, and Ce-Wen Nan</u></p>	<p>Domain Investigation in Lead-free Bi_{0.5}Na_{0.5}TiO₃-xBaTiO₃ Ceramics by Piezoresponse Force Microscope <u>Jinyan Zhao, Wei Ren, Nan Zhang, Gang Niu, Lingyan Wang, Ming Liu, Peng Shi, and Zuo-Guang Ye</u></p>	<p>Coupling Caloric Effects in (x)0.67PNN-0.33PT - (1-x)La_{0.85}Ag_{0.15}MnO₃ Ceramic Composites <u>Abdulkarim A. Amirov, V.V. Rodionova, K. A. Chichay, and V.V. Sokolovskiy</u></p>	<p>Enhanced Piezoelectric and Ferroelectric Properties of (K,Na,Li)(Nb,Ta,Sb)O₃ Single Crystals by Defect Control <u>Jurij Koruza, H. Liu, P. Veber, D. Rytz, M. Maglione, E.A. Patterson, T. Frömling, and J. Rödel</u></p>
3:45PM - 4:00PM				<p>The Charge Release and Its Mechanism for Pb(In_{1/2}Nb_{1/2})O₃-Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃ Ferroelectric Crystals Under One-Dimensional Shock Wave Compression <u>Hao Zhang, Junjie Gao, and Long Xie</u></p>

4:00 PM - 4:30 PM	Refreshment Break
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4:30 PM - 5:30 PM	<p style="text-align: center;">Plenary Session VI Student Center Ballroom Session Chair:</p> <p>Plenary: Prof. Paul Muralt Title of Abstract: <i>Pushing the Performance of Electro-mechanical Thin Films</i></p>
5:30 PM - 6:00 PM	<p style="text-align: center;">Conference Closing</p>