

Electronic Materials and Applications 2010

Royal Plaza in
the Walt Disney®
World Resort



Orlando, FL, USA
Jan. 20-22, 2010

Register by December 21, 2009
Save \$100

PRELIMINARY TECHNICAL PROGRAM

LISTED BY SYMPOSIUM
THEN SESSIONS BY DAY

Jointly Programmed by the Electronics Division and
the Basic Science Division of The American Ceramic Society



Symposium 1: Advances in Ceramic Processing, Forming and Shaping

Wednesday, January 20, 2010

Electrohydrodynamic Processing & Nanostructured Ceramics

1:45 PM-3:15 PM

Room: Harbour I

Session Chair(s): Wolfgang Sigmund

1:45 PM

(EMA-S1-001-2010) Fabrication of Ceramic Nanofibers via Electrospinning (Invited)

Wolfgang Sigmund*, University of Florida, USA

2:15 PM

(EMA-S1-002-2010) Electrospun Ceramic Nanofiber Filtration System from Novel Aqueous Sol System

Hyoungjun Park*, Isaac Finger, Wolfgang Sigmund, University of Florida, USA

2:30 PM

(EMA-S1-003-2010) Alignment of electrospun transparent conducting oxide nanofibers

Michael Laudenslager*, Wolfgang Sigmund, University of Florida, USA

2:45 PM

(EMA-S1-004-2010) Lithographically patterned pyrolytic carbon as an electrochemical electrode

Bruce Burckel*, Cody Washburn, David Wheeler, Susan Brozik, Ronen Polsky, Sandia National Laboratories, USA; Alex Raub, Steve Brueck, University of New Mexico, USA

3:00 PM

Break

Powder Processing Science

3:15 PM-4:45 PM

Room: Harbour I

Session Chair(s): Paul Bowen, Kristen Brosnan

3:15 PM

(EMA-S1-005-2010) Processing Issues in Cathode-supported micro-tubular SOFCs based on Niodinium Nickelates. (Invited)

Paul Bowen*, Henning Luebbe, Jan Van herle, Heinrich Hofmann, EPFL, Switzerland

3:45 PM

(EMA-S1-006-2010) Prossesing and electrical properties of Pb0,6Ba0,4Nb2O6 ceramics

Cihangir Duran*, Sinan Dursun, Gebze Institute of Technology, Turkey

4:00 PM

(EMA-S1-007-2010) Microstructural Control of Highly-Conductive Ceramic Electrolytes (Invited)

Edward Michael Sabolsky*, Katarzyna Sabolsky, Soheil Razmyar, Trenton Larrabee, Christopher Heim, West Virginia University, USA

4:15 PM

(EMA-S1-008-2010) Characterization of microcavity formation in milled alumina and application to electronic ceramics

Jennifer Sue Forrester*, Erich H Kisi, University of Newcastle, Australia

4:30 PM

(EMA-S1-009-2010) Quantum Lubrication in Atomic Force Colloid Probes for Green Processing of Ceramics

Karran V Woan*, Wolfgang M Sigmund, University of Florida, USA

Thursday, January 21, 2010

Thin Films & Microelectronic Processing

9:15 AM-11:30 AM

Room: Harbour I

Session Chair(s): Robert Dorey

9:15 AM

(EMA-S1-010-2010) Microscale shaping on integration of functional ceramic materials for applications in Microsystems. (Invited)

Robert Dorey*, Francesca Bortolani, Dazhi Wang, Florent Dauchy, Sophie Rocks, Cranfield University, United Kingdom

9:45 AM

(EMA-S1-011-2010) Epitaxial Perovskite Thin Films on Flexible Substrates (Invited)

Brady J. Gibbons*, Chris Shelton, Oregon State University, USA; Vladimir Matias, Los Alamos National Laboratory, USA

10:15 AM

(EMA-S1-012-2010) Fabrication of Thin Films Deposited using Aerosol Deposition Method

Koji Nishikawa*, Yuuki Sato, Shinzo Yoshikado, Doshisha University, Japan

10:30 AM

(EMA-S1-013-2010) Enhanced Hybrid Gas Barrier Coating Materials via Sol-Gel Process

Rui Qing*, Tzung-Hua Lin, Wolfgang Sigmund, Masahiro Asuka, University of Florida, USA

10:45 AM

(EMA-S1-014-2010) Pulsed Laser Crystallization of Electroceramic Films (Invited)

Susan Trolrier-McKinstry*, Srowthi Bharadwaja, Joe Kulik, Penn State, USA; Howard Beratan, Bridge Semiconductor, USA

11:15 AM

(EMA-S1-015-2010) Deposition of Thin Film of MoSi₂ and Si Composite on Corundum α -Al₂O₃ Single Crystal or Si₃N₄ Polycrystalline Substrate

Teppey Hayashi*, Yuki Sato, Shinzo Yoshikado, Doshisha University, Japan

Forming and Sintering of Macroporous Ceramics & Composites

1:30 PM-4:30 PM

Room: Harbour I

Session Chair(s): Ender Suvaci

1:30 PM

(EMA-S1-016-2010) Role of ZnO Addition on Densification and Texture Development in Template Containing (K,Na)NbO₃ Lead Free Piezoelectric Ceramics (Invited)

Suvaci Ender*, Gokce Yildirim, Cigdem Ozsoy, Servet Turan, Anadolu University, Turkey

2:00 PM

(EMA-S1-017-2010) Formation of core-shell structure and sintering behavior of ultrafine-grained BaTiO₃ ceramic through oxide coating method.

Seungju Lee*, Minhoe Kim, Sungbum Sohn, Minhee Hong, Chultaek Lim, Sanghoon Kwon, Kangheon Hur, Yeojoo Yoon, samsung electro-mechanics, South Korea

2:15 PM

(EMA-S1-018-2010) Low Temperature Sintering of PSNZT

Amanda L Young*, Roger Moore, Mike Hutchinson, Dale Zschiesche, Alex Roesler, Margaret Sanchez, Sandia National Laboratories, USA

2:30 PM

(EMA-S1-019-2010) Net-Shape Dielectric Loaded Antenna Cores (Invited)

M. Mirsaneh, University of Sheffield, United Kingdom; Oliver Leisten, Sarantel Group PLC, United Kingdom; Ian M. Reaney*, University of Sheffield, United Kingdom

3:00 PM

(EMA-S1-020-2010) Preparation of Multilayer ZnO Varistors with Water-based Tape Casting
Lanyi Wang*, City University of Hong Kong, China

3:15 PM

(EMA-S1-021-2010) Micro-Moldable Ceramic Precursor
Isaac Finger*, University of Florida, USA

3:30 PM

Break

3:45 PM

(EMA-S1-022-2010) Dielectric Composites Produced via Tape Casting with Directional Freezing
Edward Gorzkowski*, Ming-Jen Pan, Naval Research Lab, USA

4:00 PM

(EMA-S1-023-2010) Shaping advanced ceramic components using preceramic polymers (Invited)
Paolo Colombo*, University of Padova, Italy

Symposium 2:
Symposium on Advanced
Dielectric, Piezoelectric,
and Ferroic Materials,
and Emerging Fields in
Electronics

Wednesday, January 20, 2010

**Multiferroic Oxides,
Heterostructures, and Thin
Films I**

1:00 PM-5:15 PM

Room: Harbour III

Session Chair(s): Amit Goyal, Susan Trolier-McKinstry

1:00 PM

(EMA-S2-001-2010) Tilt Transitions in Epitaxial Perovskite Thin Films (Invited)

Raegan Johnson, Daniel Tinberg, Penn State, USA; Yisong Han, Ian Reaney, University of Sheffield, United Kingdom; Igor Levin, NIST, USA; Tim Fister, Dillon Fong, Stephen K Streiffer, Argonne National Lab, USA; Susan Trolier-McKinstry*, Penn State, USA

1:30 PM

(EMA-S2-002-2010) The Effect of Substrate Vicinality and Orientation on Ferroelectric Properties of Epitaxial BiFeO₃ Thin Films (Invited)

Arunava Gupta*, University of Alabama, USA

2:00 PM

(EMA-S2-003-2010) High performance of single-crystal-like ferroelectric thin films on flexible, low-cost, metal templates for ferroelectric applications (Invited)

Junsoo Shin*, Amit Goyal, ORNL, USA

2:30 PM

(EMA-S2-004-2010) Control of lattice strain and electrical properties of epitaxial nanocomposite films (Invited)

H. Yang, Los Alamos National Laboratory, USA; P. Zerrer, University of Cambridge, United Kingdom; H. Wang, J. Yoon, Texas A&M University, USA; A. Fouchet, M. Blamire, University of Cambridge, United Kingdom; H. Luo, D. Feldmann, Los Alamos National Laboratory, USA; J. MacManus-Driscoll, University of Cambridge, United Kingdom; A. Burrell, T. McCleskey, Quanxi Jia*, Los Alamos National Laboratory, USA

3:00 PM

Break

3:15 PM

(EMA-S2-005-2010) Preparation and electric properties of Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃ epitaxial films on silicon substrate using La_{1-x}Sr_xCoO₃ and La_{1-x}Ni_xO₃ bottom electrode

Nak-Jin Seong*, Juan Jiang, Hyun-Jin Cho, Soon-Gil Yoon, Chungnam National University, South Korea

3:30 PM

(EMA-S2-006-2010) Effects of Heat Treatment Conditions and Timeline on the Nucleation and Orientation of PZT Thin Films on Pt-Si Substrate

Yaser Bastani*, Nazanin Bassiri-Gharb, Georgia Institute of Technology, USA

3:45 PM

(EMA-S2-007-2010) Investigation on the Electrical Properties of the TiO₂-doped Amorphous Bi₅Nb₃O₁₅ Thin Film

Jong-Woo Sun*, Myung-Eun Song, Tae-Geun Seong, Kyung-Hoon Cho, Sahn Nahm, Korea University, South Korea

4:00 PM

(EMA-S2-008-2010) Multiferroic Heterostructures For Sensors and Microwave Applications (Invited)

Jaydip Das*, Junqi Gao, Jiefang Li, Virginia Tech, USA; Young-Yeal Song, Colorado State University, USA; Dwight Viehland, Virginia Tech, USA; Carl E Patton, Colorado State University, USA

4:30 PM

(EMA-S2-009-2010) Laminated magnetoelectric structure for tunable contactless broadband magnetometry and energy harvesting

Peter Finkel*, NUWC, USA; Sam Lofland, Rowan University, USA

4:45 PM

(EMA-S2-010-2010) Room Temperature Multiferroics With Tetragonal Tungsten Bronze Structure

Yong Jun Wu*, Xiang Ming Chen, Zhejiang University, China

5:00 PM

(EMA-S2-011-2010) Relaxor ferroelectric-like high effective permittivity in leaky dielectrics/oxide semiconductors induced by electrode effects: a case study of CuO ceramics

Ming Li*, Antonio Feteira, Derek C Sinclair, University of Sheffield, United Kingdom

Thursday, January 21, 2010

Lead-free Piezoelectrics I

9:15 AM-11:45 AM

Room: Harbour III

Session Chair(s): Shashank Priya, Amar Bhalla

9:15 AM

(EMA-S2-012-2010) Structure and ferroelectric properties of BaZrxTi1-xO3 solid solution system (Invited)

Amar Bhalla*, Ruyan Ruo, The University of Texas at San Antonio, USA; Tanmoy Maiti, Pennsylvania State University, USA

9:45 AM

(EMA-S2-013-2010) Fine Structural Analysis of Li-modified (Na,K)NbO3 Lead-free Piezoceramics

Ken-ichi Kakimoto*, Tatsuro Hotta, Tomoaki Sumi, Isao Kagomiya, Nagoya Institute of Technology, Japan

10:00 AM

(EMA-S2-014-2010) Li/Na/K Ratio Dependence on Microstructure and Electrical Properties of Lead-free(Li,Na,K)NbO3 Ceramics by Citrate Complex Process

Lien Thi Kim Nguyen*, Kenichi Kakimoto, Isao Kagomiya, Nagoya Institute of Technology, Japan

10:15 AM

(EMA-S2-015-2010) Morphology-controlled synthesis of KNbO3 particles using plate-like KNb3O8 precursor

Keisuke Sugiyama*, Ken-ich Kakimoto, Isao Kagomiya, Nagoya Institute of Technology, Japan

10:30 AM

(EMA-S2-016-2010) Synthesis of apatite layers on the surface of lead-free (Li,Na,K)NbO3 piezoelectric ceramics

Ryota Kinoshita*, Ken-ichi Kakimoto, Isao Kagomiya, Nagoya Institute of Technology, Japan

10:45 AM

(EMA-S2-017-2010) Synthesis of 0.93Na1/2Bi1/2TiO3-0.07BaTiO3 textured ceramics using sodium hexa-titanate rods as templates

Deepam Maurya*, Shashank Priya, Virginia Tech, USA

11:00 AM

(EMA-S2-018-2010) Origin of ferroelectric domain structure and its correlation to piezoelectric property of lead-free $\text{Na}_{0.5}\text{K}_{0.5}\text{NbO}_3$ crystal.

Yumi Inagaki*, Ken-ichi Kakimoto, Isao Kagomiya, Jun Wang, Nobuo Ishizawa, Nagoya Institute of Technology, Japan

11:15 AM

(EMA-S2-019-2010) Bismuth Ferrite-doped Sodium Potassium Niobate produced by a modified Pechini route

Samantha Ann O'Callaghan*, Kevin M Knowles, Cambridge University, United Kingdom

11:30 AM

(EMA-S2-020-2010) In-Situ Observation of Phase Formation during Calcination of Sodium Bismuth Titanate

Elena Aksel*, Humberto Foronda, Jacob L Jones, University of Florida, USA

Multiferroic Oxides, Heterostructures, and Thin Films II

9:15 AM-12:00 PM

Room: Harbour IV

Session Chair(s): Arunava Gupta, Dwight Viehland

9:15 AM

(EMA-S2-021-2010) Giant Piezoelectricity on Silicon for Integrated Sensors and Actuators (Invited)

Chang-Beom Eom*, University of Wisconsin-Madison, USA

9:45 AM

(EMA-S2-022-2010) Ferroelectric property of lead-free LNKN thin films synthesized by CSD technique.

Yukie Kaku*, Kenichi Kakimoto, Isao Kagomiya, Nagoya Institute of Technology, Japan

10:00 AM

(EMA-S2-023-2010) Room-Temperature Coating for 3-D Integration of Passive Components Using Aerosol Deposition Method

Song-Min Nam*, Kwangwoon University, South Korea

10:15 AM

(EMA-S2-024-2010) Role of domain structure on domain wall motion dynamics in ferroelectric thin films

Jon Ihlefeld*, Geoff L Brennecke, Sandia National Laboratories, USA; Chang-Beom Eom, University of Wisconsin, USA

10:30 AM

(EMA-S2-025-2010) Integration of Ferroelectric (Ba,Sr)TiO₃ Films on Nickel and Copper Tape Substrates (Invited)

Paul Clem*, Jon F Ihlefeld, Jennifer A Sigman, Jacob Richardson, Jeff T Dawley, Sandia National Laboratories, USA

11:00 AM

(EMA-S2-026-2010) Local strain effects on nanoscale ferroelectric switching of PZT

Yuanyuan Jing*, John Blendell, R. Edwin García, Patrick Cantwell, Purdue University, USA

11:15 AM

(EMA-S2-027-2010) Thin Films LaSrMnO for Spintronics

Tamara N Patrusheva*, Siberian Federal University, Russia

11:30 AM

(EMA-S2-028-2010) Magneto-transport properties of high quality single crystal PLD film Mn and Co doped ZnO

John McCloy*, Joseph Ryan, Timothy Droubay, Tiffany Kaspar, Scott Chambers, Pacific Northwest National Laboratory, USA

11:45 AM

(EMA-S2-029-2010) Application of AgPd-Ceramic Composites to Internal Electrodes of Co-Fired Lead-Free Piezoelectric Ceramic Laminates

Soon-Jong Jeong, Min-Soo Kim, Korea Electrotechnology Research Institute, South Korea; Ill Won Kim, Hyoung-Soo Han, Seong-Kyu Jeong, Vu Diem Ngoc Tran, Jae-Shin Lee*, University of Ulsan, South Korea

Perovskite Dielectric, Mott Insulators, Ferroelectric, and Piezoelectric Materials

1:30 PM-6:15 PM

Room: Harbour III

Session Chair(s): Pam Thomas, Michael Hoffmann

1:30 PM

(EMA-S2-030-2010) Electric field-induced antiferroelectric-to-ferroelectric phase transition: A multi-scale study (INVITED) (Invited)

Xiaoli Tan*, Iowa State University, USA; Jürgen Rödel, Technical Univ. at Darmstadt, Germany

2:00 PM

(EMA-S2-031-2010) Giant Dielectric Response in All-Ceramic Percolative Composites

Vid Bobnar*, Marko Hrovat, Janez Holc, Marija Kosec, Jozef Stefan Institute, Slovenia

2:15 PM

(EMA-S2-032-2010) Unipolar electric fatigue of PZT ceramics

Julia Glaum*, Torsten Granzow, Jürgen Rödel, TU Darmstadt, Germany

2:30 PM

(EMA-S2-033-2010) Study of domain switching mechanism in lead zirconate titanate under cyclic mechanical loading by in situ neutron diffraction

Soodkhet Pojprapai*, Suranaree University of Technology, Thailand; Zhenhua Luo, The university of New South Wales, Australia; Bjørn Clausen, Sven C Vogel, Donald W Brown, Los Alamos Neutron Science Center, USA

2:45 PM

(EMA-S2-034-2010) Correlation between Resistance Degradation and Thermally Stimulated Depolarization Current (TSDC) in Acceptor (Mg)-Doped BaTiO₃ Sub-Micron Fine-Grain Ceramics

Seok-Hyun Yoon*, Clive A Randall, The Pennsylvania State University, USA; Kang-Heon Hur, Samsung Electro-Mechanics Co. Ltd., South Korea

3:00 PM

(EMA-S2-035-2010) Development of Piezoelectric and Relaxor Ceramics for Sensors

Pallavi Singh*, Ravish Kumar, VNIT, India

3:15 PM

(EMA-S2-036-2010) High Temperature Piezoelectrics Based on Ternary Systems

Alp Sehrioglu*, Case Western Reserve University, USA; Ali Sayir, Fred Dynys, NASA Glenn Research Center, USA

3:30 PM

Break

3:45 PM

(EMA-S2-037-2010) P-T-E studies of lead-based perovskite Ferroelectric Materials (Invited)

Jerome Rouquette*, Ali Al-Zein, Guillaume Fraysse, Institut Charles Gerhardt UMR CNRS 5253 Université Montpellier II Sciences et Techniques du Languedoc, France; Bernard Hehlen, Claire Levelut, Laboratoire des Colloïdes, Verres et Nanomatériaux (LCVN), UMR CNRS 5587, University of Montpellier II, France; Hichem Dammak, Laboratoire Structures, Propriétés, Modélisation des

Solides UMR CNRS 5580, Ecole Centrale Paris, France; Philippe Papet, Julien Haines, Institut Charles Gerhardt UMR CNRS 5253 Université Montpellier II Sciences et Techniques du Languedoc, France

4:15 PM

(EMA-S2-038-2010) Study of Bismuth and Lead Oxide Based Ternary Solid Solutions for High Temperature Ferroelectric Applications.
Akansha Dwivedi*, Clive A Randall, The Pennsylvania State University, USA

4:30 PM

(EMA-S2-039-2010) The origin of nonlinear strains in PZT under subcoercive cyclic electrical loading
Abhijit Pramanick*, New York State College of Ceramics, USA; Dragan Damjanovic, Swiss Federal Institute of Technology, Switzerland; John Daniels, European Synchrotron Radiation Facility, France; Juan C Nino, Jacob L Jones, University of Florida, USA

4:45 PM

(EMA-S2-040-2010) BiMeO₃ - PbTiO₃ (Me = Sc, Mg, Ti, Fe) ceramics for high T_c piezoelectric applications
Tutu Sebastian*, Iasmi Sterianou, Ian M Reaney, University of Sheffield, United Kingdom; Andrew J Bell, University of Leeds, United Kingdom

5:00 PM

(EMA-S2-041-2010) Development of Compact X-rays Source using Multiple Uniaxially Polarized LiNbO₃ Single Crystal
Shinji Fukao*, Kazuyuki Ito, Yang Guan, Yoshikazu Nakanishi, Yuuki Sato, Doshisha University, Japan; Yoshiaki Ito, Kyoto University, Japan; Shinzo Yoshikado, Doshisha University, Japan

5:15 PM

(EMA-S2-042-2010) Structure and Ferroelectric Characteristics of

Ba₅SmTi₃Ta₇O₃₀ and Ba₄Sm₂Ti₄Ta₆O₃₀ Tungsten Bronze Ceramics

Xiang Ming Chen*, Mu Xin Cao, Xiao Li Zhu, Xiao Qiang Liu, Zhejiang University, China

5:30 PM

(EMA-S2-043-2010) Manganese-doped BiScO₃-PbTiO₃: Defect chemistry and domain switching
Silke Schaab*, Jun Chen, Torsten Granzow, Technische Universität Darmstadt, Germany; Rüdiger Eichel, Universität Freiburg, Germany

5:45 PM

(EMA-S2-044-2010) Development of new piezoelectric ceramics with bismuth perovskites
Seema Sharma*, D. A Hall, Magadh University, India

6:00 PM

(EMA-S2-045-2010) Domain characterization of PZN-PT single crystals using Scanning Electron Acoustic Microscopy and Piezoresponse Force Microscopy
Meng Fei Wong*, Kaiyang Zeng, National University of Singapore, Singapore

Friday, January 22, 2010

Lead-free Piezoelectrics II

9:15 AM-12:00 PM

Room: Harbour III

Session Chair(s): sahn Nahm, Junsoo Shin

9:15 AM

(EMA-S2-046-2010) Current status of lead free materials for multilayer actuator devices (Invited)
Michael J. Hoffmann*, Jerome Acker, Hans Kungl, Gunnar Picht, KIT, Germany

9:45 AM

(EMA-S2-047-2010) New Microstructure for Low Temperature Coefficient in KNN Based Lead-free Ceramics (Invited)

Cheolwoo Ahn*, Shashank Priya, CheeSung Park, Virginia Tech, USA

10:15 AM

(EMA-S2-048-2010) Piezoelectric Properties and Fatigue Behavior of Bi-based Solid Solution Ceramics

Yu Hong Jeon*, Eric A Patterson, David P Cann, Oregon State University, USA

10:30 AM

(EMA-S2-049-2010) Piezoelectric Properties and Unipolar Fatigue Behavior of LF4 Piezoelectric Ceramics

Eric A Patterson*, Yu Hong Jeon, David P Cann, Oregon State University, USA

10:45 AM

(EMA-S2-050-2010) Doping-induced phase stabilization in BNT-based piezoceramics

Torsten Granzow*, Wook Jo, Julia Glaum, Technische Universität Darmstadt, Germany; Zhenhua Luo, University of New South Wales, Australia; Jürgen Rödel, Technische Universität Darmstadt, Germany

11:00 AM

(EMA-S2-051-2010) Grain Boundary Effects on Domain Switching in Lead-Free Thin Film NBT Piezoelectrics

Meredith Rogers*, Lorencia Chigweshe, Zeynep Nergiz, John Blendell, Purdue University, USA

11:15 AM

(EMA-S2-052-2010) A combinatorial investigation of the electric-field-induced behavior of BNT-BT-KNN lead-free piezoelectric ceramics

Jacob L Jones*, University of Florida, USA; John E Daniels, European Synchrotron Radiation Facility (ESRF), France; Wook Jo, Jürgen Rödel, Technische Universität Darmstadt, Germany

11:30 AM

(EMA-S2-053-2010) Structure and phase stability of BNT-BT lead-free piezoceramics (Invited)

Wook Jo*, Technische Universität Darmstadt, Germany; John Daniels, European Synchrotron Radiation Facility, France; Jacob Jones, University of Florida, USA; Jürgen Rödel, Technische Universität Darmstadt, Germany

11:45 AM

(EMA-S2-054-2010) Bipolar and Unipolar Fatigue of BNT based Lead-free Piezoceramics

Zhenhua Luo*, The University of New South Wales, Australia; Julia Glaum, Wook Jo, Torsten Granzow, Robert Dittmer, TU Darmstadt, Germany; Mark Hoffman, The University of New South Wales, Australia; Jürgen Rödel, TU Darmstadt, Germany

Nanoscale and Electromechanical Phenomena in Dielectric, Ferroelectric and Piezoelectric Materials

1:30 PM-4:45 PM

Room: Harbour III

Session Chair(s): Mike Glazer, Paul Clem

1:30 PM

(EMA-S2-055-2010) Possibility of Phonon Engineering by Control of Particle Structure in Ferroelectric Nanoparticles (Invited)

Satoshi Wada*, University of Yamanashi, Japan

2:00 PM

(EMA-S2-056-2010) Structural aspects of the rhombohedral phases of $\text{PbZr}_x\text{Ti}_{1-x}\text{O}_3$ (PZT) (Invited)

Mike Glazer*, Hiroko Yokota, Nan Zhang, Oxford University, United Kingdom; Pamela Thomas, Warwick University, United Kingdom

2:30 PM

(EMA-S2-057-2010) Phase transition and dielectric properties in weberite-type Gd_3NbO_7

Lu Cai*, Juan C Nino, Daniel Arenas, Dimitrios Koukis, David Tanner, University of Florida, USA; Veronica Goian, Stanislav Kamba, Institute of Physics of the AS CR, Czech Republic

2:45 PM

(EMA-S2-058-2010) Rhombohedral-to-Tetragonal Phase Transformation and Thermal Depolarization in PZN-PT Single Crystals

Wei-Sea Chang*, Leong-Chew Lim, National University of Singapore, Singapore; Ping Yang, Singapore Synchrotron Light Source, Singapore; Chi-Shun Tu, Fu Jen Catholic University, Taiwan

3:00 PM

(EMA-S2-059-2010) Structural and electrical characterisation of $KNbO_3$ - $BiYbO_3$ ceramics

Antonio Feteira*, University of Birmingham, United Kingdom; Klaus Reichmann, Graz University of Technology, Austria

3:15 PM

(EMA-S2-060-2010) Intermediate Phases between Displacive Variants in Perovskite Solid Solutions

Ian M. Reaney*, University of Sheffield, United Kingdom; Igor Levin, National Institute of Standards and Technology, USA

3:30 PM

Break

3:45 PM

(EMA-S2-061-2010) Observations of microstructural change in near electrode regions in Lead Zirconate Titanate (PZT) damaged by electric fatigue

Zhenhua Luo*, Soodkhet Pojprapai, Mark Hoffman, The University of New South Wales,

Australia

4:00 PM

(EMA-S2-062-2010) Some Unexpected Phenomena in Acceptor-Doped $BaTiO_3$ Ceramics

Anthony Roy West*, Yang Liu, Nahum Maso, University of Sheffield, United Kingdom; Hector Beltran, Marta Prades, Eloisa Cordoncillo, Universitat Jaume I, Spain

4:15 PM

(EMA-S2-063-2010) Finite element analysis of the vibration of a Piezoelectric high power ultrasonic transducer

Amir Abdullah*, Massoud Malaki, Abbas Pak, Rezvan Abedini, Amirkabir University of Technology, Iran

4:30 PM

(EMA-S2-064-2010) Development of Piezo Composites for Specific Sensor Applications

Shrabanee Sen*, S. K Mishra, NML, India

Symposium 3: Nano Phenomena and Interfacial/Surface Effects in Electronic Ceramics

Wednesday, January 20, 2010

Probing and Characterizing the Interfaces I

1:00 PM-3:15 PM

Room: Harbour II

Session Chair(s): Katherine Page, Matthew Chisholm

1:00 PM

(EMA-S3-001-2010) Compensation of ferroelectric polarization (Invited)

Matthew Chisholm*, Oak Ridge National Laboratory, USA; Weidong Luo, Vanderbilt University, USA; Ho Nyung Lee, Oak Ridge National Laboratory, USA; Sokrates T Pantelides, Vanderbilt University, USA

1:30 PM

(EMA-S3-002-2010) Nanometer and Nanosecond Scale Dynamics of Ferroelectric Domain Nucleation and Growth (Invited)

Sungjun Lee, Korea Research Institute of Standards and Science, South Korea; Nicholas A Polomoff, Vincent Palumbo, Gregory Santone, Atif Rakin, Katherine Czaja, Bryan D Huey*, University of Connecticut, USA

2:00 PM

(EMA-S3-003-2010) Effect of PbO content on phase evolution in chemical solution deposited PLZT thin films

Krishna Nittala*, Jacob L Jones, University of Florida, USA; Geoff L Brennecke, Bruce A

Tuttle, Sandia National Laboratories, USA

2:15 PM

(EMA-S3-004-2010) Probing Nanoscale Structural Features in Ferroelectric Perovskites with the Pair Distribution Function (Invited)

Katharine Page*, Thomas Proffen, Los Lamos National Laboratory, USA

2:45 PM

(EMA-S3-005-2010) Reflection high-energy electron diffraction study of K(Ta,Nb)O₃ thin films and related superlattices

Joseph Cianfrone*, Mathew Ivill, Charlee J Callender, David P Norton, University of Florida, USA; Lynn A Boatner, Oak Ridge National Laboratory, USA

3:00 PM

Break

Probing and Characterizing the Interfaces II

3:15 PM-5:30 PM

Room: Harbour II

Session Chair(s): Toshihiko Tani, Nina Balke

3:15 PM

(EMA-S3-006-2010) Ultrathin high-k dielectric films: interfacial layers, material and dielectric properties (Invited)

An Hardy, Hasselt University - Institute for Materials Research, Belgium; Sven Van Elshocht, Christoph Adelman, Stefan De Gendt, IMEC, Belgium; Marlies Van Bael*, Hasselt University - Institute for Materials Research, Belgium; Heidi Van den Rul, IMEC, Belgium; Jules Mullens, Hasselt University - Institute for Materials Research, Belgium

3:45 PM

(EMA-S3-007-2010) Effect of Ba Addition on Grain Growth and Electrical Characteristics of ZnO Varistors

Ai Fukumori*, Masayuki Takada, Yuji Akiyama,
Yuuki Sato, Shinzo Yoshikado, Doshisha
University, Japan

4:00 PM

(EMA-S3-008-2010) Chemical and electrical microanalyses for piezoresistive effect of RuO₂-glass thick film resistors on modeled interfaces and equivalent thin films to the functional interface (Invited)

Masashi Totokawa, DENSO CORPORATION, Japan; Masamichi Yoshimura, Toyota Technological Institute, Japan; Takamasa Nonaka, Hirozumi Azuma, Akihiro Takeichi, Ryoji Asahi, Toyota Central R&D Labs. Inc., Japan; Toshihiko Tani*, Toyota Research Institute of North America, USA

4:30 PM

(EMA-S3-009-2010) Interfacial Interactions in Amorphous Glass Ceramic Dielectrics

Jennifer DeCerbo*, Wright Patterson Air Force Base, USA; Kevin R Bray, UES, Inc., USA; Jeffery T Stricker, James Scofield, Wright Patterson Air Force Base, USA

4:45 PM

(EMA-S3-010-2010) Principles and opportunities of Piezoresponse Force Microscopy in the characterization of ferroelectric and other oxide surfaces (Invited)

Nina Balke*, Oak Ridge National Laboratory, USA

5:15 PM

(EMA-S3-011-2010) surface property dependance of sensitivity on ZnO nano-structured film for acetone sensor

Seung Hyun Jee*, Nitul Kakati, Su Hyun Kim, Jun Young Oh, Jung Ah Shim, Young Soo Yoon, Yonsei University, South Korea

Thursday, January 21, 2010

Interfacial/Surface Effects on the Physical Properties of Metal-oxide Films I

9:15 AM-12:00 PM

Room: Harbour II

Session Chair(s): Geoff Brennecke, Jeffrey Eastman

9:15 AM

(EMA-S3-012-2010) Effects of Chemical Boundary Conditions on the Switching Behavior of Ferroelectric PbTiO₃ Thin Films (Invited)

Jeffrey A Eastman*, Matthew J Highland, G. Brian Stephenson, Paul H Fuoss, Stephen K Streiffer, Dillon D Fong, Tim T Fister, Argonne National Laboratory, USA; Carol Thompson, Northern Illinois University, USA

9:45 AM

(EMA-S3-013-2010) Two-beam polarization prism on base ferroelastic domain wall

Dmytro Ivanovych Savytskii*, Buryy A Oleg, Lviv Polytechnic National University, Ukraine; Ulrich Bismayer, Universitat Hamburg, Germany; Ivan M Solskii, SRC "Carat", Ukraine; Yaroslav I Shopa, Ivan Franko National University of Lviv, Ukraine

10:00 AM

(EMA-S3-014-2010) Metal-Insulator Transition in 2-dimensionl electron gas systems (Invited)

Chang-Beom Eom*, University of Wisconsin-Madison, USA

10:30 AM

(EMA-S3-015-2010) Vertical Nanocomposites for Multiferroics and Enhanced Single Phase Functionality (Invited)

Judith Driscoll*, Sophie Harrington, Lee-Oon

Jew, Emily Weal, University of Cambridge, United Kingdom; Haiyan Wang, Texas A and M, USA; Hao Yang, Los Alamos National Laboratory, USA; Zhenxing Bi, Texas A and M, USA; Quanxi Jia, Los Alamos National Laboratory, USA

11:00 AM

(EMA-S3-016-2010) The Role of Nucleation in Ferroelectric Domain Dynamics

Geoff L Brenneka*, Kim W Reed, Ed V Barnat, Jon F Ihlefeld, Steve F Glover, Patrick A Mahoney, Joe M Rudys, Sandia National Labs, USA

11:15 AM

(EMA-S3-017-2010) Polarization coupling in ferroelectric multilayers probed by time-resolved X-ray microdiffraction (Invited)

Alexei Grigoriev*, The University of Tulsa, USA; Daniel Tinberg, The Pennsylvania State University, USA; Tara Drwenski, The University of Tulsa, USA; Susan Trolier-McKinstry, The Pennsylvania State University, USA; Donald Walko, Argonne National Laboratory, USA

Interfacial/Surface Effects on the Physical Properties of Metal-oxide Films II

1:30 PM-3:45 PM

Room: Harbour II

Session Chair(s): Sun Hun Wee, Haiyan Wang

1:30 PM

(EMA-S3-018-2010) Chemical solution approaches to self-assembled and nanocomposite oxide nanostructures (Invited)

Xavier Obradors*, Teresa Puig, Felip Sandiumenge, Narcis Mestres, Marta Gibert, Jone Zabaleta, Patricia Abellan, Adrian Carretero, Anna Llordes, Sussana Ricart, Alberto Pomar, Cesar Moreno, Fernando Martinez, Roxana Vlad, Jaume Gazquez,

Institut de Ciència de Materials Barcelona - CSIC, Spain

2:00 PM

(EMA-S3-019-2010) Nano-scale TEM/STEM investigation of self-assembled nanostructures within high-Tc superconducting films (Invited)

C. Cantoni*, Amit Goyal, Oak Ridge National Lab, USA; S. H Wee, University of Tennessee, USA; Yuri Zuev, E. Specht, Oak Ridge National Lab, USA

2:30 PM

(EMA-S3-020-2010) Nanoengineering defect structures in REBa₂Cu₃O_{7-δ} films for improved flux-pinning and enhanced critical current density (Invited)

Sung Hun Wee*, University of Tennessee, USA; Amit Goyal, Yuri L Zuev, Claudia Cantoni, Sy Cook, Oak Ridge National Laboratory, USA

3:00 PM

(EMA-S3-021-2010) Preparation of TiO₂-Nanoparticles-Thin Films by Electrophoresis Deposition Method

Kazuatsu Ito*, Yuuki Sato, Motonari Adachi, Yasushige Mori, Shinzo Yoshikado, Doshisha University, Japan

3:15 PM

(EMA-S3-022-2010) Tunable Lattice Strain in Vertically Aligned Nanocomposite (BiFeO₃)_x:(Sm₂O₃)_{1-x} Thin Films

Zhenxing Bi*, Joonhwan Lee, Texas A&M University, USA; Quanxi Jia, Los Alamos National Laboratory, USA; Judith L Driscoll, University of Cambridge, United Kingdom; Haiyan Wang, Texas A&M University, USA

3:30 PM

Break

Interfacial/Surface Effects on the Physical Properties of Metal-oxide Films III

3:45 PM-5:45 PM

Room: Harbour II

Session Chair(s): C. Cantoni, Quanxi Jia

3:45 PM

(EMA-S3-023-2010) Exploring the Role of Interface in Nanostructured Functional Oxide Thin Films (Invited)

Haiyan Wang*, Zhenxing Bi, Joon Hwan Lee,
Chen-Fong Tsai, Ickchan Kim, Sungmee Cho,
Michelle Myers, Tianlin Lu, Texas A & M
University, USA; Quanxi Jia, Hao Yang, Los
Alamos National Lab, USA; Judith MacManus-
Driscoll, University of Cambridge, United
Kingdom

4:15 PM

(EMA-S3-024-2010) Modeling Ferroelectric Domains in Polycrystalline Thin Films (Invited)

Edwin Garcia*, Purdue University, USA

4:45 PM

(EMA-S3-025-2010) Interface Engineered Nano Metamaterials with Anomalous Physical Phenomena (Invited)

Chonglin Chen*, University of Texas at San
Antonio, USA

5:15 PM

(EMA-S3-026-2010) Atomic-Scale Studies of Cobalt-Oxide Ceramic Using Aberration- Corrected Z-contrast Imaging and EELS (Invited)

Robert Friedrich Klie*, University of Illinois at
Chicago, USA

Symposium 4:
Symposium on Energy
Harvesting and Sensors
for Structural Health
Monitoring

Friday, January 22, 2010

**Energy Harvesting and Health
Monitoring**

9:15 AM-1:15 PM

Room: Harbour II

Session Chair(s): Shashank Priya

9:15 AM

(EMA-S4-001-2010) Hysteresis Modeling in Nano-Composites Based Sensors (Invited)

Rakesh Kapania*, Mohammed Sunny, Virginia Polytechnic Institute and State University, USA

9:45 AM

(EMA-S4-002-2010) Fatigue Life Estimation of Structural Components using MFC sensors (Invited)

Myung Hyun Kim*, Pusan National University, South Korea; Brad Butrym, Mana Afshari, Daniel J Inman, Virginia Polytechnic Institute and State University, USA

10:15 AM

(EMA-S4-003-2010) Challenges in Energy Harvesting from Vibrating Membrane Structures (Invited)

M. R Sunny, R. Singh, C. Sultan, Rakesh Kapania*, Virginia Polytechnic Institute and State University, USA

10:45 AM

(EMA-S4-004-2010) Energy harvesting systems using piezo-electric Macro Fiber

Composites (Invited)

Thomas Daue*, Smart Material Corporation, USA; Andreas Schoenecker, Fraunhofer-Institut für Keramische Technologien und Systeme, Germany

11:15 AM

(EMA-S4-005-2010) Co-fired Magnetoelectric Laminate Composite

Chee-Sung Park*, Cheol-Woo Ahn, Shashank Priya, Virginia Tech., USA

11:30 AM

(EMA-S4-006-2010) Transport and thermoelectric properties CaYCoO polycrystalline ceramics

Julio E. Rodriguez*, Luis C. Moreno, Universidad Nacional de Colombia, Colombia

11:45 AM

(EMA-S4-007-2010) MEMS vs Bulk Piezoelectric Energy Harvesters for Self-Powered Sensors for Structural Health Monitoring (Invited)

Toshikazu Nishida*, University of Florida, USA

12:15 PM

(EMA-S4-008-2010) 0.8 [0.948K0.5Na0.5NbO₃ - 0.052LiSbO₃] - 0.2 Ni_{0.8}Zn_{0.2}Fe₂O₄ (KNNLS-NZF) magnetoelectric composites with island-matrix microstructure

Su-Chul Yang*, Cheol-Woo Ahn, Shashank Priya, Virginia Tech, USA

12:30 PM

(EMA-S4-009-2010) Metal - Ceramic Magnetoelectric Composite Gradiometer

Vishwas Bedekar*, Virginia Tech, USA; Yu Pukinskii, Mirza Bichurin, Novgorod State University, Russia; Dwight Viehland, Shashank Priya, Virginia Tech, USA

12:45 PM

(EMA-S4-010-2010) Broad/Wide Band Magnetoelectric Sensor: Current State and Challenges

Chee-Sung Park*, Cheol-Woo Ahn, Su-Chul Yang, Shashank Priya, Virginia Tech., USA

1:00 PM

(EMA-S4-011-2010) Dual magnetic field and mechanical vibrations energy harvesting system for human health monitoring

Vishwas Bedekar*, Virginia Tech, USA; Mirza Bichurin, V. M Petrov, Novgorod State University, Russia; Dwight Viehland, Shashank Priya, Virginia Tech, USA

Symposium 5: Functional Ceramics for Energy Storage & Conversion

Friday, January 22, 2010

Energy Storage Systems & Electrolytes

9:15 AM-11:00 AM

Room: Harbour I

Session Chair(s): Anton Van Der Ven

9:15 AM

(EMA-S5-001-2010) Innovative Processing for Novel Energy Storage Materials (Invited)

Wolfgang Sigmund*, University of Florida, USA

9:45 AM

(EMA-S5-002-2010) Nano-thermodynamics of electrodes and the first-principles prediction of electrode kinetics of Li-ion batteries (Invited)

Anton Van Der Ven*, The University of Michigan, USA

10:15 AM

(EMA-S5-003-2010) Modeling Rechargeable Lithium-Ion Batteries Through Finite Element Analysis

Edwin Garcia*, Purdue University, USA

10:30 AM

(EMA-S5-004-2010) Solid-State Reactive Sintering Mechanisms for Improving Total Conductivity of Proton Conducting Ceramic, Yttrium-Doped Barium Zirconate

Jianhua Tong*, Daniel Clark, Ryan O'Hayre, Colorado School of Mines, USA

10:45 AM

(EMA-S5-005-2010) Proton conduction in

lanthanum ultraphosphate (LaP₅O₁₄) single crystals

Satyajit R Phadke*, Eric D Wachsman, Juan C Nino, University of Florida, USA

Advanced Cathode Materials for Rechargeable Batteries

1:30 PM-3:15 PM

Room: Harbour I

Session Chair(s): Helmut Schubert

1:30 PM

(EMA-S5-006-2010) Processing and Structural Investigation of New Channel Structured Li-Phosphates for Cathodes for Li Ion Batteries (Invited)

Christoph Kallfass, Herrman Schier, Max Planck Gesellschaft, Germany; Helmut Schubert*, Technische Universität Berlin, Germany

2:00 PM

(EMA-S5-007-2010) Investigation of battery materials using Scanning Probe Microscopy

Nina Balke*, Yoongu Kim, Nancy J Dudney, Sergei V Kalinin, Oak Ridge National Laboratory, USA

2:15 PM

(EMA-S5-008-2010) Electrospun Chevrel Phase Fibers for Magnesium Battery Cathodes

Raymond Harry Scheffler*, Wolfgang M Sigmund, University of Florida, USA

2:30 PM

(EMA-S5-009-2010) Equilibrium-Thickness Surficial Amorphous Films in LiFe(1-2y)P(1-y)O(4-δ) Battery Materials

Archana Kayyar*, Haijun Qian, Jian Luo, Clemson University, USA

2:45 PM

(EMA-S5-010-2010) The effect of synthesis temperature and stoichiometry on the electrochemical properties of Li[Li_{1/3-2x/3}Ni_xMn_{2/3-x/3}]O₂

Christopher Fell*, Ying Meng, University of Florida, USA

3:00 PM

(EMA-S5-011-2010) Excellent rate capability of $\text{LiCu}_{0.25}\text{Ni}_{0.25}\text{Mn}_{1.5}\text{O}_4$ cathode electrode in lithium ion batteries

Ming-Che Yang*, Ying S Meng, University of Florida, USA

Symposium 6: Ceramic
Materials for Power
Electronics (Wide-band
Gap Integration, High
Power Capacitors)

Friday, January 22, 2010

**Ceramic Materials for Power
Capacitors**

1:30 PM-3:00 PM

Room: Harbour II

Session Chair(s): Jon Ihlefeld

1:30 PM

**(EMA-S6-001-2010) Polymer Based
Nanodielectrics for Capacitors (Invited)**

Daniel Qi Tan*, GE Global Research, USA;
Susan Heidger, Kirtland AFB, USA; Qin Chen,
Yang Cao, Patricia Irwin, GE Global Research,
USA

2:00 PM

**(EMA-S6-002-2010) Direct Write Deposition of
Temperature Insensitive High Energy Density
Dielectrics**

Bruce Tuttle*, James F Carroll, Bernadette A
Hernandez-Sanchez, Diana Moore, Patrick
Mahoney, Ping Lu, Terry Garino, Nelson Bell,
Sandia National Laboratory, USA

2:15 PM

**(EMA-S6-003-2010) Thin Film Cubic
Perovskites for High Energy Density Capacitor
Applications**

Matt Chiasson, Morgan Emerson, David Cann,
Brady J. Gibbons*, Oregon State University,
USA

2:30 PM

**(EMA-S6-004-2010) Lanthanum doped (Sr,
Ba)Nb₂O₆ (LSBN) Thin Films for High Energy
Density Capacitors**

Do-Kyun Kwon*, Minhyuk Lee, Korea
Aerospace University, South Korea

2:45 PM

**(EMA-S6-005-2010) A New Structure of
Ceramic Capacitor: Modeling and
Experiments**

Frank Wei*, Pacifitec Design, Inc., USA; William
Liang, AFM Microelectronics, Inc., USA

**Oxide Integration with
Semiconductors for Power
Electronics**

3:00 PM-4:30 PM

Room: Harbour II

Session Chair(s): Jon Ihlefeld

3:00 PM

**(EMA-S6-006-2010) Ferroelectric gates for
GaN-based semiconductor heterostructures
(Invited)**

Igor Stolichnov*, EPFL, Switzerland

3:30 PM

**(EMA-S6-007-2010) Epitaxial integration of
complex oxides on GaN (Invited)**

Jon-Paul Maria*, Elizabeth Paisley, Mark
Losego, Spalding Craft, North Carolina State
University, USA; Alexei Gruverman, University
of Nebraska, USA

4:00 PM

**(EMA-S6-008-2010) Ozone Passivated,
Enhancement Mode AlN/GaN High Electron
Mobility Transistors**

Chien-Fong Lo*, C. Y Chang, F. Ren, S. J
Pearson, University of Florida, USA; I. I
Kravchenko, Oak Ridge National Lab, USA; A.
Dabiran, B. Cui, P. P Chow, SVT Associates, USA

Symposium 7: Emerging Topics in Electromagnetic Ceramics

Thursday, January 21, 2010

Metamaterials and Microwave Ceramics (A Joint Session with Symposium 2)

1:30 PM-5:30 PM

Room: Harbour IV

Session Chair(s): Paul Clem, Vojislav Mitic

1:30 PM

**(EMA-S7-001-2010) Applications and Effects
of Ceramic Thin Films in Infrared
Metamaterials (Invited)**

Glenn Boreman*, David Shelton, University of
Central Florida, USA

2:00 PM

**(EMA-S7-002-2010) 3-D Metamaterial
Fabrication Using Membrane Projection
Lithography**

Bruce Burckel*, Paul Davids, Igal Brener, Joel
Wendt, Rob Ellis, Mike Sinclair, Sandia National
Laboratories, USA

2:15 PM

**(EMA-S7-003-2010) Dielectric metamaterials
based on ceramic particle arrays (Invited)**

Ji Zhou*, Tsinghua University, China

2:45 PM

**(EMA-S7-004-2010) Magnetodielectric Sphere
Composites: A Low Loss, all Dielectric Route
for Double Negative Metamaterials**

James F Carroll*, Jacques Loui, Paul Clem,
Michael Sinclair, Sandia National Labs, USA

3:00 PM

**(EMA-S7-005-2010) Effect of aluminum
particle size on the absorption characteristics
for the composite electromagnetic wave
absorber made of both sendust and
aluminum particle**

Kenji Sakai*, Yang Guan, Yuuki Sato, Shinzo
Yoshikado, Doshisha University, Japan

3:15 PM

**(EMA-S7-006-2010) A Novel Low Loss
Dielectric Oxide Powder Additive to make
Polymeric Materials Transparent to
Microwave Radiation in RFID Applications**

Michael David Hill*, Dave Cruickshank, David
Cronin, Trans-Tech Inc., USA; Barry Treadway,
BAE Systems EI&S, USA

3:30 PM

Break

3:45 PM

**(EMA-S7-007-2010) Sub-Terahertz Excitations
in Hexaferrite-Piezoelectric Bilayers and
Magnetoelectric Interactions (Invited)**

Alexey Ustinov, Alexander Tatarenko, Gopalan
Srinivasan*, Oakland Univ., USA

4:15 PM

**(EMA-S7-008-2010) Designing of Layered
Piezoelectric PZT Based MEMS Switch and
High Frequency Simulation**

Murali Varaprasad Ande*, O. M Prasad, D.
Sastry, Research Centre Imarat, India

4:30 PM

**(EMA-S7-009-2010) Dielectric Properties of
Polystyrene / Ni-based Ceramic Composites**

Eung Soo Kim*, Chang Jun Jeon, Kyonggi
University, South Korea

4:45 PM

**(EMA-S7-010-2010) Influence of internal
strain on dielectric properties of Lanthanum
substituted Barium titanate dielectrics**

Dalveer Kaur Kaur*, Guru Nanak Dev

University, India

5:00 PM

(EMA-S7-011-2010) Microwave Dielectric Properties of Ca-doped SrSiO₃ Solid Solutions based on Crystal Structure

Itaru Suzuki, Isao Kagomiya, Ken-ichi Kakimoto, Hitoshi Ohsato*, Nagoya Institute of Technology, Japan

5:15 PM

(EMA-S7-012-2010) Fractals and Intergranular Contacts of Doped BaTiO₃

Vojislav Mitic*, University of Nis, Serbia; V. B Pavlovic, University of Belgrade, Serbia; Lj. Kocic, V. Paunovic, M. Miljkovic, Lj. Zivkovic, University of Nis, Serbia

Symposium 8: The Future of Electronic Ceramics: A New Investigator Symposium

Wednesday, January 20, 2010

Structural/Functional Relationships in Dielectrics

11:45 AM-12:45 PM

Room: Harbour I

Session Chair(s): Geoff Brennecka

11:45 AM

(EMA-S8-001-2010) Domain switching kinetics studied by application of instantaneous electric fields to lead zirconate titanate ceramics

Christopher Dosch*, University of Florida, USA; Torsten Granzow, Technischen Universität Darmstadt, Germany; Matthew Cochrine, Jacob L Jones, University of Florida, USA

12:00 PM

(EMA-S8-002-2010) Dielectric Characterisation of Bismuth Substituted Barium Hexaferrite

Leah M Ridgway*, Phillip Shepherd, Ian Harrison, University of Nottingham, United Kingdom

12:15 PM

(EMA-S8-003-2010) Developing the link between atomic structure and macroscopic properties of cubic pyrochlores

Beverly B Hinojosa*, Juan C Nino, Aravind Asthagiri, University of Florida, USA

12:30 PM

(EMA-S8-004-2010) Nanoscale domains and preferred cracking planes in PZN-PT single

crystals studied by fractography

Meng Fei Wong*, Kaiyang Zeng, National University of Singapore, Singapore

Thursday, January 21, 2010

Fabrication of Composites and Emerging Materials

12:15 PM-1:15 PM

Room: Harbour I

Session Chair(s): Jacob Jones

12:15 PM

(EMA-S8-005-2010) Polymer-Ceramic Composite Thick Films for the 3-D integrated Substrates by Aerosol Deposition Method

Hyung-Jun Kim*, Song-Min Nam, Kwangwoon University, South Korea

12:30 PM

(EMA-S8-006-2010) Effects of BiFeO₃ Additives on Phase Formation and multiferic Chactersistic of BaTiO₃ Based Ceramics

Athipong Ngamjarurojana*, Supon Ananta, Chiang Mai University, Thailand; Rattikorn Yimnirun, Suranaree University of Technology, Thailand

12:45 PM

(EMA-S8-007-2010) Thin Film BaTiO₃ Capacitors with High Capacitance Density Grown at Room Temperature by Aerosol Deposition Method

Jong-Min Oh*, Song-Min Nam, Kwanwoon University, South Korea

1:00 PM

(EMA-S8-008-2010) Development of Ferroelectric/Dielectric Nanocomposite Thin Films

Claire Weiss*, University of Connecticut, USA; Melanie Cole, Army Research Laboratory, USA; S. Pamir Alpay, University of Connecticut, USA; William Nothwang, Ryan Toonen, Eric Ngo,

Samuel Hirsch, Clifford Hubbard, Matthew Ivill,
Army Research Laboratory, USA

Friday, January 22, 2010

Nanostructures and Interfaces

12:15 PM-1:15 PM

Room: Harbour I

Session Chair(s): Eric Patterson, Claire Weiss

12:15 PM

(EMA-S8-009-2010) Nanostructured thin film SOFCs with enhanced efficiency

Sungmee Cho*, Texas A&M Univ, USA

12:30 PM

(EMA-S8-010-2010) Giant Electrocaloric Effect in Thick and Thin Films of Ceramic Relaxor Ferroelectrics

Zdravko Kutnjak*, Brigita Rozic, Barbara Malic,
Hana Ursic, Janez Holc, Marija Kosec, Jozef
Stefan Institute, Slovenia

12:45 PM

(EMA-S8-011-2010) Silicon Nitride Interfaces studied with Scanning Transmission Electron Microscopy Techniques and Ab Initio Methods

Weronika Walkosz*, Robert Klie, Serdar Ogut,
University of Illinois at Chicago, USA; Biljana
Mikijelj, Paul Becher, Albina Borisevich,
Stephen Pennycook, Oak Ridge National
Laboratory, USA; Juan Idrobo, Vanderbilt
University, USA

1:00 PM

(EMA-S8-012-2010) Development of high efficiency integrated gas sensors with nanorod sensing electrode of doped oxides

Bilge Saruhan-Brings*, Ayhan Yuce, German
Aerospace Center, Germany; Kursat Kazmanli,
Fatma Bayata, Mustafa Urgan, Department of
Materials and Metallurgical Engineering,
Turkey

Wednesday, January 20, 2010

Poster Session

6:00 PM-8:00 PM

Room: Castle Harbour

(EMA-S1-P001-2010) Microwave-Hydrothermal Synthesis of Chemically-Substituted Metal Tungstates

Anderson Dias*, Kislá Siqueira, Universidade Federal de Ouro Preto, Brazil

(EMA-S1-P002-2010) Influences of microstructure and Y_2O_3 concentration on compression strength of sintered YSZ

Kazuya Sasaki*, Akihiro Suzuki, Takayuki Terai, The University of Tokyo, Japan

(EMA-S2-P003-2010) Effects of the Poling Process on the Ferroelectric Properties of Lead Zirconate Titanate

Anderson D Prewitt*, Jacob L Jones, University of Florida, USA

(EMA-S2-P004-2010) The Effect of Processing and Doping on the Dielectric Properties of the Giant Dielectric Constant Perovskite Calcium Copper Titanate

Barry A Bender*, Ming-Jen Pan, Naval Research Lab, USA

(EMA-S2-P005-2010) Impact of Defect Chemistry on Structure and Ferroelectric Properties of Sodium Bismuth Titanate

Elena Aksel*, University of Florida, USA; Torsten Granzow, Technische Universität Darmstadt, Germany; Rüdiger Eichel, Albert-Ludwigs-Universität Freiburg, Germany; Jacob L Jones, University of Florida, USA

(EMA-S2-P006-2010) Modified Bismuth Sodium Titanate Piezoelectric Ceramics with High Electric-Field Induced Strain

Jae-Shin Lee*, Ali Hussain, Ky Nam Pham, Chang Won Ahn, Ill Won Kim, University of Ulsan, South Korea; Weon-Pil Tai, Ulsan Techno Park, South Korea

(EMA-S2-P007-2010) Resistivity, dielectric, ferroelectric, and piezoelectric properties of $0.8BaTiO_3 - 0.2Bi(Zn_{1/2}Ti_{1/2})O_3$ ceramic

Natthaphon Raengthon*, David Cann, Oregon State University, USA

(EMA-S2-P008-2010) Comparative Studies of Differently Signal Application on Dynamic Hysteresis Behavior in PMN-PT Single Crystals

Natthapong Wongdamnern*, Sukanda Jiansirisomboon, Anucha Watcharapasorn, Athipong Ngamjarrojana, Supon Ananta, Yongyut Laosiritaworn, Chiang Mai University, Thailand; Rattikorn Yimnirun, Institute of Science, Suranaree University of Technology, Thailand

(EMA-S2-P009-2010) Synthesis and characterization of Li and Sb doped (K,Na)NbO₃ Lead free ceramics

Rashmi Rani*, Seema Sharma, A N College, Magadh University, India; Ratnamala Chatterjee, IIT Delhi, India; N. K P Sinha, A N College, Magadh University, India

(EMA-S2-P010-2010) Preparation and characterization of $(1-x)(0.15BiScO_3-0.85PbTiO_3)-xBi(Mg_{1/2}Ti_{1/2})O_3$ piezoelectric ceramics

Shi Wei*, College of Materials Science and Engineering Sichuan University, China

(EMA-S2-P011-2010) Dielectric Properties of Carbon Nitride Films for ULSI interconnect

Sung Pil Lee*, Kyungnam University, South Korea

(EMA-S2-P012-2010) Stress Dependent of Polarization Aging Behavior in Ferroelectric Material

Thanapong Sareein*, Muangjai Unruan, Athipong Ngamjarrojana, Yongyut Laosiritaworn, Supon Ananta, Chiang Mai University, Thailand; Rattikorn Yimnirun, Suranaree University of Technology, Thailand

(EMA-S2-P013-2010) Magnetoelectric effect in trilayer of piezoelectric and compositionally graded magnetostrictive material

Vladimir Petrov*, Novgorod State University, Russia; Gopalan Srinivasan, Sanjay K Mandal, Oakland University, USA

(EMA-S2-P014-2010) High Curie-Temperature Piezoelectric Ceramics Based on BiFeO₃-PbTiO₃ Solid Solution

Xiaoli Tan*, Wei Hu, Iowa State University, USA

(EMA-S2-P015-2010) Effects of Rare-Earth Oxide Coating on the Microstructure and Dielectric Properties of BaTiO₃

Young Ho Han*, Soo Kyong Jo, Sungkyunkwan University, South Korea; Jae Sung Park, Samsung Electro-Mechanics Co.,Ltd., South Korea

(EMA-S4-P016-2010) Crystal Structure Analysis of Single Phase Lithium Titanate with Li additives

Kazuya Sasaki, Keisuke Mukai*, School of Engineering, The University of Tokyo, Japan; Takuya Hashimoto, Nihon University, Japan; Akihiro Suzuki, Tokyo University, Japan; Tsuyoshi Hoshino, Japan Atomic Energy Agency, Japan; Takayuki Terai, School of Engineering, The University of Tokyo, Japan

(EMA-S5-P017-2010) 2-D Sections of Li-ion Battery Electrode Architectures with a Focused Ion Beam

Edward Gorzkowski*, Dave Rowenhorst, Naval Research Lab, USA; David Stephenson, Dean Wheeler, Brigham Young University, USA

(EMA-S6-P018-2010) Dielectric Response of Bi(Zn_{1/2}Ti_{1/2})O₃-BaTiO₃ and Bi(Zn_{1/2}Ti_{1/2})O₃-NaNbO₃ Solid Solutions at High Electric Fields

Narit Triamnak*, Chien-Chih Huang, Brady J Gibbons, David P Cann, Oregon State University, USA

(EMA-S7-P019-2010) Influence of Nb₂O₅ and CaZrO₃ on Microstructure Development of BaTiO₃ Ceramics

Vojislav Mitic*, University of Nis, Serbia; V. B Pavlovic, University of Belgrade, Serbia; V. Paunovic, M. Miljkovic, Lj. Zivkovic, University of Nis, Serbia

(EMA-S8-P020-2010) Resin Infiltration into Porous Ceramic Thick Films Fabricated by Aerosol Deposition Method

Hong-Ki Kim*, Song-Min Nam, Kwangwoon University, South Korea

(EMA-S8-P021-2010) Effects of Perpendicular Compressive Stress on Ferroelectric Properties of PIN-PT Ceramics

Muangjai Unruan*, Chiang Mai University, Thailand; Supattra Wongsanmai, Maejo University, Thailand; Athipong Ngamjarujana, Yongyut Laosiritaworn, Supon Ananta, Chiang Mai University, Thailand; Amar Bhalla, The University of Texas at San Antonio, USA; Rattikorn Yimnirun, Suranaree University of Technology, Thailand

(EMA-S7-P022-2010) Dielectric Properties of (Mg_{1/2}Co_{1/2})Al₂O₄ Ceramics at Microwave Frequency

Cheng-Hsing Hsu*, Hsin-Han Tung, Chen-Kang Hsu, National United University, Taiwan

(EMA-S7-P023-2010) Effect of B₂O₃ on Microwave Dielectric Properties of Mg(Zr_{0.05}Ti_{0.95})O₃ Ceramics

Ching-Fang Tseng*, National United University, Taiwan

(EMA-S2-P024-2010) Improvement in Temperature Stability of BaTiO₃ based Multilayer Ceramic Capacitor by Constrained Sintering

Wen-Hsi Lee*, National Cheng-Kung University, Taiwan