



ICE-2003 Final Program

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<i>POSTER SESSION I</i>		<i>23</i>
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8:00	Opening and Welcome
8:15	POLAR OXIDES IN THE WORLD OF NANO-ELECTRONICS (PLENARY TALK) R. Waser FZJ Research Center Jülich and RWTH Aachen University, Germany
	<i>Integrated Dielectrics and Ferroelectrics</i> <i>Session Chairs: N. Ichinose</i> <i>N. Mizutani</i>
9:00	NANOSCALE PHENOMENA IN SYNTHETIC FUNCTIONAL OXIDE HETEROSTRUCTURES : ROLE OF INTERFACES R. Ramesh Dept. of Materials Science and Engineering and Center for Superconductivity Research, Dept. of Physics, Materials Research Science and Engineering Center, University of Maryland, College Park, MD 20742, USA
9:30	INTEGRATED OXIDE-BASED HETEROSTRUCTURES ON SILICON R. Droopad*, Z. Yu, J. Curless, M. Hu, K. Moore, D. Marshall Motorola Labs, Physical Sciences Research Laboratories, 7700 S. River Parkway, Tempe, AZ 85226, USA
10:00	ADVANCED MICROWAVE INTEGRATED CIRCUITS WITH CERAMIC THIN-FILM CIRCUITRY M. Fujimoto*, K. Ota, F. Iizuka, M. Satomi, K. Nakajima and T. Ogino Advanced Materials and Device, Japan Laboratory, Wireless Information Network Group, Taiyo Yuden Co., Ltd., 5607-2 Nakamuroda, Haruna-machi, Gunma 370-3347, Japan
10:30-11:00	Break
	<i>Integrated Dielectrics and Ferroelectrics - continued</i> <i>Session Chairs: M. Fujimoto</i> <i>R. Ramesh</i>
11:00	INTEGRATED MOCVD PZT THIN FILMS FOR 64MB FERAM ARRAYS S. Aggarwal*, ¹ A. Thomas ¹ , J.S. Martin ¹ , F. Celii ¹ , L. Hall ¹ , J. Rodriguez ¹ , K.R. Udayakumar ¹ , S.R. Summerfelt ¹ , T.S. Moise ¹ , and K.J. Taylor ¹ , F. Chu ² , S. Sun ² , G. Fox ² , R. Bailey ² and T. Davenport ² ¹ Texas Instruments Inc., 13560 N. Central Expressway, MS 3736, Dallas, TX 75243, USA ² Ramtron International Corporation, 1850 Ramtron Drive, Colorado Springs, CO 80921, USA
11:30	MEDIATED PATTERNING OF ELECTROCERAMIC THIN FILMS E.A. Mikalsen*, ¹ and D.A. Payne ² ¹ Materials Science and Engineering Dept., University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA ² F. Seitz Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA
11:50	EPITAXIAL GROWTH BEHAVIOR AND DIELECTRIC PROPERTIES OF SrTiO₃ FILMS ON BUFFERED Si(001) USING THE FIRST ATOMIC LAYER CONTROL T. Yamada*, N. Wakiya, K. Shinozaki and N. Mizutani Dept. of Metallurgy and Ceramics Science, Graduate School of Science and Engineering, Tokyo Institute of Technology, 2-12-1, O-okayama, Meguro-ku, Tokyo 152-8552, Japan
12:10-13:50	Lunch

	<i>Integrated Dielectrics and Ferroelectrics - continued</i> <i>Session Chair: W.J. Lee</i>
13:50	PERSPECTIVES IN CERAMICS INTEGRATION S. Kimura ¹ and N. Ichinose* ² ¹ The Society of Non-Traditional Technology of Japan, 1-2-10-7F Toranomon, Minato-ku, Tokyo 105-0001, JAPAN ² Dept. of Science and Technology, Waseda University, 3-4-1 Okubo Shinjuku-ku, Shinjuku-ku, Tokyo 169-8555, JAPAN
14:20	EPITAXIAL ENGINEERING OF DIELECTRICS AND FERROELECTRICS D.G. Schlom* ¹ , J.H. Haeni ¹ , W. Tian ² , J. Schubert ³ , P. Irvin ⁴ , W. Chang ⁵ , M.D. Biegalski ¹ , J.B. Neaton ⁶ , C. Fennie ⁶ , K.J. Choi ⁷ , Y.L. Li ¹ , S. Choudhury ¹ , L.Q. Chen ¹ , C.B. Eom ⁷ , K.M. Rabe ⁶ , S. Trolier-McKinstry ¹ , S.W. Kirchoefer ⁵ , J. Levy ⁴ , X.Q. Pan ² , and M.E. Hawley ⁸ ¹ Dept. of Materials Science and Engineering, Penn State University, University Park, PA 16802-5005, USA ² Dept. of Materials Science and Engineering, The University of Michigan, Ann Arbor, MI 48109-2136, USA ³ Institut für Schichten und Grenzflächen ISG1-IT, Forschungszentrum Jülich GmbH, D-52425 Jülich, Germany ⁴ Dept. of Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA 15260, USA ⁵ Naval Research Laboratory, Washington, DC 20375, USA ⁶ Dept. of Physics and Astronomy, Rutgers University, Piscataway, NJ 08854-8019, USA ⁷ Dept. of Materials Science and Engineering, University of Wisconsin-Madison, Madison, WI 53706, USA ⁸ Materials Science and Technology Division, Los Alamos National Laboratory, Los Alamos, NM 87545, USA
14:50	RECENT DEVELOPMENTS ON MOCVD OF FERROELECTRIC THIN FILMS T. Shiosaki*, Y. Otani and S. Okamura Graduate School of Materials Science, Nara Institute of Science and Technology (NAIST), 8916-5 Takayama-cho, Ikoma, Nara 630-0192, Japan
15:20	TOWARDS THE LIMITS OF CHEMICAL SOLUTION DEPOSITED NANOSIZED FERROELECTRIC GRAINS T. Schneller* ¹ , A. Roelofs ¹ and R. Waser ^{1,2} ¹ Institut für Werkstoffe der Elektrotechnik II, RWTH Aachen, D-52074 Aachen, Germany ² Institut für Festkörperforschung, Forschungszentrum Jülich, D-52425 Jülich, Germany
15:40	SUBSTRATE SURFACE ENGINEERING FOR TAILORING PROPERTIES OF FUNCTIONAL CERAMICS H.-U. Habermeier Max-Planck-Institut für Festkörperforschung, Heisenbergstr.1, D 70569 Stuttgart, Germany
	<i>Combinatorial Nanotechnology</i> <i>Session Chair: D. Schlom</i>
16:00	COMBINATORIAL NANOTECHNOLOGY FOR INNOVATING ELECTROCERAMICS RESEARCH H. Koinuma Materials and Structures Laboratory, Tokyo Institute of Technology, 4259 Nagatsuta, Midori-ku, Yokohama 226, Japan

8:00	A MATERIALS ROADMAP FOR MICROPHOTONICS (PLENARY TALK) L.C. Kimerling Dept. of Materials Science and Engineering and Materials Processing Center, MIT, Cambridge, MA 02139, USA
	<i>Integrated Photonics</i> <i>Session Chair: M. Kuwabara</i>
8:50	THIN FILM FERROELECTRICS FOR GUIDED WAVE DEVICES B.W. Wessels Dept. of Materials Science and Engineering and Materials Research Center, Northwestern University, Evanston IL 60208, USA
9:20	PYROELECTRIC ARRAYS: CERAMICS AND THIN FILMS R.W. Whatmore School of Industrial and Manufacturing Sciences, Cranfield University, Cranfield, Bedfordshire, MK43 0AL, United Kingdom
9:50	INTEGRATION OF ELECTRO-OPTIC FERROELECTRICS ON Si(001) BY MOLECULAR BEAM EPITAXY A. Meier*, F. Niu, B.W. Wessels Dept. of Materials Science and Engineering and Materials Research Center Northwestern University, Evanston IL 60208-3108
10:10	LARGE PYROELECTRICITY IN SUB-NANOCRYSTALLINE THIN BaTiO₃ FILMS I. Lubomirsky*, ¹ V. Lyahovitskaya ¹ , I. Zon ¹ , Y. Feldman ¹ , S. Cohen ² ¹ Dept. of Materials and Interfaces, Weizmann Institute of Science, Rehovot, 76100, Israel ² Dept. of Chemical Services, Weizmann Institute of Science, Rehovot, 76100, Israel
10:30- 11:00	Break
	<i>Integrated Photonics - continued</i> <i>Session Chairs: T. Moustakas</i> <i>N. Shibata</i>
11:00	LOCAL STRUCTURE AND SHAPING OF FERROELECTRIC DOMAIN WALLS FOR MICROPHOTONICS D. Scrymgeour, S. Kim, V. Gopalan* Pennsylvania State University, University Park, PA, USA
11:30	BaTiO₃-BASED FILMS FOR ELECTRO-OPTIC APPLICATIONS Y. Avrahami* and H.L. Tuller Crystal Physics and Electroceramics Laboratory, Dept. of Materials Science and Engineering, MIT, 77 Massachusetts Ave. Cambridge, MA 02139, USA
11:50	Ca SUBSTITUTED PbTiO₃ THIN FILMS FOR INFRARED DETECTORS T.C. Goel*, ¹ S. Chopra ¹ , S. Sharma ¹ and R.G. Mendiratta ² ¹ Advanced Ceramics Laboratory, Dept. of Physics, Indian Institute of Technology, New Delhi-110016, India ² Netaji Subhas Institute of Technology, Dwarka, New Delhi-110 045, India
12:10- 14:00	Lunch

	<p><i>High K Dielectrics</i> <i>Session Chairs: H. Nagata</i> <i>G.E. Jang</i></p>
14:00	<p>PROGRESS IN THE STUDIES OF HIGH-K GATE DIELECTRICS FOR MOSFET APPLICATIONS Z.G. Liu Laboratory of Solid State Microstructures, Nanjing University, Nanjing 210093, China</p>
14:30	<p>THICKNESS-DEPENDENT DIELECTRIC CONSTANTS AND ELECTRON TRANSPORT OF (Ba,Sr)TiO₃ THIN FILM CAPACITORS HAVING Pt AND CONDUCTING OXIDE ELECTRODES C.S. Hwang*, K.H. Ahn and W. Park School of Materials Science and Engineering, and Inter-university Semiconductor Research Center, Seoul National University, Seoul 151-742, South Korea</p>
15:00	<p>MODELLING THE DEPOSITION OF HIGH-K DIELECTRIC FILMS BY FIRST PRINCIPLES S.D. Elliott* and H.P. Pinto NMRC, University College Cork, Lee Maltings, Prospect Row, Cork, Ireland</p>
15:20	<p>CURRENT CONDUCTION AND DIELECTRIC BEHAVIOR OF HIGH K-Y₂O₃ FILM INTEGRATED WITH Si USING CHEMICAL VAPOR DEPOSITION FOR MEMORY CAPACITOR APPLICATIONS A.C. Rastogi* and S.B. Desu Dept. of Electrical and Computer Engineering, University of Massachusetts, Amherst, MA 01003, USA</p>
15:40	<p>ELECTRONIC CONDUCTIVITY AND DIELECTRIC PROPERTIES OF NANOCRYSTALLINE CeO₂ FILMS J. Lappalainen*^{1,2}, H.L. Tuller¹ and V. Lantto² ¹Crystal Physics and Electroceramics Laboratory, Dept. of Material Science and Engineering, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139, USA ²Microelectronics and Materials Physics Laboratories, P.O. Box 4500, FIN-90014, University of Oulu, Finland</p>
16:00-16:30	<p>Break</p>
	<p><i>Microwave Devices</i> <i>Session Chair: Y.C. Chen</i></p>
16:30	<p>ELECTROCERAMICS IN RF-MEMS AND MICROWAVE ELECTRONICS (Combined with Session 2) N. Setter*, P. Muralt, R. Lanz, C. Astafiev, V. Janakiraman, V. Cherman, A.K. Tagantsev Ceramics Laboratory, Materials Institute, Faculty of Engineering, EPFL, Swiss Federal Institute of Technology, 1015 Lausanne, Switzerland</p>
17:00	<p>NONLINEAR MICROWAVE PROPERTIES OF FERROELECTRIC THIN FILMS R. Wördenweber*, R. Ott, and P. Lahl ISG, FZ-Jülich, 52425 Jülich, Germany</p>
17:20	<p>POTENTIAL OF BZT THIN FILMS FOR TUNABLE MICROWAVE APPLICATIONS J. Xu*, W. Meneklou and E. Ivers-Tiffée Institut für Werkstoffe der Elektrotechnik, Universität Karlsruhe (TH), 76131 Karlsruhe, Germany</p>

	<p><i>Photonic Devices</i> <i>Session Chairs: T. Goel</i> <i>R. Whatmore</i></p>
9:00	<p>WIDE BAND GAP III-V NITRIDE SEMICONDUCTORS: PHOTONIC AND ELECTRONIC APPLICATIONS T.D. Moustakas Dept. of Electrical and Computer Engineering, Center of Photonics Research, Boston University, 8 St. Mary's St., Boston, MA 02215, USA</p>
9:30	<p>NOVEL PHOTOINDUCED PHENOMENA IN CHALCOGENIDE GLASSES H. Jain Dept. of Materials Science and Engineering, Lehigh University, Bethlehem, PA 18015, USA</p>
10:10	<p>EFFECT OF THICKNESS ON THE ELECTRICAL AND OPTICAL PROPERTIES OF Sb DOPED SnO₂ (ATO) THIN FILM T.R. Giraldi¹, J.A. Varela¹, C.A. Paskocimas¹, V. Bouquet³, E.R. Leite^{*2}, E. Longo² ¹CMDMC/LIEC/ IQ - Unesp – R. Prof. Francisco Degni, s/n – Araraquara-SP-Brazil ²CMDMC/LIEC/ DQ UFSCar – Av. Washington Luiz, km 235 – São Carlos-SP-Brazil ³UNIVERSITY OF RENNES, Rennes, France</p>
10:30-11:00	Break
	<p><i>Advanced Characterization Methods</i> <i>Session Chair: C-B. Eom</i></p>
11:00	<p>NANO-FERROS / NANO-OPTICS – DIELECTRIC AND OPTICAL PROPERTIES IN FERROELECTRICS DETERMINED BY SCANNING PROBE TECHNIQUES ON THE NANOMETER SCALE F. Schlaphof* and L.M. Eng Institute of Applied Photophysics, TU Dresden, D-01062 Dresden, Germany</p>
11:30	<p>MICROWAVE DIELECTRIC MECHANISM STUDIED BY MICROWAVE NEAR-FIELD MICROSCOPY AND RAMAN SPECTROSCOPY Y-C. Chen^{*1}, Y-S. Hsieh¹, H-F. Cheng¹, C-T. Chia¹, and I-N. Lin² ¹Dept. of Physics, National Taiwan Normal University, Taipei 116, Taiwan, R.O.C. ²Materials Science Center, National Tsing-Hua University, Hsinchu 300, Taiwan, R.O.C.</p>
11:50	<p>THE INFLUENCE OF DISTRIBUTED LOADING AND CANTILEVER ANGLE IN PIEZO-FORCE MICROSCOPY B.D. Huey^{*1}, J. Blendell¹, G. White¹, C. Ramanujan², M. Bobji², A. Kulik³ ¹NIST Ceramics Division, Gaithersburg, MD 20899, USA ²Oxford University Dept. of Materials, Parks Road, Oxford OX1-3PH, United Kingdom ³EPFL Inst. of Physics, Lausanne CH-1015, Switzerland</p>
12:10-13:30	Lunch

	<i>Thin Film Processing and Characterization</i> <i>Session Chair: H-U. Habermaier</i>
13:30	CHEMICAL SOLUTION DEPOSITION OF PEROVSKITE THIN FILMS R.W. Schwartz University of Missouri – Rolla, Dept. of Ceramic Engineering, Rolla, MO 65409-0330, USA
14:00	SrTiO₃ BASED SIDE GATE FIELD EFFECT TRANSISTOR REALIZED BY A NOVEL SUBMICRON SCALE AFM PATTERNING TECHNIQUE L. Pellegrino*, E. Bellingeri, I. Pallecchi, A.S. Siri, D. Marré Dipartimento di Fisica, Università di Genova, via Dodecaneso 33 16146 Genova, Italy INFN-LAMIA, Corso Perrone 24, 16152 Genova, Italy
14:20	SYNTHESIS AND PROPERTIES OF (Bi,Nd)₄Ti₃O₁₂ THIN FILMS BY CHEMICAL SOLUTION DEPOSITION W. Sakamoto* ¹ , M. Yamada ² , K. Kikuta ² , T. Yogo ¹ , T. Hayashi ³ , S. Hirano ² , et al. ¹ Center for Integrated Research in Science and Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, 464-8603 Japan ² Dept. of Applied Chemistry, Graduate School of Engineering, Nagoya University Furo-cho, Chikusa-ku, Nagoya, 464-8603 Japan ³ 1-1-25 Tsujido-Nishikaigan, Fujisawa, Dept. of Material Science, Shonan Institute of Technology, Kanagawa, 251-8511 Japan
14:40	DIRECT CHARACTERIZATION OF FERROELECTRIC TEXTURE INDUCED DURING POLING J.L. Jones*, T.M. Finch, T.S. Key, E.B. Slamovich, K.J. Bowman Materials Engineering, Purdue University, West Lafayette, Indiana, USA, USA
15:00	RAMAN SPECTROSCOPY STUDIES ON CaTiO₃-BASED MICROWAVE CERAMICS H. Zheng* ¹ , I. M. Reaney ¹ , R. Ubbelohde ² and J. Yarwood ³ ¹ Dept. of Engineering Materials, University of Sheffield, Sheffield, S1 3JD, United Kingdom ² Dept. of Materials, Queen Mary, University of London, London, E1 4NS, United Kingdom ³ Materials Research Institute, Sheffield Hallam University, Sheffield, S1 1WB, United Kingdom
15:20 – 15:50	Break
	<i>Thin Film Processing and Characterization - continued</i> <i>Session Chair: H. Haneda</i>
15:50	IN-SITU TEM INVESTIGATION OF STRUCTURAL CHANGE OF ZIRCONIA/SILICON HETEROSTRUCTURE T. Kiguchi* ¹ , N. Wakiya ² , K. Shinozaki ² , and N. Mizutani ^{1,2} ¹ Center for Advanced Materials Analysis, Tokyo Institute of Technology, Japan ² Dept. of Metallurgy and Ceramic Science, Tokyo Institute of Technology, O-okayama, Meguro-ku, Tokyo, Japan
16:10	EFFECT OF STRAIN GRADATION ON LUMINESCENCE AND ELECTRONIC PROPERTIES OF PULSED LASER DEPOSITED EPITAXIAL ZINC OXIDE THIN FILMS A.C. Rastogi* ¹ , S.B. Desu ¹ , P. Bhattacharya ² , R.S. Katiyar ² ¹ Dept. of Electrical and Computer Engineering, University of Massachusetts, Amherst, MA 01003, USA ² Dept. of Physics, University of Puerto Rico, Rio Piedras, P.R. 00931
16:30	PREPARATION OF ZINC OXIDE BASED MULTI LAYER THIN FILMS H. Ryoken* ¹ , N. Ohashi ² , H. Haneda ² , Y. Adachi ² , T. Takenaka ¹ ¹ Tokyo University of Science, 2641 Yamazaki, Noda, Chiba 278-0022, Japan ² National Institute for Materials Science/Advance Materials Laboratory, 1-1 Namiki, Tsukuba, Ibaraki 305-0044 Japan

	<i>Controlled Microstructure Piezoelectrics</i> <i>Session Chair: Y-M. Chiang</i>
9:00	ORIENTED PIEZOELECTRIC CERAMICS AND FILMS S. Trolier-McKinstry*, E. Sabolsky, C. Duran, S. Kwon, G.L. Messing, J. Nino, T. Yoshimura, and N. Bassiri Gharb Materials Science and Engineering Dept. and Materials Research Institute, Penn State University, PA, USA
9:30	GRAIN GROWTH AND BOUNDARY MIGRATION IN STRONTIUM TITANATE A.M. Scotch*, J.S. Wallace, and J.E. Blendell NIST, Ceramics Division, Gaithersburg, MD 20899-8522
9:50	NEW RESULTS OF MEASUREMENTS OF THE d_{33} PIEZOELECTRIC COEFFICIENT OF THE PZT FILM-Si/SiO₂/Ti/Pt SUBSTRATES J. Nosek* ¹ , M. Sulc ¹ , L. Burianova ¹ , C. Soyer ² , E. Cattani ² , D. Remiens ² ¹ Technical University Liberec, International Center for Piezoelectric Research, Háčkova 6, CZ-461 17 Liberec 1, Czech Republic ² Université de Valenciennes, IEMN – DOAE - MIMM, F-59600 Maubeuge, France
10:10	TEMPLATED GRAIN GROWTH OF TEXTURED PIEZOELECTRIC CERAMICS G.L. Messing*, E. Sabolsky, S.T. Kwon, C. Duran, H. Yilmaz and S. Trolier-McKinstry Dept. of Materials Science and Engineering, Materials Research Institute, The Pennsylvania State University, University Park, PA, 16802, USA
10:30-11:00	Break
	<i>Advanced Characterization Methods</i> <i>Session Chair: F. Schlaphof</i>
11:00	PYROELECTRIC ELECTRON EMISSION BEHAVIOR OF FERROELECTRIC MATERIALS E.M. Bourim* ¹ , D-W. Kim ¹ , V.A. Sidorkin ^{1,2} , C.W. Moon ¹ and In K. Yoo ¹ ¹ U-Team, Samsung Advanced Institute of Technology, P. O. Box 111, Suwon 440-600, Korea ² Dept. of Physics, Voronezh State University 394006, University Square 1, Voronezh, Russia
11:20	RAMAN SCATTERING STUDY OF THE Pb(Hf_xTi_{1-x})O₃ CERAMICS J. Frantti* ¹ , Y. Fujioka ¹ , S. Eriksson ² , V. Lantto ³ , and M. Kakihana ¹ ¹ Materials and Structures Laboratory, Tokyo Institute of Technology, 4259 Nagatsuta, Midori-ku, Yokohama, 226-8503, Japan ² Studsvik Neutron Research Laboratory, Uppsala University, SE-611 82, Nyköping, Sweden ³ Microelectronics and Materials Physics Laboratories, University of Oulu, Linnanmaa, P.O. Box 4500, FIN-90014 University of Oulu, Finland
11:40	STRUCTURE-PROPERTY RELATIONSHIPS IN HEXAGONAL-BASED PEROVSKITES D.C. Sinclair Dept. of Engineering Materials, University of Sheffield, S1 3JD United Kingdom
12:00	STRUCTURAL STABILITY VERSUS PRESSURE AND TEMPERATURE IN THE PZT PHASE DIAGRAM P. Papet*, J. Rouquette, V. Bornand, M. Pintard and J. Haines Université de Montpellier II, place Eugène Bataillon, cc 003 F-34095 MONTPELLIER Cedex 5, France/ Laboratoire de Physicochimie de la Matière Condensée LPMC UMR CNRS 5617

8:15	POLAR OXIDES IN THE WORLD OF NANO-ELECTRONICS (PLENARY TALK) R. Waser FZJ Research Center Jülich and RWTH Aachen University, Germany
	<i>Multi-layer Structures</i> <i>Session Chair: C.S. Hwang</i>
9:00	THE EMERGENCE OF MULTI-LAYER CERAMICS AS A MEMS/MST PLATFORM M. Oliver* Motorola Labs, Tempe, Arizona, USA
9:30	THE TECHNICAL TRENDS IN MLCC J.H. Kim*, E.S. Na Samsung electro-mechanics co., Ltd, Suwon, Gyunggi-Do, South Korea 442-743
10:00	DIELECTRIC MATERIALS DEVELOPMENT FOR HIGH-TEMPERATURE CAPACITORS E. Furman* ¹ , M. Lanagan ¹ , S.Y. Young ¹ , B. Jones ¹ , and S. Kwon ² ¹ Materials Research Institute, The Pennsylvania State University, University Park, PA 16802, USA ² TRS Ceramics
10:20	DEVELOPMENT OF X7R TYPE BASE-METAL-ELECTRODED BaTiO₃ CAPACITOR MATERIALS BY CO-DOPING OF MgO/Y₂O₃ ADDITIVES I-N. Lin* ¹ , W-C. Yang ² , C-T. Hu ² and H-F. Cheng ³ ¹ Materials Science Center, National Tsing-Hua University, Hsin-Chu, Taiwan 300 ² Dept. of Materials Science and Engineering, National Tsing-Hua University, Hsin-Chu, Taiwan 300 ³ Dept. of Physics, National Taiwan Normal University, Taipei 106, Taiwan R.O.C.
10:40-11:00	Break
	<i>Multi-layer Structures - continued</i> <i>Session Chair: L. Gauckler</i>
11:00	FUTURE CHALLENGES IN ELECTROCERAMIC MATERIALS AND DEVICES C.A. Randall Materials Research Institute, The Pennsylvania State University, University Park, PA 16802, USA
11:30	MICROWAVE CO-FIRING OF BASE-METAL-ELECTRODE MULTILAYER CAPACITORS Y. Fang* ¹ , H. Peng ¹ , D. Agrawal ¹ , M. Lanagan ¹ , C. Randall ¹ , M. Randall ² ¹ Materials Research Institute, Pennsylvania State University, University Park, PA 16802, USA ² Kemet Electronics, Inc., 201 Fairview St., Fountain Inn, SC 29644, USA
11:50	DIELECTRIC PROPERTIES OF (Sr,Ba)Bi₄Ti₄O₁₅ CERAMICS C.C. Chan ¹ , M.A. Feng* ² , C.F. Yang ³ and H.L. Wang ⁴ ¹ Dept. Chemical Eng., K.Y.I.T., Kaohsiung, Taiwan R.O.C. ² Dept. Electronic Eng., S.T.U.T., Yung-Kang City, Tainan, Taiwan R.O.C. ³ Dept. Electronic Eng., C.A.F.A., Kangshan, Kaohsiung, Taiwan R.O.C. ⁴ Dept. Electronic Eng., K.Y.I.T., Kaohsiung, Taiwan R.O.C.
12:10-13:50	Lunch

	<i>Piezoelectric Materials</i> <i>Session Chair: K. Uchino</i>
13:50	LEAD FREE PIEZOELECTRIC MATERIALS M. Demartin-Maeder and D. Damjanovic Ceramics Laboratory, Swiss Federal Institute of Technology – EPFL, 1015 Lausanne, Switzerland
14:20	NOVEL HIGH TEMPERATURE FERROELECTRICS BASED ON BiMe⁺³O₃–PbTiO₃ PEROVSKITE SOLID SOLUTIONS C.A. Randall, R. Eitel, C. Stringer, T. Song, and T.R. Shrout Materials Research Institute, The Pennsylvania State University, University Park, PA 16802, USA
14:50	GIANT PIEZOELECTRIC RESPONSE IN EPITAXIAL 67Pb(Mg_{1/3}Nb_{2/3})O₃-33PbTiO₃ HETEROSTRUCTURE ON SILICON FOR HIGH PERFORMANCE ELECTROMECHANICAL SYSTEMS C.B. Eom ^{*1} , D.M. Kim ¹ , S.D. Bu ¹ , J. Lettieri ² , T. Yoshimura ² , S. Trolier-McKinstry ² , D.G. Schlom ² , V. Nagarajan ³ , A. Stanishevsky ³ , B. Liu ³ and R. Ramesh ³ , W. Tian ⁴ and X.Q. Pan ⁴ , S.K. Streiffer ⁵ ¹ Dept. of Materials Science and Engineering, University of Wisconsin-Madison, Madison, Wisconsin 53706, USA ² Dept. of Materials Science and Engineering, The Pennsylvania State University, University Park, PA 16803, USA ³ Dept. of Materials Science and Engineering, University of Maryland, College Park, MD 20742, USA ⁴ Dept. of Materials Science and Engineering, The University of Michigan, Ann Arbor, Michigan 48109, USA ⁵ Argonne National Laboratory, Argonne, IL, USA
	<i>Combinatorial Exploration of Oxide Semiconductors</i> <i>Session Chair: V. Venkatesan</i>
15:20	COMBINATORIAL APPROACH FOR THE CHALLENGES AND EXPLORATION OF OXIDE SEMICONDUCTORS M. Kawasaki Institute for Materials Research (IMR), Tohoku University, Sendai 980-9577, Japan and Combinatorial Materials Exploration and Technology (COMET), National Institute for Materials Science (NIMS), Tsukuba, 305-0047, Japan
	<i>Magnetic Materials</i> <i>Session Chair: X. Pan</i>
16:00	NOVEL ABOVE-ROOM TEMPERATURE FERROMAGNETIC SEMICONDUCTING OXIDES T. Venkatesan*, S.B. Ogale and S.R. Shinde NSF MRSEC on Oxides and Surfaces, Center for Superconductivity Research, University of Maryland, College Park, MD 20742, USA

8:00	A MATERIALS ROADMAP FOR MICROPHOTONICS (PLENARY TALK) L.C. Kimerling Dept. of Materials Science and Engineering and Materials Processing Center, MIT, Cambridge, MA 02139, USA
	<i>Piezoelectric Devices and Processing</i> <i>Session Chair: G. Messing</i>
8:50	MICRO PIEZOELECTRIC ULTRASONIC MOTORS K. Uchino ¹ , B. Koc ¹ , S. Cagatay ¹ , P. Bouchilloux ² and S. Dong ³ ¹ International Center for Actuators and Transducers, Materials Research Institute, The Pennsylvania State University, University Park, PA 16802, USA ² Adaptronics, Troy, NY 12180, USA ³ Virginia Polytech Institute, Blacksburg, VA 24061, USA
9:20	30 W CLASS PIEZOELECTRIC CERAMIC TRANSFORMER FOR AC-DC CONVERTERS A. Ochi, M. Yamamoto*, T. Inoue, Y. Sasaki 4-1-1 Miyazaki, Miyamae, Functional Materials Res. Labs., NEC Corp., Atsushi Ochi, Kawasaki 216-8555, Japan
9:50	LOSS MECHANISMS AND HIGH POWER PIEZOELECTRICS K. Uchino*, Y. Gao and J. Ryu International Center for Actuators and Transducers, Materials Research Institute, The Pennsylvania State University, PA 16802, USA
10:10	SIZE AND MATERIAL EFFECTS ON CYMBAL TRANSDUCER FOR ACTUATOR APPLICATIONS E. Uzgur* ¹ , A. Dogan ¹ , R.E. Newnham ² ¹ Anadolu University, Eskisehir, Turkey ² The Pennsylvania State University, Materials Research Institute, University Park, PA 16802, USA
10:30-11:00	Break
	<i>Piezoelectric Devices and Processing - continued</i> <i>Session Chair: S. Trolier-McKinstry</i>
11:00	LAYERED MANUFACTURING FOR PROTOTYPING OF NOVEL TRANSDUCERS A. Safari* and M. Allahverdi Dept. of Ceramic and Materials Engineering, Rutgers University, Piscataway, New Jersey 08854-8065, USA
11:30	LINEAR ULTRASONIC MOTOR USING SHAKING BEAM FOR NANO-POSITIONING SYSTEM S-J. Yoon* ¹ , S. Bordinas ¹ , S. Nahm ² , H-J. Kim ¹ ¹ Thin Film Materials Research Center, KIST, Seoul, South Korea ² Dept. of Material Science and Engineering, Korea University, Seoul, South Korea
11:50	NOVEL LOW VOLTAGE PIEZOACTUATORS FOR HIGH DISPLACEMENTS R. Höppener* ¹ , H. Oostra ¹ , M. De Moya ² , M. Wagner ³ , A. Roosen ³ ¹ Haikutech Europe BV, Dorpsstraat 100A, 6274 NN Reijmerstok, The Netherlands ² Haiku Tech Inc., 825 S.W. 8 th Court, Miami, FL 33130, USA ³ University of Erlangen-Nuremberg, Dept. of Material Science, Glass and Ceramics, Martensstr. 5, 91058 Erlangen, Germany
12:10-14:00	Lunch

	<i>Free-form and Graded Processing</i> <i>Session Chair: A. Safari</i>
14:00	FREE-FORM FABRICATION PROCESSES FOR FUNCTIONAL CERAMIC APPLICATIONS M. Cima Dept. of Materials Science and Engineering, MIT, Cambridge, MA 02139, USA
14:40	SOLID FREEFORM FABRICATION OF PIEZOELECTRIC ACTUATORS BY A MICRO-CASTING METHOD B. Bos*, H. Gorter and L.J.M.G. Dortmans TNO TPD Materials Technology, PO Box 595, 5600 AN Eindhoven, The Netherlands
15:00	FABRICATION AND ASSESSMENT OF FUNCTIONALLY GRADED LEAD ZIRCONATE TITANATE (PZT) CERAMICS MADE BY AQUEOUS TAPE CASTING A. Navarro* ¹ , R.W. Whatmore ² and J.R. Alcock ³ ¹ Advanced Materials Dept., Building 70, School of Industrial and Manufacturing Science, Cranfield University, Bedfordshire, MK43 0AL, United Kingdom ² Nanotechnology Dept., School of Industrial and Manufacturing Science, Cranfield University, Bedfordshire, MK43 0AL, United Kingdom ³ Advanced Materials Dept., Building 61, School of Industrial and Manufacturing Science, Cranfield University, Bedfordshire, MK43 0AL, United Kingdom
15:20	SYNTHESIS, PROCESSING AND CHARACTERIZATION OF NANOCRYSTALLINE BaTiO₃-CERAMICS C. Pithan* ¹ , J. Dornseiffer ² , F-H. Haegel ² and R. Waser ¹ ¹ Institute for Electroceramic Materials, Dept. of Solid-State Research ² Institute of Chemistry and Dynamics of the Geosphere, Forschungszentrum Jülich GmbH, D-52428 Jülich, Germany
15:40	FUNDAMENTAL LIMITS OF ORGANIC PACKAGES AND BOARDS AND THE NEED FOR NOVEL CERAMIC BOARDS FOR NEXT GENERATION ELECTRONIC PACKAGING P. Markondeya Raj* ¹ , S. Atmur ² , V. Sundaram ¹ , F. Liu ¹ , I. Abothu ¹ , S. Bhattacharya ¹ , R.R. Tummala ¹ ¹ Packaging Research Center, Georgia Institute of Technology, Atlanta, GA 30332-0405, USA ² Starfire Systems Inc., 10 Hermes Road, Suite 100, Malta, NY 12020
16:00-16:30	Break
	<i>Microwave Ceramics</i> <i>Session Chair: I-D. Kim</i>
16:30	ELECTROCERAMICS IN RF-MEMS AND MICROWAVE ELECTRONICS (Combined with Session 1) N. Setter*, P. Muralt, R. Lanz, C. Astafiev, V. Janakiraman, V. Cherman, A.K. Tagantsev Ceramics Laboratory, Materials Institute, Faculty of Engineering, EPFL, Swiss Federal Institute of Technology, 1015 Lausanne, Switzerland
17:00	CERAMIC MATERIALS BASED ON (Ba, Sr) TiO₃ SOLID SOLUTIONS FOR TUNABLE MICROWAVE DEVICES E.A. Nenasheva* ¹ , A.D. Kanareykin ² , N.F. Kartenko ³ , S.F. Karmanenko ⁴ ¹ GIRICOND Research Institute, 10 Kurchatova St., 94223, St. Petersburg, Russia ² Euclid Concepts LLC, 5900 Harper Rd., Solon, OH 44139, USA ³ A.F. Ioffe Physicotechnical Institute, 26 Politechnicheskaya St., 194021, St. Petersburg, Russia. ⁴ Electrotechnical University, Prof. Popov St., 197376, St. Petersburg, Russia
17:20	MICROWAVE PROPERTIES OF TUNABLE THICK FILMS W. Menesklo*, F. Zimmermann, M. Voigts, E. Ivers-Tiffée Institut für Werkstoffe der Elektrotechnik, Universität Karlsruhe (TH), 76131 Karlsruhe, Germany

	<i>Von Hippel Lecture</i> <i>Session Chair: W. Menesklou</i>
9:00	MOLECULAR ENGINEERING: FUNDAMENTAL CONTRIBUTIONS OF ARTHUR VON HIPPEL TO ELECTROCERAMICS M. Zahn MIT, Department of Electrical Engineering and Computer Science Laboratory for Electromagnetic and Electronic Systems, Cambridge, MA 02139
	<i>Dielectric Devices</i> <i>Session Chair: W. Menesklou</i>
9:30	BaTiO₃ FILMS BY LOW TEMPERATURE HYDROTHERMAL TECHNIQUES FOR NEXT GENERATION PACKAGING APPLICATIONS D. Balaraman*, P.M. Raj, S. Bhattacharya, I. Abothu, S. Dalmia, L. Wan, M. Swaminathan and R. Tummala Packaging Research Center, Georgia Institute of Technology, Atlanta, GA 30332-0560, USA
9:50	MICROSTRUCTURAL AND ELECTRICAL CHARACTERIZATION OF NEWLY DEVELOPED NIOBIUM CAPACITORS WITH NANOSCALE DIELECTRIC LAYERS H. Störmer* ¹ , V. Fischer ² , E. Ivers-Tiffée ² , M. Stenzel ³ , H. Zillgen ³ , D. Gerthsen ¹ ¹ Laboratory for Electron Microscopy, University of Karlsruhe ² Institute of Materials for Electrical Engineering, University of Karlsruhe, Kaiserstrasse 12, D-76131 Karlsruhe, Germany ³ EPCOS AG, In den Seewiesen 26, D-89520 Heidenheim, Germany
10:10	FREQUENCY AGILE MICROWAVE DEVICES BASED ON PIEZO-TUNABLE DIELECTRIC RESONATORS E. Furman* ¹ , M. Lanagan ¹ , Y. Poplavko ² and Y. Prokopenko ² ¹ Materials Research Institute, The Pennsylvania State University, PA, USA ² National Technical University of Ukraine, Kiev 03056, Ukraine
10:30-11:00	Break
	<i>Piezoelectrics/MEMS</i> <i>Session Chair: M. Maeder-Demartin</i>
11:10	INVESTIGATION OF PIEZOELECTRIC AND FERROELECTRIC CHARACTERISTICS OF LEAD-FREE Bi_{3.25}La_{0.75}Ti_{1-x}V_xO₁₂ CERAMICS I.W. Kim* ¹ , C.W. Ahn ¹ , D.S. Lee ¹ , J.S. Kim ¹ , M.S. Choi ² , J.S. Lee ² , B.M. Jin ³ ¹ Dept. of Physics, University of Ulsan, Ulsan, South Korea ² Material Science and Engineering, University of Ulsan, Ulsan, South Korea ³ Dept. of Physics, Dong Eui University, Busan, South Korea
11:30	DEVELOPMENT OF SPIN COATED MESOPOROUS OXIDE FILMS FOR MEMS STRUCTURES J-A. Paik* ¹ , S-K. Fan ² , H. Chang ³ , C-J. Kim ² , M.C. Wu ³ , and B. Dunn ¹ ¹ Dept. of Materials Science and Engineering ² Dept. of Mechanical and Aerospace Engineering ³ Dept. of Electrical Engineering, University of California, Los Angeles, CA 90095, USA
11:50	SPONTANEOUS BUCKLING OF NANOCRYSTALLINE SELF-SUPPORTED FERROELECTRICS FILMS I. Lubomirsky* ¹ , V. Lyahovitskaya ¹ , E. Wachtel ¹ , I. Zon ¹ , I. Feldman ¹ , A.L. Roytburd ² ¹ Weizmann Institute of Science, Rehovot, 76100, Israel ² University of Maryland, College Park, MD 20742, USA
12:10-13:30	Lunch

	Single Crystal Growth and Characterization <i>Session Chair: K.H. Auh</i>
13:30	DIELECTRIC AND PIEZOELECTRIC PROPERTIES OF Pb(In_{1/2}Nb_{1/2})O₃-Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃ TERNARY SINGLE CRYSTALS N. Ichinose ¹ , H. Sakamoto ¹ , Y. Hosono ² and Y. Yamashita ² ¹ School of Science and Engineering, Waseda University, 3-4-1 Ohkubo, Shinjuku-ku, Tokyo 169-8555, Japan ² Corporate R&D Center Toshiba Corporation, 1 Komukai, Toshiba-cho, Saiwai-ku, Kawasaki 212-8582, Japan
14:00	EDGE-DEFINED, FILM-FED GROWTH (EFG) AND CHARACTERIZATION OF SINGLE-CRYSTAL PIEZOELECTRIC FIBERS J. Shen* ¹ , B. Nunes ¹ , A.N. Soukhjak ¹ , G.A. Rossetti ² , and Y.-M. Chiang ¹ ¹ Dept. of Materials Science and Engineering, MIT, 77 Mass Ave., Cambridge, MA 02139, USA ² Continuum Photonics, Inc., Billerica, MA 01821, USA
14:20	SINGLE-CRYSTALLINE KNbO₃ THIN FILM GROWN BY LIQUID PHASE EPITAXY K-I. Kakimoto*, I. Masuda and H. Ohsato Dept. of Mater. Sci. and Eng., Nagoya Institute of Technology, Gokiso-cho, Showa-ku, Nagoya 466-8555, Japan
14:40	GROWTH TECHNIQUE OF Ce:YIG SINGLE CRYSTAL FILMS ON SILICA SUBSTRATES T. Uno*, S. Ohta and S. Noge 1030 Shimo-ogino, Atsugi, Kanagawa 243-0292, Kanagawa Institute of Technology, Japan
15:20-15:50	Break
	Varistors <i>Session Chair: M. Alim</i>
15:50	MICROVARISTORS: FUNCTIONAL FILLERS FOR NOVEL ELECTROCERAMIC COMPOSITES F. Greuter* ¹ , M. Siegrist ¹ , P. Kluge-Weiss ¹ , R. Kessler ¹ , L. Donzel ¹ , H. J. Gramespacher ² ¹ ABB Switzerland Ltd, Corporate Research, CH-5405 Baden-Dättwil, Switzerland ² ABB Switzerland Ltd, High Voltage Technology, CH-5430 Wetztingen, Switzerland
16:10	STRUCTURAL ORIGIN OF DIMENSIONAL EFFECT IN ZnO VARISTORS L. Shengtao ¹ , L. Jianying ¹ and M.A. Alim* ² ¹ Multi-disciplinary Materials Research Center, State Key Laboratory of Electrical Insulation for Power Equipment, Xi'an Jiatong University, Xi'an 710049, P.R. China ² Dept. of Electrical Engineering, Alabama A & M University, P.O. Box 297, Normal, Alabama 35762, USA
16:30	BULK GRAIN RESISTIVITY OF ZnO-BASED VARISTORS A.C. Caballero* ¹ , J.F. Fernández ¹ , M. Peiteado ¹ , J. de Frutos ² , D. Fernández-Hevia ² ¹ Dpto. de Electrocerámica, Instituto de Cerámica y Vidrio, CSIC, Camino de Valdelatas s/n, 28049, Cantoblanco, Madrid, Spain ² E.T.S.I. Telecomunicación, Univ. Politécnica de Madrid, Ciudad Universitaria s/n, 28040, Madrid, Spain

	<i>Magnetic Materials</i> <i>Session Chair: B. Wuensch</i>
9:00	MAGNETIC OXIDE FILMS MADE BY PULSED LASER DEPOSITION C.A. Ross*, A. Rajamani, V. Sivakumar, T. Tepper, F. Ilievski and G. Dionne ⁺ MIT, Dept. Materials Science and Engineering, Cambridge MA 02139 ⁺ also at MIT Lincoln Laboratory, Lexington MA 02420
9:30	DEVELOPMENT OF A NEW Mn/Zn-FERRITE SOFT MAGNETIC MATERIAL FOR HIGH TEMPERATURE POWER APPLICATIONS V.T. Zaspalis* ¹ , V. Tsakaloudi ¹ , R. Guenther ² , M. Kolenbrander ² , P. van der Valk ³ ¹ Center for Research and Technology-Hellas, Institute of Chemical Process Engineering, Laboratory of Inorganic Materials, P.O. Box 361, 57001 Thessaloniki-Greece ² Ferroxcube Deutschland GmbH, Dept. of Materials and Process Development, Essener Str. 4, 22419 Hamburg, Germany ³ Ferroxcube International, Dept. of Advanced Product Design, Hurksestraat 19, 5652AH Eindhoven, The Netherlands
9:50	STRUCTURAL AND MAGNETIC STUDIES OF CHARGE ORDERING IN $\text{La}_{1/3}\text{Sr}_{2/3}\text{FeO}_{3-\delta}$ J.B. Yang ¹ , X.D. Zhou ^{1*} , Z. Chu ² , Q. Cai ² , W.M. Hikal ³ , H.U. Anderson ¹ et al. ¹ Graduate Center for Materials Research and Departments of Chemistry and Physics, University of Missouri-Rolla, Rolla, MO, 65409, USA ² Physics Dept., University of Missouri-Columbia, Columbia, MO 65211, USA ³ Physics Dept., Wichita State University, Wichita, KS 67260, USA
10:30-11:00	Break
	<i>Optical Materials</i> <i>Session Chair: B. Wessels</i>
11:00	CHEMICAL AND STRUCTURAL FACTORS GOVERNING TRANSPARENT CONDUCTIVITY IN OXIDES T.O. Mason* ^{1,2} , D.R. Kammler ³ , B.J. Ingram ¹ , and G.B. Gonzalez ¹ ¹ Northwestern University, Dept. of Materials Science and Engineering, Evanston, IL 60208, USA ² Northwestern University, Materials Research Science and Engineering Center, Evanston, IL 60208, USA ³ Sandia National Laboratories, Albuquerque, NM 87185, USA
11:30	PREPARATION AND PROPERTIES OF PLZT PHOTONIC CRYSTALS BY SOL-GEL PROCESS M. Kuwabara* ¹ , T. Aoki ^{1,2} , and K. Kurihara ² ¹ Dept. of Materials Engineering, The University of Tokyo, 7-3-1 Hongo, Tokyo 113-8656, Japan ² Fujitsu Laboratories Ltd., 10-1 Morinosato, Atsugi 243-0197, Japan
12:00	TiO₂ PHOTOELECTRODES FOR WATER SPLITTING: THE INFLUENCE OF ANION AND CATION DOPANTS ON THE OPTICAL ABSORPTION C.S. Enache, R. van de Krol*, and J. Schoonman Delft University of Technology, Laboratory for Inorganic Chemistry, Julianalaan 136, 2628 BL Delft, The Netherlands

8:15	POLAR OXIDES IN THE WORLD OF NANOELECTRONICS (PLENARY TALK) R. Waser FZJ Research Center Jülich and RWTH Aachen University, Germany
	<i>Nano-Ionics</i> <i>Session Chair: P. Knauth</i>
9:00	“NANO-IONICS”: MORE THAN A FASHIONABLE SLOGAN J. Maier Max-Planck-Institut für Festkörperforschung, 70569 Stuttgart, Germany
9:30	NANOCRYSTALLINE ALKALINE EARTH TITANATES AND THEIR ELECTRICAL CONDUCTIVITY CHARACTERISTICS UNDER CHANGING OXYGEN AMBIENTS C. Ohly*, S. Hoffmann-Eifert and R. Waser Institut für Festkörperforschung, Forschungszentrum Jülich, D-52425 Jülich, Germany
10:00	NANOCRYSTALLINE OXIDE THIN FILMS I. Kosacki Metals and Ceramics Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA
10:20	MECHANICAL ANOMALIES IN NANOCRYSTALLINE CeO₂ MEMBRANES I. Lubomirsky* ¹ , J. P. Nair ¹ , E. Wachtel ¹ , J. Fleig ² and J. Maier ² ¹ Weizmann Institute of Science, Rehovot, 76100, Israel ² Max Planck Institut für Festkörperforschung, Heisenbergstraße 1,70569 Stuttgart, Germany
10:30- 11:00	Break
	<i>Mixed Conductors</i> <i>Session Chair: I. Riess</i>
11:00	OXYGEN TRANSPORT THROUGH MIXED-CONDUCTING PEROVSKITE MEMBRANES H.J.M. Bouwmeester Laboratory for Inorganic Materials Science, Dept. of Science and Technology and MESA + Research Institute, University of Twente, 7500 AE Enschede, The Netherlands
11:30	OXYGEN PERMEATION PROPERTIES OF CERIA-FERRITE-BASED COMPOSITES H. Takamura*, K. Okumura, A. Kamegawa, and M. Okada Dept. of Materials Science, Graduate School of Engineering, Tohoku University, Sendai 980-8579, Japan
11:50	SOLID ELECTROLYTE MATERIALS, DEVICES, AND APPLICATIONS A.V. Joshi, J.J. Steppan*, D.M. Taylor, S. Elangovan Ceramtec, Inc., 2425 South 900 West, Salt Lake City, UT 84119, USA
12:10- 13:50	Lunch

	<p><i>Impedance Spectroscopy</i> <i>Session Chair: T. Mason</i></p>
13:50	<p>THE CHARACTERIZATION OF GRAIN BOUNDARIES BY IMPEDANCE SPECTROSCOPY: CAPABILITIES AND LIMITS OF CONVENTIONAL MEASUREMENTS AND MICROELECTRODE EXPERIMENTS J. Fleig Max Planck Institute for Solid State Research, Heisenbergstr. 1, 70569 Stuttgart, Germany</p>
14:20	<p>A STRATEGY FOR ANALYSIS AND MODELLING OF IMPEDANCE SPECTROSCOPY DATA OF ELECTROCERAMICS: DOPED LANTHANUM GALLATE E.J. Abram*, D.C. Sinclair and A.R. West Dept. of Engineering Materials, Sir Robert Hadfield Building, University of Sheffield, Mappin Street, Sheffield, S1 3JD, United Kingdom</p>
14:40	<p>IMPEDANCE SPECTROSCOPY OF COMPOSITE MATERIALS R.A. Gerhardt School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0245, USA</p>
15:00	<p>MEASUREMENT OF FAST GAS SENSORS W. Menesklou*, Th. Schneider, S.F. Wagner, E. Ivers-Tiffée Institut für Werkstoffe der Elektrotechnik, Universität Karlsruhe (TH), 76131 Karlsruhe, Germany</p>
15:20	<p>KINETICS OF OXYGEN INCORPORATION INTO SrTiO₃ INVESTIGATED BY FREQUENCY-DOMAIN ANALYSIS S.F. Wagner, W. Menesklou*, Th. Schneider, E. Ivers-Tiffée Institut für Werkstoffe der Elektrotechnik, Universität Karlsruhe (TH), Germany</p>
	<p><i>Advanced Energy Concepts</i> <i>Session Chair: N. Sammes</i></p>
16:00	<p>DESIGNING A NEW GENERATION OF SOLAR CELLS AND RECHARGEABLE BATTERIES BASED ON MESOSCOPIC ARCHITECTURES J. Schoonman, R. van de Krol, E.M. Kelder, and A. Goossens Delft University of Technology, Delft Institute for Sustainable Energy, Julianalaan 136, 2628BL Delft, The Netherlands</p>

8:00	A MATERIALS ROADMAP FOR MICROPHOTONICS L.C. Kimerling Dept. of Materials Science and Engineering and Materials Processing Center, MIT, Cambridge, MA 02139, USA
	<i>Batteries</i> <i>Session Chair: Y. Shao-Horn</i>
8:50	LATEST ACHIEVEMENTS IN RECHARGEABLE LITHIUM BATTERY RESEARCH J-M. Tarascon, D. Larcher*, S. Grugeon, S. Laruelle, and L. Dupont Laboratoire de Réactivité et Chimie des Solides, Université de Picardie Jules Verne, CNRS UMR 6007, 33 rue Saint Leu, 80000, Amiens, France
9:20	CONDUCTIVE LITHIUM TRANSITION METAL PHOSPHATE CATHODES FOR LITHIUM BATTERIES S-Y. Chung ¹ , J.T. Bloking ¹ , A.M. Andersson ¹ , P. Limthongkul ² , A.S. Gozdz ³ and Y-M. Chiang ^{*,1} ¹ Dept. of Materials Science and Engineering, MIT, Cambridge, MA 02139, USA ² National Metal and Materials Technology Center, Pathumthani 12120, Thailand ³ A123Systems, Boston, MA 02215, USA
9:50	ELECTROCHEMICALLY-DRIVEN SOLID-STATE AMORPHIZATION IN LITHIUM STORAGE ALLOYS P. Limthongkul ^{*,2} , Y-I. Jang ³ , N. Dudney ³ and Y-M. Chiang ¹ ¹ Dept. of Materials Science and Engineering, MIT, Cambridge, MA 02139, USA ² National Metal and Materials Technology Center, Pathumthani 12120, Thailand ³ Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA
10:10	RAPIDLY GROWN IBAD LIPON FILMS WITH HIGH Li-ION CONDUCTIVITY AND ELECTROCHEMICAL STABILITY F. Vereda*, R.B. Goldner, T.E. Haas, and P. Zerigian Electro-Optics Technology Center, Tufts University, 4 Colby Street, Medford, Massachusetts 02155, USA
10:30-11:00	Break
	<i>Fuel Cells</i> <i>Session Chair: A. Virkar</i>
11:00	MATERIALS AND CONCEPTS FOR LOW TEMPERATURE SOLID OXIDE FUEL CELL E. Ivers-Tiffée and A. Weber Institut für Werkstoffe der Elektrotechnik IWE, Universität Karlsruhe (TH), Adenauerring 20, 76131 Karlsruhe, Germany
11:30	ELECTROCHEMICAL CHARACTERIZATION OF THIN FILMS FOR A MICRO-SOLID OXIDE FUEL CELL J.L. Hertz*, T.S. Stefanik, J. Fleig and H.L. Tuller MIT, 77 Massachusetts Avenue, Room 13-4010, Cambridge, MA 02139, USA
11:50	MULTI-FUEL CAPABILITY OF SOLID OXIDE FUEL CELLS K. Sasaki*, K. Watanabe, K. Shiosaki, K. Susuki and Y. Teraoka Kyushu University, Interdisciplinary Graduate School of Engineering Sciences, Kasuga-shi, Kasuga-koen, Fukuoka 816-8580, Japan
12:10-14:00	Lunch

	<i>Fuel Cells - continued</i> <i>Session Chairs: T. Kawada</i> <i>K. Sasaki</i>
14:00	INTERACTION BETWEEN WATER AND CERIA-ZIRCONIA-YTTRIA SOLID SOLUTIONS N. Sakai* ¹ , K. Yamaji ¹ , Y.P. Xiong ¹ , H. Kishimoto ¹ , T. Horita ¹ , and H. Yokokawa ¹ ¹ National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba 305-8565, Japan
14:20	DOPED LaMnO₃ BASED OXIDE AS A NOVEL OXIDE ANODE FOR SOLID OXIDE FUEL CELLS USING LaGaO₃ T. Ishihara, S. Fukui, H. Nishiguchi, and Y. Takita Dept. of Applied Chemistry, Faculty of Engineering, Oita University, Dannoharu 700, Oita 870-1192, Japan
14:40	CHARACTERIZATION OF Pr- AND Sm-DOPED Ce_{0.8}Gd_{0.2}O_{2-δ} R. Torrens ¹ , N.M. Sammes ^{2,*} , and G. Tompsett ³ ¹ Dept. of Materials and Process Engineering, University of Waikato, Hamilton, New Zealand ² Dept. of Mechanical Engineering, University of Connecticut, Storrs, CT 06269-3139, USA ³ Dept. of Chemical Engineering, University of Massachusetts, Amherst, MA 01003, USA
15:00	INVESTIGATION OF CATHODIC POLARIZATION RESISTANCE USING PATTERNED ELECTRODES A.V. Virkar* ¹ , Y. Jiang ¹ , O.A. Marina ² , R. Radhakrishnan ¹ , and S.C. Singhal ² ¹ Dept. of Materials Science and Engineering, University of Utah, Salt Lake City, UT 84112, USA ² Pacific Northwest National Laboratories, Richland, WA, USA
15:20	ELECTRONIC AND MICROSTRUCTURAL CHARACTERIZATION OF La_{0.8}Sr_{0.2}Fe_{1-x}Ti_xO₃ BASED HIGH-TEMPERATURE ELECTRONIC CONDUCTORS E. Bongio*, H. Black, F.C. Raszewski, C. McConville, D. Edwards, V.R.W. Amarakoon Alfred University, Alfred, NY 14802, USA
15:40	APPLICATION OF BOND-VALENCE SUMMATIONS TO PYROCHLORE FUEL-CELL MATERIALS: INTERPRETATION OF PARTIAL DISORDER INDUCED BY SOLID SOLUTION AND TEMPERATURE CHANGE B.J. Wuensch Department of Materials Science and Engineering, MIT, Cambridge, MA 02139, U.S.A
16:00-16:30	Break
	<i>Sensors</i> <i>Session Chair: V. Lantto</i>
16:30	CERAMIC PROCESSING USING SOFT LITHOGRAPHY: MINIATURIZED CERAMIC GAS SENSOR ARRAYS L.J. Gauckler*, M. Heule and U. Schönholzer ETH Zürich, Dept. Materials, Nonmetallic Materials, Switzerland
17:00	THE EFFECT OF GRAIN SIZE ON THE GAS SENSITIVITY OF NANOCRYSTALLINE METAL-OXIDE GAS SENSORS A. Rothschild* and Y. Komem Faculty of Materials Engineering, Technion – Israel Institute of Technology, Haifa 32000, Israel
17:20	DEVELOPMENT OF RESISTIVE OXYGEN SENSORS BASED ON CERIUM OXIDE THICK FILM N. Izu*, W. Shin, I. Matsubara, N. Murayama Synergy Materials Research Center, National Institute of Advanced Industrial Science and Technology, Moriyama-ku, Nagoya 463-8560, Japan

	<p><i>Sensors – continued</i> <i>Session Chairs: R. Moos</i> <i>A. Petric</i></p>
9:00	<p>SELECTIVE GAS DETECTION OF SEMICONDUCTIVE GAS SENSOR G.M. Choi*, W.J. Moon, and J.H. Yu Dept. of Materials Science and Engineering, Pohang University of Science and Technology, San 31 Hyojadong, Pohang 790-784, South Korea</p>
9:30	<p>DESIGN OF A NEW TEMPERATURE INDEPENDENT EXHAUST GAS SENSOR Th. Schneider*¹, W. Menesklou¹, E. Ivers-Tiffée¹, H.-J. Renz², Th. Wahl², J. Riegel et al. ¹Institut für Werkstoffe der Elektrotechnik, Universität Karlsruhe (TH), Germany ²GS ENG Robert Bosch GmbH, Stuttgart, Germany</p>
9:50	<p>HIGH TEMPERATURE SCHOTTKY BARRIER ON n-TYPE SrTiO₃ AND ITS SENSITIVITY TO AMBIENT GASES T. Kawada*, T. Ichikawa, L-Q Han, K. Yashiro, H. Matsumoto, and J. Mizusaki 2-1-1 Katahira, Aoba-ku, Sendai 980-8577, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan</p>
10:10	<p>GALLIUM ORTHOPHOSPHATE AND LANGASITE RESONANT GAS SENSORS FOR HIGH TEMPERATURE OPERATION H. Fritze*¹, H. Seh², S. Otte¹, H.L. Tuller², G. Borchardt¹ ¹Dept. of Physics, Metallurgy and Materials Sciences, Technische Universität Clausthal, Robert-Koch-Straße 42, D-38678 Clausthal-Zellerfeld, Germany ²Crystal Physics and Electroceramic Laboratory, MIT, 77 Massachusetts Ave, Cambridge MA, USA</p>
10:30- 11:00	Break
	<p><i>Sensors – continued</i> <i>Session Chairs: H. Fritze</i> <i>I. Kosacki</i></p>
11:00	<p>EPITAXIAL METAL OXIDE THIN FILM HETEROSTRUCTURES FOR TUNABLE CHEMICAL SENSORS X.Q. Pan*, J.E. Dominguez, W.W. Kim, and A. Allenic Dept. of Materials Sci. and Eng., University of Michigan, Ann Arbor, MI 48109, USA <i>p. ___</i></p>
11:30	<p>GAS SENSING WITH PEROVSKITE-LIKE OXIDES HAVING ABO₃ AND BO₃ STRUCTURES V. Lantto*¹, S. Saukko¹, N.N. Toan^{1,2}, L.F. Reyes^{1,3} and C.G. Granqvist³ ¹Microelectronics and Materials Physics Laboratories, P.O. Box 4500, FIN-90014, University of Oulu, Finland ²Thin Films Physics and Technology Laboratory, Dept. of Microelectronic Materials, Institute of Materials Science, NCST of Vietnam, Hoang Quoc Viet Road, Cau Giay, Hanoi, Vietnam ³Dept. of Materials Science, The Ångström Laboratory, Uppsala University, P.O. Box 534, SE-75121 Uppsala, Sweden</p>
11:50	<p>TESTING PLANAR GAS SENSORS BASED ON YSZ WITH OXIDE ELECTRODES IN THE EXHAUST GASES OF AN ENGINE BENCH E. Di Bartolomeo¹, M. Grilli¹, S. Cordiner², E. Traversa*¹ ¹Dept. of Chemical Science and Technology, University of Rome Tor Vergata, Via della Ricerca Scientifica 1, 00133 Rome, Italy ²Dept. of Mechanical Engineering, University of Rome Tor Vergata, Via del Politecnico 1, 00133 Rome, Italy</p>
12:10- 13:30	Lunch

	<p><i>Sensors – continued</i> <i>Session Chairs: T. Ishihara</i> <i>E. Traversa</i></p>
13:30	<p>DEFECT MEDIATED TRANSPORT AT INTERFACES AND NANOSTRUCTURES D.A. Bonnell Dept. of Materials Science and Engineering, The University of Pennsylvania, Philadelphia, PA 19104-6272, USA</p>
14:00	<p>THIN FILM ZnO GAS SENSORS WITH SI-BASED MICRO ARRAYS Y.K. Min^{*1}, H.L. Tuller¹ and J. Wöllenstein² ¹Crystal Physics and Electroceramics Laboratory, MIT, 77 Massachusetts Ave., Cambridge, MA 02139, USA ²Fraunhofer Institute Physical Measurement Techniques, Heidenhofstr. 8, 79110 Freiburg, Germany</p>
14:20	<p>ELECTROCHEMICAL REMOVAL OF NOX BY SCANDIUM DOPED ZIRCONIA MEMBRANE REACTOR WITH CERIA BUFFER LAYER H.J. Hwang^{*1}, J-W. Moon², M. Awano³ ¹Inha University, 253 Yonghyun-Dong, Nam-Gu, Incheon 402-751, South Korea ²Korea Institute of Ceramic Engineering and Technology, 233-5 Gasan-Dong, GumCheon-Gu, Seoul 153-023, South Korea ³Synergy Materials Research Center, AIST, 2268-1 Simo-shidami, Moriyama-ku, Nagoya 463-8687, Japan</p>
14:40	<p>DEVELOPMENT OF A SOLID ELECTROLYTE LITHIUM PROBE A. Petric[*] and J. Wu Materials Science and Engineering, McMaster University, Hamilton, ON, Canada L8S 4L7</p>
15:00	<p>POISONING OF TEMPERATURE INDEPENDENT RESISTIVE OXYGEN SENSORS BY SULFUR DIOXIDE F. Rettig¹, R. Moos^{*1}, C. Plog² ¹now with University of Bayreuth, Chair of Functional Materials, 95447 Bayreuth, Germany ²Daimler Chrysler AG, Research and Technology, 88039 Friedrichshafen, Germany</p>
15:20-15:50	<p>Break</p>
	<p><i>Defects and Transport</i> <i>Session Chairs: Y-M. Chiang</i> <i>H. Takamura</i></p>
15:50	<p>DEFECT CHEMICAL MODELING OF (La,Sr)(Co,Fe)O_{3-δ} E. Bucher[*], W. Sitte Institute of Physical Chemistry, University of Leoben, A-8700 Leoben, Austria</p>
16:10	<p>CO-DOPING EFFECT OF Y AND Mn ON CHARGE AND MASS TRANSPORT PROPERTIES OF BaTiO₃ C.-E. Lee¹, D.-K. Lee, S.-H. Kang², and H.-I. Yoo^{*1} ¹Solid State Ionics Research Lab., School of Materials Science and Engineering, Seoul National University, Seoul 151-742, South Korea ²Chemical Technology Division, Bd. 205; Argonne National Laboratory; 9700 South Cass Avenue, Argonne, IL 60439, USA</p>
16:30	<p>INVESTIGATION OF SEMICONDUCTING BARIUM TITANATE CERAMICS BY OXYGEN COULOMETRY H.T. Langhammer^{*1}, M. Drogenik², H-P. Abicht³ ¹Martin-Luther-Universität Halle-Wittenberg, FB Physik, D-06099 Halle(Saale), Germany ²Josef Stefan Institute, Ceramics Dept., SI-1111 Ljubljana, Slovenia ³Martin-Luther-Universität Halle-Wittenberg, FB Chemie, D-06099 Halle(Saale), Germany</p>
16:50	<p>THE DEVELOPMENT OF CHARGE ORDERING AND ITS CORRELATION WITH ELECTRICAL RESISTIVITY IN La_{0.33}Ca_{0.67}MnO₃ J. Tao[*] and J-M. Zuo Dept. of Material Science and Engineering and Materials Research Laboratory, University of Illinois at Urbana-Champaign, 1304 West Green Street, Urbana, Illinois 61801, USA</p>

	<i>Synthesis and Characterization</i> <i>Session Chairs: W. Sitte</i> <i>H-I. Yoo</i>
9:10	ACOUSTOIONIC INTERACTION IN SOLID ELECTROLYTES D. Ivanov New Jersey Institute of Technology, Microelectronics Fabrication Center, 121 Summit St., R200, Newark, New Jersey 07102, USA
9:30	ROLE OF COUPLED TRANSPORT IN THE FABRICATION OF SODIUM β"-ALUMINA-CONTAINING CERAMICS BY A VAPOR PHASE PROCESS A.V. Virkar ^{1,*} , T.J. Armstrong ¹ , N. Weber ² , K-Z. Fung ² , and J-F. Jue ² ¹ Dept. of Materials Science and Engineering, University of Utah, Salt Lake City, UT 84112, USA ² Materials and Systems Research, Inc., 5395 West 700 South, Salt Lake City, UT 84104, USA
9:50	PREPARATION OF NANOCRYSTALLINE NASICON CERAMICS O. Schäf ¹ , P.L. Llewellyn ¹ , P. Knauth ¹ , N. Kaabuathong ² , S. Licoccia ² , E. Traversa ² ¹ MADIREL, Université de Provence-CNRS, Marseille, France ² Università di Roma "Tor Vergata", Rome, Italy
10:10	PREPARATION AND CHARACTERIZATION OF ULTRA-FINE NiO-YSZ POWDERS FOR SOFC ANODE APPLICATIONS E. Traversa, V. Esposito*, D.Z. de Florio, C. D'Ottavi, S. Ferrari, and S. Licoccia Dept. of Chemical Science and Technology, University of Rome "Tor Vergata," Via della Ricerca Scientifica, 00133, Rome, Italy
10:30-11:00	Break
	<i>Characterization and Modelling</i> <i>Session Chair: J. Fleig</i>
11:00	MÖSSBAUER STUDIES OF THE CATHODE FOR IT SOFCS X.-D. Zhou ^{*1} , J.B. Yang ¹ , Q. Cai ² , W.B. Yelon ¹ , W.J. James ¹ and H.U. Anderson ¹ ¹ Materials Research Center, University of Missouri-Rolla, Rolla, MO 65401, USA ² Dept. of Physics, University of Missouri-Columbia, Columbia, MO 65211, USA
11:20	EXAFS STUDY OF DOPANT SEGREGATION (Zn, Nb) IN NANOCRYSTALLINE TiO₂ (ANATASE) G. Mountjoy ¹ , A. Chadwick ¹ , R. Bouchet ² , P. Knauth ^{2,*} ¹ University of Kent, Canterbury, United Kingdom ² MADIREL, Université de Provence-CNRS, Marseille, France
11:40	SOLID STATE DEVICES BASED ON Cu₂O ARE MIXED IONIC ELECTRONIC CONDUCTORS AT ROOM TEMPERATURES Z. Rosenstock ⁺ , I. Feldman and I. Riess* Physics Dept., Technion-IIT, Haifa 32000, Israel ⁺ Permanent address: Refael Company, P.O.Box 2250, Haifa 31021, Israel
12:00	PHASE STABILITY OF (Y_xZr_{1-x})O_{2-x/2} G. Ceder ¹ , A. Predith ^{*1} , A. Van der Ven ¹ , A. Bogicevic ² , C. Wolverton ² ¹ MIT, Room 13-4053, 77 Massachusetts Ave., Cambridge, MA 02139, USA ² Scientific Research Laboratories, Ford Motor Company, Dearborn, MI 48124, USA

POSTER SESSION I
MONDAY, 4 AUGUST 2003
16:30 – 19:00, JOHNSON ATHLETIC CENTER

Ferroelectric Thin Films

FERROELECTRIC PROPERTIES OF PZT CAPACITORS ON LaNiO_3 BOTTOM ELECTRODE BY REACTIVE SPUTTERING USING La AND Ni METALS

H. Kim*, J.-H. Kim and W.K. Choo

Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology, 373-1, Guseong-dong, Yuseong-gu, Daejeon 305-701, South Korea

SWITCHING PROPERTIES OF (001) AND (100) ORIENTED EPITAXIAL $\text{Pb}(\text{Zr,Ti})\text{O}_3$ THIN FILMS

M. Tsukada*, H. Yamawaki, M. Kondo, J.S. Cross, and K. Kurihara

10-1 Morinosato-Wakamiya, Atsugi 243-0197, Japan/Fujitsu Limited

COMPARISON OF LEAD SOURCE MATERIAL ON THE MICROSTRUCTURE AND FERROELECTRIC PROPERTIES OF SPUTTER DEPOSITED PZT FILMS USING LEAD AND LEAD OXIDE FOR COMPENSATION

J.L. He and W.L. Chang

Dept. of Materials Science, Feng-Chia University No. 100, Wen-Hua Rd., Taichung City, Taiwan, ROC

EFFECT OF Zr/Ti RATIO ON MICROSTRUCTURE AND ELECTRICAL PROPERTIES OF LEAD ZIRCONATE TITANATE THIN FILMS DERIVED BY PULSED LASER DEPOSITION

Z. Wang^{1*}, L. Yan¹, M. Ichiki², R. Maeda² and H. Kokawa¹

¹Dept. of Materials Processing, Graduate School of Engineering, Tohoku University, Aoba-yama 02 Sendai 980-8579, Japan

²National Institute of Advanced Science and Technology, 1-2 Namiki, Tsukuba 305-8564, Japan

LOW TEMPERATURE PROCESS FOR SYNTHESIS OF (100) TEXTURED $\text{Pb}(\text{Zr}_{0.48}\text{Ti}_{0.52})\text{O}_3$ THIN FILM ON SI SUBSTRATE BY LASER LIFT-OFF TRANSFERRING TECHNIQUE

Y.-H. Zhu¹, S.-J. Lin¹, K.-S. Liu¹ and I.-N. Lin²

¹Dept. of Materials Science and Engineering, Tsing-Hua University, Hsinchu, Taiwan 300, R.O.C.

²Material Science Center, National Tsing-Hua University, Hsinchu, Taiwan 300, R.O.C.

THE XPS STUDIES OF PZT FILMS DEPOSITED BY USING METALLIC LEAD AND CERAMIC PZT DUAL TARGET COSPUTTERING

W.L. Chang and J.L. He

Dept. of Materials Science, Feng-Chia University, No. 100, Wen-Hua Rd., Taichung City, Taiwan, ROC

ION DOPING EFFECTS IN BI-LAYERED FERROELECTRICS

T.K. Song*¹, S.E. Park¹, J.A. Cho¹, M.H. Kim¹, H.-S. Lee², and S.S. Kim²

¹Dept. of Ceramic Science and Engineering, Changwon National University, Changwon, Kyongnam 641-773, South Korea

²Dept. of Physics, Changwon National University, Changwon, Kyongnam 641-773, South Korea

PLATINUM (100) HILLOCK GROWTH IN Pt/Ti ELECTRODE STACK FOR $\text{SrBi}_2\text{Ta}_2\text{O}_3$ FERROELECTRIC RANDOM ACCESS MEMORY

W.W. Jung*¹, S.K. Choi¹, S.Y. Kweon², S.J. Yeom²

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²Memory Research and Development Division, Hynix Semiconductor Inc., San 136-1, Ami-ri, Bubal-eub, Ichon-si, Kyoungki-do 467-701, South Korea

FERROELECTRIC AND DIELECTRIC PROPERTIES OF LANTHANUM-MODIFIED BISMUTH TITANATE THIN FILMS OBTAINED BY THE POLYMERIC PRECURSOR METHOD

A.Z. Simões¹, B.D. Stojanovic^{1,2}, M. Cilense¹, M. Zaghete¹, E. Longo³, J.A. Varela¹

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²Center for Multidisciplinary Studies University of Belgrade, Yugoslavia

³Chemistry Dept., Universidade Fedearl de São Carlos, UFSCAR, 13565-905 - São Carlos, SP, Brazil

PHASE FORMATIONS AND ELECTRICAL PROPERTIES OF VARIOUS Bi_{3.15}La_{0.85}Ti₃O₁₂ THIN FILMS BY CHEMICAL SOLUTION DEPOSITION

W-J. Lee*, G.X. Liu, B.C. Shin, G.H. Lee, I.S. Kim et al.

Research Center for Electronic Ceramics (RCEC), Dept. of Advanced Materials Engineering,

Dong-Eui University, San 24, Gaya-dong, Busanjin-Gu, Busan 614-714, South Korea

VANADIUM DOPING EFFECTS ON ELECTRICAL CONDUCTION OF Bi_{3.25}La_{0.75}Ti₃O₁₂ THIN FILM

J.S. Kim*¹, C.W. Ahn¹, H.J. Lee¹, I.W. Kim¹ and B.M. Jin²

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²Dept. of Physics, Dongeui University, Busan 614-714, South Korea

FERROELECTRIC PROPERTIES OF Bi_{3.25}Nd_{0.75}Ti₃O₁₂ THIN FILM PREPARED BY MOD PROCESS

G-E. Jang* and K-B. Kim

San 48, Dept. of Materials Engineering, Chungbuk National University, Chungbuk 361-763, South Korea

FERROELECTRIC PROPERTIES OF (Bi, Sm)₄Ti₃O₁₂ (BST) THIN FILMS FABRICATED BY METALORGANIC SOLUTION DEPOSITION METHOD

S.S. Kim, E.K. Choi, H.J. Kim, M.H. Park, J.C. Bae¹, H.S. Lee, T.K. Song² and W-J. Kim*

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²Dept. of Ceramic Science and Engineering, Changwon National University, Changwon, Kyungnam, 641-773 South Korea

THREE DIMENSIONAL DOMAIN STRUCTURE IN EPITAXIAL BARIUM TITANATE THIN FILMS

D.J. Towner*, T.J. Lansford, B.W. Wessels

Northwestern University, Department of Materials Science and Engineering and Materials Research Center,

Evanston, IL, USA

Dielectric I (Thin Film)

SCALING EFFECT OF THE DIELECTRIC CONSTANT IN Ba(Ti_xZr_{1-x})O₃ THIN FILMS

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DIELECTRIC RESPONSE AND STRUCTURAL FEATURES OF Pb(Sc_{1/2}Ta_{1/2})O₃ (PST) SOL-GEL DERIVED THIN FILMS

K. Brinkman*, M. Cantoni, and N. Setter

Ceramics Laboratory, Materials Dept., Swiss Federal Institute of Technology-EPFL, CH-1015, Lausanne,

Switzerland

THE CHARACTERISTICS OF Mg₂TiO₄ THIN FILM MADE BY LOW PRESSURE METALORGANIC CHEMICAL VAPOR DEPOSITION

C-H. Lee and S-I. Kim*

Dept. of Materials Engineering, Keimyung University, #1000 Shindang-Dong, Dalseo-Gu, Daegu 704-701,

South Korea

ANODIZING PROPERTIES OF HIGH DIELECTRIC OXIDE FILMS COATED ON ALUMINUM BY SOL-GEL METHOD

S-S. Park^{1*}, D-H. Jang², B-T. Lee²

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Advances in Synthesis and Processing I (Thin Film)

EFFECT OF THERMAL TREATMENT ON THE CRYSTALLINITY AND MORPHOLOGY OF LiTaO₃ THIN FILMS PREPARED FROM POLYMERIC PRECURSOR METHOD

A.H.M. González, J.A. Varela*, A.Z. Simões, M.A. Zaghete

Rua Prof. Francisco Degni, S/N, Quitandinha, Araraquara - São Paulo, CEP 14801-970, Brazil /LIEC - Instituto de Química - UNESP/Araraquara

LiTaO₃ THIN FILMS PREPARED BY A DIOL-BASED SOL-GEL PROCESS AND CRYSTALLIZED BY CONVENTIONAL AND RTA PROCESS

M-C. Kao¹, Y-C. Chen*¹, H-Z. Chen² and C-M. Wang³

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³Dept. of Electrical Engineering, Cheng-Shiu Institute of Technology, Kaohsiung, Taiwan, R.O.C.

FABRICATION OF METAL OXIDE ULTRATHIN DIELECTRICS BY SURFACE SOL-GEL PROCESS

Y. Aoki*, T. Kunitake

Topochemical Design Laboratory, Frontier Research System, Riken, Japan

CHEMICAL SOLUTION PROCESSING AND PROPERTIES OF TUNGSTEN BRONZE K(Sr,Ba)₂Nb₅O₁₅ THIN FILMS WITH PREFERRED ORIENTATION

W. Sakamoto*¹, Y. Horie², A. Kawase², T. Yogo¹ and S. Hirano²

¹Furo-cho, Chikusa-ku, Nagoya, 464-8603 JAPAN / Center for Integrated Research in Science and Engineering, Nagoya University

²Furo-cho, Chikusa-ku, Nagoya, 464-8603 JAPAN / Dept. of Applied Chemistry, Graduate School of Engineering, Nagoya University

SYNTHESIS AND CHARACTERIZATION OF MESOPOROUS TITANIA THIN FILMS WITH A NANOCRYSTALLINE FRAMEWORK

M. Kuwabara and C-W. Wu*

Dept. of Materials Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan

OPTIMIZATION OF NON-FLUORINE SOL-GEL DERIVED YBCO THIN FILMS

N. Long*¹, L. Campbell¹, T. Kemmit¹, V.J. Kennedy², A. Markwitz², and A. Bubendorfer¹

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²Institute of Geological and Nuclear Sciences, PO Box 31 312, New Zealand

Characterization I (Thin Film)

MODIFICATION ON CRYSTALLIZATION CHARACTERIZATION OF Pb(Zr,Ti)O₃ THIN FILMS BY INCORPORATION OF NANO-SIZED POWDERS

S-Y. Liu¹, J-H. Huang¹ and I-N. Lin^{2*}

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ATOMIC MIXING BEHAVIOR OF Co/Al vs. Al/(fcc)Co : MOLECULAR DYNAMICS SIMULATION

S-P. Kim*^{1,2}, S-C. Lee², K-R. Lee² and Y-C. Chung¹

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²Future Technology Research Division, Korea Institute of Science and Technology, Seoul, South Korea

SPECTROSCOPIC ELLIPSOMETRY STUDY OF ZnO:Ga THIN FILMS DEPOSITED ON SAPPHIRE (11 $\bar{2}$ 0) BY PLD METHOD

Z.F. Liu^{1,2}, F.K. Shan¹, Y.X. Li², B.I. Kim, Y.S. Yu^{1*}

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CRYSTAL POLARITY OF 3C-SIC EPITAXIAL FILM GROWN ON Si(111) SUBSTRATE

M. Harada, T. Nagano and N. Shibata*

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CHARACTERIZATION OF CRYSTALLINE CARBON NITRIDE FILMS DEPOSITED ON SI AND Si₃N₄/SI SUBSTRATE BY RF MAGNETRON SPUTTERING SYSTEM WITH DC BIAS

J.G. Lee*, S.P. Lee

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AB INITIO STUDY OF Si ADSORPTION ON Mo(110)

Y-S. Kim*¹, H. Kim², and Y-C. Chung¹

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Piezoelectric I

DESIGN AND PROPERTIES OF PIEZOELECTRIC VIBRATOR WITH GENERATING FUNCTION BY FEM ANALYSIS

K-J. Lim¹, S-H. Kang*², J-S. Lee³ and S-H. Jeong⁴

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DESIGN AND PERFORMANCES OF MINIATURIZED ADAPTOR USING PIEZOELECTRIC STEP-DOWN TRANSFORMER

K-J. Lim¹, S-H. Kang*², J-S. Lee³, H-H. Kim⁴, S-H. Jeong⁵

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PIEZOELECTRIC HYDROSTATIC COEFFICIENT DH OF PZT CERAMICS, PZN-PT, AND PYN-PT SINGLE CRYSTALS

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¹Technical University of Liberec, Department of Physics and International Center for Piezoelectric Research, Halkova 6, CZ-461 17 Liberec 1, Czech Republic

²Materials Research Institute, University Park, PA 16802, USA

**PIEZOELECTRIC AND DIELECTRIC PROPERTIES OF $\text{Pb}(\text{Zr}_x\text{Ti}_{1-x})\text{O}_3$ -
 $\text{Pb}(\text{Ni}_{1/3}\text{Sb}_{1/3}\text{Nb}_{1/3})\text{O}_3$ PIEZOELECTRIC CERAMICS**

K-J. Lim¹, S-Y. Lee*², J-S. Lee², M-J. Lee² and S-H. Kang³

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**PIEZOELECTRIC PROPERTIES OF PZT-PMN CERAMIC FOR LARGE
DISPLACEMENT DEVICE APPLICATION**

K-J. Lim¹, J-S. Lee*², S-H. Kang³ and H-H. Kim⁴

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³Dept. of Safety Engineering, Chungcheong College, Cheongwon, Chungbuk, South Korea

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**PEROVSKITE PHASE FORMATION IN THE $\text{Pb}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3$ -BASED
RELAXOR SYSTEM**

A. Thanaboonsombut and K. Sopolmanee*

National Metal and Materials Technology Center, National Science and Technology Development Agency, Pathumthani, 12120, Thailand

**$\text{Pb}(\text{Mg}_{0.7}\text{Zn}_{0.3})_{1/3}\text{Nb}_{2/3}\text{O}_3$ RELAXOR FERROELECTRIC CERAMICS BY A
REACTION-SINTERING PROCESS**

Y-C. Liou, T-H. Shieh * and Y-C. Shih

Tainan Hsien, Taiwan, R. O. C./Dept. of Electronic Engineering, Kun-Shan University of Technology

**PZN-PFW AND PFN-PFW RELAXOR FERROELECTRIC CERAMICS BY A
REACTION-SINTERING PROCESS**

Y-C. Liou*, Y-C. Shih and C-J. Chuang

Tainan Hsien, Taiwan, R. O. C./Dept. of Electronic Engineering, Kun-Shan University of Technology

**X-RAY STUDY AND DIELECTRIC PROPERTIES OF TI-SUBSTITUTED
 $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$ CERAMICS**

J-H. Kim*¹, K.S. Koh² and W.K. Choo¹

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²Dept. of Chemistry, Chungang University, 221 Heuksuk-Dong, Tongjak-Gu, Seoul, South Korea

**IMPROVED ELECTROMECHANICAL RESPONSE IN RHOMBOHEDRAL
 BaTiO_3**

Y. Avrahami* and H.L. Tuller

Crystal Physics and Electroceramics Laboratory, Dept. of Materials Science and Engineering, MIT, 77 Massachusetts Ave. Cambridge, MA 02139, USA

**CRYSTAL GROWTH AND HIGH TEMPERATURE PIEZOELECTRICITY OF
 $\text{La}_3\text{Ta}_{0.5}\text{Ga}_{5.5-x}\text{Al}_x\text{O}_{14}$ CRYSTALS**

I.H. Jung*¹, T. Fukuda² and K.H. Auh¹

¹Ceramic Processing Research Center(CPRC), Hanyang Univ., Seoul 133-791, South Korea

²Institute of Multidisciplinary Research for Advanced Materials, Tohoku Univ., Sendai 980-8577, Japan

**THE MODIFICATION OF $\text{Bi}_{0.5}\text{Na}_{0.5}\text{TiO}_3$ PIEZOELECTRIC CERAMICS BY La-
SUBSTITUTIONS**

A. Thanaboonsombut* and N. Vaneesorn

National Metal and Materials Technology Center, National Science and Technology Development Agency, Pathumthani, 12120, Thailand

DEVELOPMENT OF PLZT CERAMICS AND PIEZOCOMPOSITES FOR UNDERWATER SENSORS AND ACTUATORS

R. Lal* and L.A. Gavane

Naval Materials Research Laboratory, Shil – Badlapur Road, P.O.– Anand Nagar, AMBERNATH (East) – 421 506, India

DIELECTRIC AND MICROSTRUCTURAL INVESTIGATION OF $\text{Sr}_{0.5}\text{Ba}_{0.5}\text{Nb}_2\text{O}_6$ RELAXOR FERROELECTRICS

P.K. Patro^{1*}, R.D. Deshmukh¹, A.R. Kulkarni¹, C.S. Harendranath²

¹Dept. of Metallurgical Engineering and Materials Science, Indian Institute of Technology, Bombay, Mumbai-400 076, India

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TEMPERATURE DEPENDENT ELECTRICAL AND MICROMECHANICAL PROPERTIES OF LANTHANUM TITANATE

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PARTIAL DISCHARGE SIGNAL DETECTION BY PIEZOELECTRIC CERAMIC SENSOR AND SIGNAL PROCESSING

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DIFFUSE DIELECTRIC ANOMALY IN FERROELECTRIC MATERIALS

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PROCESSING AND CHARACTERIZATION OF HIGH TEMPERATURE PEROVSKITE PIEZOELECTRIC SOLID SOLUTIONS

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Microwave Application I (Ceramics)

FABRICATION OF HIGH FREQUENCY PZT COMPOSITE

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EFFECT OF NANO-COATING ON THE SINTERING BEHAVIOR AND ELECTRICAL MICROWAVE PROPERTIES OF $\text{Ba}(\text{Nd}_{2-x}\text{Sm}_x)\text{Ti}_4\text{O}_{12}$ CERAMICS

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HYDROTHERMAL SYNTHESIS OF $\text{Ba}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3$ POWDERS FOR MICROWAVE CERAMICS

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MICROWAVE DIELECTRIC CHARACTERISTICS OF MgTa_{0.6}Nb_{1.4}O₆ CERAMICS

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CORRELATION OF MICROWAVE DIELECTRIC PROPERTIES AND NORMAL VIBRATION MODES OF Ba(MgTa)O₃-SERIES MATERIALS

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PREPARATION AND MICROWAVE DIELECTRIC PROPERTIES OF Ba_{6-3x}Ce_{8+2x}Ti₁₈O₅₄ CERAMICS

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A STUDY ON LOW-TEMPERATURE SINTERING OF MICROWAVE DIELECTRIC CERAMICS BASED ON (Zn_{1-x}Mg_x)TiO₃

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MICROWAVE DIELECTRIC CHARACTERISTICS OF ZnTa_{2-x}Nb_xO₆ CERAMICS (0.25≤x≤0.35)

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MICROWAVE DIELECTRIC CHARACTERISTICS OF MCAS GLASS-ADDED (1-x) Al₂O_{3-x}TiO₂ CERAMICS

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Al₂O₃-MgO-ReO_x (RE: RARE EARTH)-BASED LTCC AND ITS APPLICATION TO MULTILAYER NON-SHRINKAGE SUBSTRATE FOR MICROWAVE DEVICES

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Optical and Photonic Applications and Studies

EFFECT OF DIFFERENT DOPANTS ON THE PROPERTIES OF ZnO CERAMICS

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FORMATION AND SIZE CONTROL OF ZnO NANOWIRES ON Al-Zn-Si-Fe ALLOY BY DIRECTED MELT OXIDATION PROCESS

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OXYGEN INCORPORATION INTO ACCEPTOR-DOPED WIDE BANDGAP OXIDES: MECHANISTIC CASE STUDIES OF SrTiO₃ AND ZrO₂

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CHARACTERIZATION OF HYDROTHERMALLY SYNTHESIZED PLZT FOR PYROELECTRIC APPLICATIONS

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Solid Electrolytes, Mixed Conductors and Transport Properties

THE EFFECT OF CATHODE MICROSTRUCTURE ON MICRO-SOFC PERFORMANCE

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DEFECT MEDIATED TRANSPORT AT INTERFACES AND NANOSTRUCTURES

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PROPERTIES OF CaTi_{1-x}Fe_xO_{3-δ} CERAMIC MEMBRANES

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NONSTOICHIOMETRY AND DEFECT CHEMISTRY IN PRASEODYMIUM-CERIUM OXIDE

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A STUDY ON THE DEFECT TYPES AND ELECTRICAL PROPERTIES OF TiO₂ DOPED WITH DONOR AND ACCEPTOR

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BaO-TiO₂-Ti₂O₃ SYSTEM INVESTIGATED UNDER VARIOUS OXYGEN PARTIAL PRESSURE AND TEMPERATURE CONDITIONS

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DEFECT CHEMISTRY AND DEGRADATION BEHAVIORS OF Y DOPED

BaTiO₃

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ELECTRICAL CONDUCTIVITY OF CeO₂ PREPARED FROM NANOSIZED POWDERS

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ELECTRICAL TRANSPORT STUDIES ON CdI₂ DOPED SILVER OXYSALT SYSTEM

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IONIC COLLOIDAL CRYSTALS: ATTRACTIVE ORDERED BINARY COLLOIDAL ASSEMBLIES THROUGH CONTROLLED HETEROCOAGULATION

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TRANSPORT PROPERTIES OF LANGASITE AT ELEVATED TEMPERATURES

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PARTIAL ELECTRONIC AND IONIC CONDUCTIVITIES OF NANOCRYSTALLINE CERIA

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**A/B-RATIO AND TRANSPORT PROPERTIES IN $(\text{La}_{0.85}\text{Sr}_{0.15})_x\text{CoO}_{3-\delta}$
PEROVSKITES**

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**EFFECT OF NANOSTRUCTURE CONTROL ON THERMOELECTRIC
PROPERTIES OF Al DOPED ZnO CERAMICS**

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**LOW VOLTAGE DENO_x ELECTROCHEMICAL CELL BY THE HYPER-
STRUCTURAL CONTROL**

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ELECTROCHEMICAL REACTOR FOR SELECTIVE REDUCTION OF NO_x

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**HIGH SELECTIVE DENO_x ELECTROCHEMICAL CELL WITH SELF-
ASSEMBLED ELECTRO CATALYTIC ELECTRODE**

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**BaZrO₃-BASED PROTON CONDUCTORS FOR ELECTROCHEMICAL
APPLICATIONS**

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POSTER SESSION II
TUESDAY, 5 AUGUST 2003
19:00 – 21:30, JOHNSON ATHLETIC CENTER

Piezoelectric II

DEVELOPMENT OF PLZT CERAMICS AND PIEZOCOMPOSITES FOR UNDERWATER SENSORS AND ACTUATORS

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UNDERWATER SOUND PROJECTOR/RECEIVER APPLICATIONS OF CYMBAL TRANSDUCER

A. Doan¹, *E. Uzgur¹, D.C. Markley², R.J. Meyer², R.E. Newnham²

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SINTERING BEHAVIOR AND PIEZOELECTRIC PROPERTIES OF Li₂O DOPED 0.2Pb(Mg_{1/3}Nb_{2/3})O₃-0.8Pb(Zr_{0.475}Ti_{0.525})O₃ CERAMICS

B.M. Jin*¹, I.W. Kim², J.S. Kim², D.S. Lee², C.W. Ahn², J.H. Kwon³, J.S. Lee³, J.S. Song⁴, S.J. Jeong⁴

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PROCESSING AND DIELECTRIC PROPERTIES OF SOL-GEL DERIVED PMN-PT(68:32) THIN FILMS

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WATER-IMMERSIBLE MICROMACHINED Pb(Zr,Ti)O₃ THIN FILM ACTUATOR

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PIEZOELECTRIC PROPERTIES OF Bi-LAYERED FERROELECTRICS

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MICROSTRUCTURAL CONTROL OF BaTiO₃ THICK FILMS FABRICATED BY UTILIZING SLIDE-OFF TRANSFER PRINTING

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PIEZOELECTRICITY IN POLED SILICA FILMS WITH TETRAVALENT METAL DOPANTS

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THE PROPERTY OF PIEZOELECTRIC STRAIN OF ZnO THIN FILM USING SAW DEVICE

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Microwave Application II (Thin Film)

FABRICATION OF PZT-BASED THIN FILM BULK ACOUSTIC WAVE RESONATORS USING MULTILAYER REFLECTOR

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Mg ADDITIVES TO (Ba,Sr)TiO₃ THIN FERROELECTRIC FILMS FOR LOW DIELECTRIC LOSSES AT MICROWAVES

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CHARACTERIZATION OF Ni-DOPED BST THIN FILMS FOR TUNABLE MICROWAVE DEVICE APPLICATIONS

M-H. Lim^{1*}, I-D. Kim¹, H-S. Kim¹, N-Y. Kim¹, H-G. Kim¹, K-B. Kim², et al.

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COPLANAR WAVEGUIDE USING FERROELECTRIC THIN OXIDE FILM: MEASUREMENT AND SIMULATION

W-J. Kim^{1*}, T-K. Song¹, and S-S. Kim¹, S.E. Moon², E-K. Kim², S-J. Lee², S-K. Han², K-Y. Kang², H-Y. Kim², Y-T. Kim², H-C. Ryu², C-S. Kim², and M-H. Kwak²

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MICROWAVE DIELECTRIC PROPERTIES OF FERROELECTRIC BaTiO₃ THIN FILM

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MICROWAVE DIELECTRIC PROPERTIES OF FERROELECTRIC SrBi₂Ta₂O₉ THIN FILMS USING INTERDIGITATED CAPACITORS

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STUDY OF MICROWAVE DIELECTRIC PROPERTIES OF PEROVSKITE THIN FILMS BY NEAR-FIELD MICROSCOPY

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Optical and Photonic Applications and Studies II (Thin Film)

FABRICATION AND OPTICAL PROPERTIES OF TWO-DIMENSIONAL TiO₂ PHOTONIC CRYSTALS

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PHOTOLUMINESCENCE OF EPITAXIAL ZnO:Ga THIN FILMS FABRICATED BY PULSED LASER DEPOSITION

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PREPARATION AND CHARACTERIZATION OF PURE AND IMPURITY ZINC OXIDE AND DOPED ZINC OXIDE THIN FILMS BY PULSED LASER DEPOSITION

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ZnO THIN FILMS ON SAPPHIRE (0001) SUBSTRATES ANNEALED IN OXYGEN

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PHYSICAL PROPERTIES OF ZnO THIN FILMS ON MgO (100) SUBSTRATES DEPOSITED BY PLD

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ELECTRICAL AND OPTICAL PROPERTIES OF ZnO:M(DOPANT) FILMS MADE BY ELECTRON BEAM EVAPORATOR

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EFFECT OF PROCESSING TEMPERATURES ON ELECTRICAL AND OPTICAL PROPERTIES OF BaTiO₃/SrTiO₃ MULTILAYER THIN FILMS

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VANADIUM OXIDE FOR OPTICAL SWITCHING IN MICROPHOTONICS

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Ferroelectric II (Ceramics)

ELECTROCERAMICS RESEARCH IN INDIA

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**STRUCTURE PROPERTY RELATIONS IN NOVEL
TUNGSTEN BRONZE CERAMICS**

M.C. Stennett¹, I.M. Reaney¹, A.R. West¹, C.A. Kirk², G.C. Miles¹, and D. Iddles³

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**PREPARATION OF BULK Pb (Zr, Ti)O₃ WITH CRYSTALLOGRAPHIC
TEXTURE BY TEMPLATED GRAIN GROWTH METHOD**

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**MECHANISMS OF TEXTURE DEVELOPMENT IN BISMUTH LAYER-
STRUCTURED FERROELECTRICS PREPARED BY TEMPLATED GRAIN
GROWTH**

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**GRAIN ORIENTATION EFFECTS OF Nb- AND V-DOPED Bi₄Ti₃O₁₂
FERROELECTRIC CERAMICS**

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**ELECTRICAL PROPERTIES OF BISMUTH TITANATE BASED CERAMICS
WITH SECONDARY PHASES**

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**DISTRIBUTION OF MINOR ELEMENTS IN BARIUM TITANATE
PEROVSKITE CERAMICS**

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ELECTRICAL PROPERTIES OF ACCEPTOR DOPED BaTiO₃

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**FERROELECTRIC PROPERTY AND CRYSTAL STRUCTURE OF KNbO₃
BASED CERAMICS**

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QUASICONTINUUM AND ITS APPLICATIONS TO FERROELECTRICS

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Dielectric II (Ceramics)

CRYSTAL GROWTH AND DIELECTRIC PROPERTIES OF NEW FERROELECTRIC BARIUM TITANATE

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MICROSTRUCTURE OF X7R TYPE BASE-METAL-ELECTRODED BaTiO₃ CAPACITOR MATERIALS CO-DOPED WITH MgO/Y₂O₃ ADDITIVES

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MICROWAVE SINTERING OF BASE-METAL-ELECTRODED BaTiO₃ CAPACITOR MATERIALS Co-DOPED WITH MgO/Y₂O₃ ADDITIVES

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DIELECTRIC PROPERTIES OF BARIUM TITANATE CERAMICS PREPARED FROM POWDERS PRODUCED BY WET CHEMICAL ROUTES

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DIELECTRIC PROPERTIES OF BaBi₂Nb_{2-x}V_xO₉ CERAMICS (0≤x≤0.2)

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INFLUENCE OF V₂O₅ ON THE SINTERING AND DIELECTRIC PROPERTIES OF SrBi₂Ta₂O₉ CERAMICS

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GLASS SELECTION FOR INHIBITING SILVER MIGRATION IN MULTILAYER CERAMIC CAPACITORS

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Advances in Synthesis and Processing II (Bulk)

CERIUM OXIDE/NICKEL LAMINAR COMPOSITES BY EPD

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SYNTHESIS OF Pb(Zr,Ti)O₃ NANOPOWDERS BY MILLING COPRECIPIATION METHOD

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CHEMICAL PREPARATION OF Pb(B_{0.5}Nb_{0.5})O₃ (B=RARE-EARTH ELEMENTS) POWDERS

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AQUEOUS SUSPENSION FOR TAPE CASTING OF PZN-BASED COMPOSITIONS

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PREPARATION AND CHARACTERIZATION OF FINE BaTiO₃ POWDERS BY HYDROTHERMAL SYNTHESIS

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ZEOLITE LAYERS BY HIGH PRESSURE HYDROTHERMAL SYNTHESIS

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SINTERING BEHAVIOR OF YTTRIA STABILISED ZIRCONIA

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REACTION SINTERING BEHAVIORS OF ITO CERAMICS WITH DIFFERENT SnO₂ CONTENT AND PARTICLE SIZE

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SINTERING OF DIAMOND WITH METALS

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FABRICATION OF SnO₂ NANOSIZED POWDER BY MODIFIED PRECIPITATION METHOD

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SYNTHESIS AND CHARACTERIZATION OF La₂Mo₂O₉

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FUNDAMENTAL LIMITS OF ORGANIC PACKAGES AND BOARDS AND THE NEED FOR NOVEL CERAMIC BOARDS FOR NEXT GENERATION ELECTRONIC PACKAGING

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DIRECT OXIDATION OF AN ALLOY PRECURSOR COMPLETE OXIDATION OF BISMUTH AND ZINC POWDER

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Characterization II (Bulk)

ATOMISTIC SIMULATION OF ABO₃ TYPE CERAMICS IN THREE-DIMENSIONS

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ELECTRICAL BEHAVIOR OF BaO-Nd₂O₃-Sm₂O₃-TiO₂ WITH GLASS/OXIDE ADDITIVES ANALYZED BY IMPEDANCE SPECTROSCOPY

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MEASURING TECHNIQUE TO CHARACTERIZE NEW EXHAUST GAS SENSORS

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NEW WAY TO MEASURE KINETICS: SETUP IMPROVED BY CFD AND EXPERIMENTS

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STRUCTURE DISTORTION AND FERROELECTRIC PROPERTIES OF ABi₂Ta₂O₉ (A=Ba, Sr, and Ca)

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STRUCTURAL BEHAVIOR AND DIELECTRIC PROPERTIES IN (1-x)LaMg_{0.5}Ti_{0.5}O_{3-x}-xLa_{2/3}TiO₃ PEROVSKITES

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PINNING EFFECT IN Y_{1-x}Gd_xBa₂Cu₃O_{7-δ} SYSTEM

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THE CHANGE OF THE SURFACE MORPHOLOGY OF THE HEXAGONAL GaN PYRAMID BY ANNEALING PROCESS

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MADELUNG ENERGY AND PHASE STABILITY OF TUNGSTEN BRONZE STRUCTURED KLN CERAMICS

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PHASE TRANSFORMATION BEHAVIOR OF NANOCRYSTALLINE ITO POWDERS DURING HEAT TREATMENT

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EFFECT OF NANO-SCALE ADDITIONS ON THE ENHANCEMENT OF SUPERCONDUCTIVITY IN Y-Ba-Cu-O MATERIALS

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FATIGUE DAMAGE AND DURABILITY ASSESSMENT OF MEMS SILICON-BASED COMPONENTS

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PTCR BEHAVIOUR IN La-BaTiO₃

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FABRICATION OF SnO₂ PARTICLE-LAYERS USING THE ELECTROSPRAY METHOD AND GAS SENSING PROPERTIES FOR H₂

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PRASEODYMIUM-CERIUM OXIDE AS A SURFACE-EFFECT GAS SENSOR

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POLARIZATION EFFECTS IN SPUTTERED ZnO THIN FILM GAS SENSORS

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THIN FILM PRASEODYMIUM-CERIUM OXIDE LANGASITE-BASED MICROBALANCE GAS SENSOR

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INFLUENCE OF MORPHOLOGY ON THE POISONING OF TITANATES BY SULFUR DIOXIDE

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CHEMICAL DIFFUSION OF OXYGEN IN SnO₂ AND ITS RELATION TO THE DRIFT OF TAGUCHI SENSORS

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MECHANICAL ACTIVATION OF SPINEL AND PYROCHLORE PHASES IN ZnO BASED VARISTORS

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THE MICROSTRUCTURE AND ELECTRICAL BEHAVIOR OF TiO₂ VARISTORS PROCESSED BY MAGNETIZED WATER

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THE ROLE OF ELECTROLYTE ADDITIVE IN THE HIGH ELECTRIC FIELD ZnO VARISTORS

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MICROSTRUCTURE AND MECHANICAL STRENGTH OF ZnO VARISTOR MATERIAL

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(Ta, Cr, Co, Pr) DOPED TiO₂ BASED ELECTROCERAMICS

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AN INVESTIGATION ON THE THERMAL SHOCK DAMAGE BEHAVIOR OF PTC THERMISTOR CERAMICS

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