

SYMPOSIUM V

Interfacial Issues for Oxide-Based Electronics

December 2 – 4, 2002

Chairs

David S. Ginley Natl Renewable Energy Lab
Sue Anne Carter Univ of California-Santa Cruz
David C. Paine Brown Univ
Hideo Hosono Tokyo Inst of Technology
Janet Tate Oregon State Univ

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SESSION V1: TRANSPARENT CONDUCTING OXIDES

Chairs: David S. Ginley and Hideo Hosono
Monday Morning, December 2, 2002
Fairfax A (Sheraton)

8:30 AM *V1.1

ELECTRON-TRANSFER REACTIONS AT TIN-DOPED INDIUM OXIDE FILMS: THE EFFECT OF MICROSTRUCTURE AND SURFACE TREATMENTS. N.D. Popovich, S.-S. Wong, Xanthon Inc., Research Triangle Park, NC; H.-Y. Yeom, E. Chason, D.C. Paine, Brown University, Division of Engineering, Providence, RI.

9:00 AM V1.2

THE BEHAVIOR OF CYCLIC VOLTAMMETRY STRIPPING (CVs) WITH TIN-DOPED INDIUM OXIDE (ITO) IN 0.3M HYDROCHLORIC ACID SOLUTION. K.C. Li, C.A. Huang, Dept. Mechanical Engineering, Chang-Gung University, Taoyuan, TAIWAN, REPUBLIC OF CHINA; G.C. Tu, W.S. Wang, Dept. Materials Science and Engineering, National Chiao-Tung University, Hsinchu, TAIWAN, REPUBLIC OF CHINA; J.H. Lee, RiTdisplay Corporation, Hsinchu Industrial Park, TAIWAN, REPUBLIC OF CHINA.

9:15 AM V1.3

ELECTRO-STRUCTURAL AND FILM GROWTH PROPERTIES OF ROOM TEMPERATURE DEPOSITED INDIUM-TIN-OXIDE ON POLYMER SUBSTRATES. Sung Kyu Park, Jeong In Han, Dae Gyu Moon, Won Keun Kim, Min Gi Kwak, Korea Electronics Technology, Institute Information Display Research Center, Kyunggi, KOREA.

9:30 AM V1.4

THIN-FILM INDIUM OXIDE DOPED WITH REFRACTORY METALS. Yuki Yoshida, Chollada Warmsingh, Colorado School of Mines, Golden, CO; Timothy Gessert, Timothy Coutts, National Renewable Energy Laboratory, Golden, CO.

9:45 AM V1.5

TRANSPARENT CONDUCTING INDIUM TIN OXIDE THIN FILMS GROWN BY PULSED LASER DEPOSITION FOR SOLAR CELL APPLICATIONS. J.M. Howard, V. Craciun, S. Rawal, C. Huang, O. Crisalle, T.J. Anderson and R.K. Singh, University of Florida, Gainesville, FL.

10:00 AM BREAK

10:30 AM *V1.6

SURFACE MORPHOLOGY AND MICROSTRUCTURE OF POLYCRYSTALLINE ITO AND AMORPHOUS IZO TRANSPARENT CONDUCTIVE FILMS. Yuzo Shigesato, Pun-Kun Song, Aoyama Gakuin University, Tokyo, JAPAN.

11:00 AM V1.7

AN ANGULAR DEPENDENT X-RAY PHOTOEMISSION STUDY OF INDIUM-TIN-OXIDE SURFACES. H.H. Fong, W.J. Song, and S.K. So, Department of Physics and Centre for Surface Analysis and Research, Hong Kong Baptist University, Kowloon Tong, HONG KONG.

11:15 AM V1.8

SYNTHESIS AND PERFORMANCE OF TRANSPARENT CONDUCTING OXIDE STACKS. Joshua J. Robbins, James R. Esteban, Cassandra M. Fry, Colin A. Wolden, Colorado School of Mines, Dept of Chemical Engineering, Golden, CO.

11:30 AM *V1.9

RECENT PROGRESS OF VISIBLE-LIGHT INDUCED TiO₂-xNx PHOTOCATALYSIS. Yasunori Taga, Toyota Central R&D Labs. Inc., Aichi, JAPAN.

SESSION V2: TCO II AND OXIDES GROWTH AND PROPERTIES

Chairs: Janet Tate and Dave H. A. Blank
Monday Afternoon, December 2, 2002
Fairfax A (Sheraton)

1:30 PM *V2.1

WIDE-GAP p-TYPE CONDUCTIVE PROPERTIES IN LAYERED OXYCHALCOGENIDES. Kazushige Ueda^a, Hidenori Hiramatsu^{a,b}, Hiromichi Ohta^b, Masahiro Hirano^b, Hideo Hosono^{a,b}, and Hiroshi Kawazoe^c; ^aMaterials and Structures Laboratory, Tokyo Institute of Technology, JAPAN; ^bHosono Transparent Electro-Active Materials, ERATO, JST, JAPAN; ^cHOYA Corporation, R&D Center, Akishima, JAPAN.

2:00 PM V2.2

X-RAY AMORPHOUS P-TYPE CONDUCTIVE OXIDE; ZnRh₂O₄. Satoru Narushima^a, Hiroshi Mizoguchi^b, Hiromichi Ohta^b, Masahiro Hirano^b, Kenichi Shimizu^c, Hideo Hosono^{a,b}, ^aTIT, Yokohama, JAPAN; ^bERATO, JST, Kawasaki, JAPAN; ^cKeio Univ., Yokohama, JAPAN.

2:15 PM V2.3

CO-DOPING DEPOSITION OF P-TYPE ZnO THINS USING KrF EXCIMER LASER ABLATION. Kenji Ebihara, Tamiko Ohshima, Tomoaki Ikegami, Graduate School of Science and Technology, and Department of Electrical and Computer Engineering, Kumamoto University, Kumamoto, JAPAN; Jes Assumussen, Department of Electrical Engineering, Michigan State University, East Lansing, MI; Raj K. Thareja, Department of Physics and Centre of Laser Technology, Indian Institute of Technology Kanpur, Kanpur(U.P.), INDIA.

2:30 PM *V2.4

PHOTO-INDUCED INSULATOR-SEMICONDUCTOR TRANSITION IN 12CaO·7Al₂O₃ (C12A7). K. Hayashi, S. Matsuishi, T. Kamiya, M. Hirano, H. Hosono, ERATO, Japan Science and Technology Corporation, Kawasaki, JAPAN; Materials and Structure Laboratory, Tokyo Institute of Technology, Yokohama, JAPAN.

3:00 PM BREAK

3:30 PM *V2.5

REACTIVE SOLID-PHASE EPITAXY – A MAGICAL WAY TO FABRICATE SINGLE-CRYSTALLINE THIN FILMS OF COMPLEX OXIDES WITH SUPERLATTICE STRUCTURE. Hiromichi Ohta, Hidenori Hiramatsu, Hayato Kamioka, Masahiro Orita, Masahiro Hirano, JST, Hosono Transparent ElectroActive Materials, Kawasaki, JAPAN; Kenji Nomura, Kazushige Ueda, Hideo Hosono, Tokyo Institute of Technology, Materials and Structures Laboratory, Yokohama, JAPAN; Toshiyuki Suzuki, JFCC, Nagoya, JAPAN; Yuichi Ikuhara, Univ of Tokyo, Tokyo, JAPAN.

4:00 PM V2.6

FABRICATION OF TRANSPARENT MISFET USING InGaO₃(ZnO)₅ SINGLE CRYSTALLINE THIN FILM WITH NORMALLY INSULATING NATURE. Kenji Nomura^{a,b}, Hiromichi Ohta^b, Kazushige Ueda^a, Toshio Kamiya^a, Masahiro Hirano^b and Hideo Hosono^{a,b}; ^aTokyo Institute of Technology, Materials and Structures Laboratory, Yokohama, JAPAN; ^bJST, Hosono Transparent Electro-Active Materials, Kawasaki, JAPAN.

4:15 PM V2.7

IN-PLANE CRYSTALLINITY CONTROL OF FUNCTIONAL OXIDE FILMS ON SAPPHIRE USING ROOM-TEMPERATURE

SELECTIVE EPITAXY INDUCED BY ELECTRON BEAM IRRADIATION. A. Sasaki, J. Liu, H. Isa, M. Yoshimoto, Tokyo Institute of Tech., Materials and Structures Laboratory, Yokohama, JAPAN.

4:30 PM *V2.8

CONTROLLING THE GROWTH AND INTERFACES OF COMPLEX OXIDE HETEROSTRUCTURES. Dave H.A. Blank and Guus Rijnders, MESA Research Institute and Low Temperature Division, Applied Physics, University of Twente, NETHERLANDS.

SESSION V3: FIELD EFFECT DEVICES AND GATE DIELECTRICS

Chairs: David C. Paine and David Paul Norton
Tuesday Morning, December 3, 2002
Fairfax A (Sheraton)

8:30 AM *V3.1

GATE DIELECTRICS FOR FET STRUCTURES. David Norton, Young Woo Heo, Mat Ivill, B.-S. Jeong, H. Bae, S. Park, Y. Li, K.H. Kim, M. Jones, Y.W. Kwon, Univ. of Florida, Dept. of Materials Science and Engr, Gainesville, FL.

9:00 AM V3.2

MATERIALS SELECTION FOR SrTiO₃-BASED EPITAXIAL OXIDE FIELD-EFFECT DEVICES. Keisuke Shibuya, Department of Innovative and Engineered Materials, Tokyo Institute of Technology, Yokohama, JAPAN; Tsuyoshi Ohnishi, Mikk Lippmaa, Institute for Solid State Physics, University of Tokyo, Kashiwa, JAPAN; Masashi Kawasaki, Institute for Materials Research, Tohoku University, Sendai, JAPAN; Hideomi Koinuma, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, JAPAN.

9:15 AM V3.3

FERROELECTRIC FIELD EFFECT INDUCED MODULATION OF MAGNETISM IN THE COLOSSAL MAGNETORESISTIVE OXIDE La_xSr_{1-x}MnO₃. Xia Hong, Agham-Bayan Posadas, Andrew Lin, Charles H. Ahn, Yale Univ, Dept of Applied Physics, New Haven, CT.

9:30 AM *V3.4

CASE STUDIES ON THE EFFECT OF INTERFACES ON FERROELECTRIC THIN FILMS. S.K. Streiffer, G.B. Stephenson, J.A. Eastman, D.D. Fong, S. Saha, O. Auciello, and P.H. Fuoss, Materials Science Division, Argonne National Laboratory, Argonne, IL; D.Y. Kaufman, Energy Technology Division, Argonne National Laboratory, Argonne, IL; M.E.M. Aanerud, Carol Thompson, Northern Illinois University, DeKalb, IL.

10:00 AM BREAK

10:15 AM *V3.5

OXIDE CHANNEL FIELD EFFECT DEVICES: FABRICATION, LIMITATIONS, AND OPPORTUNITIES. J.A. Misewich, A.G. Schrott, IBM Research Division, Thomas J. Watson Research Center, Yorktown Heights, NY.

10:45 AM V3.6

INTERFACE CONTROLLED GROWTH OF THIN HfO₂ FOR FUTURE GATE OXIDE APPLICATIONS. Frank Schienle, Stefan Miedl, Peer Lehnen, Marcus Schumacher, AIXTRON AG, Aachen, GERMANY; Chao-Hsin Chien, National Nano Device Lab., Hsinchu, TAIWAN.

11:00 AM V3.7

PHOTOEMISSION STUDY OF INTERFACIAL OXIDATION IN ZrO₂/SUB-NANOMETER SiON_x/Si(100) STACKED STRUCTURES. Seiichi Miyazaki, Hiroki Yamashita, Hiroshi Nakagawa and Masanori Yamaoka, Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashi-Hiroshima, JAPAN.

11:15 AM V3.8

FERROELECTRIC FIELD EFFECT DEVICE. Alejandro G. Schrott, James A. Misewich, IBM Research Division, Thomas J. Watson Research Center, Yorktown Heights, NY; V. Nagarajan, R. Ramesh, Department of Materials Science, University of Maryland, College Park, MD.

11:30 AM V3.9

BAND OFFSET AT A'O/ABO₃ INTERFACES. Magali Zimmer, Javier Junquera, and Philippe Ghosez, Institut de Physique, Université de Liège, Sart-Tilman, BELGIUM.

11:45 AM V3.10

THE ELECTRONIC STRUCTURE OF INTERFACE SBT/ELECTRODE PD STUDIED BY QUANTUM THEORY.

Hanxing Liu, Yale University, Department of Electrical Engineering, Wuhan University of Technology, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan, P.R. CHINA; Xinmin Min, Wuhan University of Technology, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan, P.R. CHINA.

SESSION V4: FERROELECTRICS, CAPACITORS AND SENSORS

Chairs: David C. Paine and Hiromichi Ohta
Tuesday Afternoon, December 3, 2002
Fairfax A (Sheraton)

1:30 PM *V4.1

COMPLEXITY OF OXIDE-SEMICONDUCTOR AND OXIDE-OXIDE INTERFACES: FROM EPITAXIAL FILMS TO NANOSTRUCTURES. Y. Liang, R. Droopad, J. Yu, Y. Wei, M. Hu, J. Edwards, H. Li, K.W. Eisenbeiser, J. Finder, K. Moore, W. Ooms, Motorola Labs, Tempe, AZ; A. El-Azab, S. Lea, S.A. Chambers, V. Shutthanandan, and S. Thevuthasan, Pacific Northwest National Laboratory, Richland, WA.

2:00 PM V4.2

TRANSMISSION ELECTRON MICROSCOPY STUDY OF DISLOCATION ARRAYS IN B₂T₂O₃ THIN FILMS GROWN ON S₇T₃O₃. H.P. Sun, X.Q. Pan, W. Tian, Department of Materials Science & Engineering, University of Michigan, Ann Arbor, MI; J.H. Haeni, D.G. Schlom, Department of Materials Science & Engineering, Penn State University, University Park, PA.

2:15 PM V4.3

FAILURE MECHANISMS OF MULTILAYER CERAMIC CAPACITORS WITH Ni ELECTRODES. G.Y. Yang, J.E. Clayton, E.C. Dickey and C.A. Randall, Department of Materials Science and Engineering and Materials Research Institute, The Pennsylvania State University, University Park, PA.

2:30 PM V4.4

INFLUENCE OF REOXIDATION ON THE ELECTRICAL PROPERTIES OF Sr_{1-3x/2}La_xTiO₃ SEMICONDUCTING CERAMICS. Seung Hyung Son, Jae-Hwan Park, Jae-Gwan Park, and Yoonho Kim, Material Science and Technology Division, Korea Institute of Science and Technology, Seoul, KOREA.

2:45 PM V4.5

INTERFACIAL ATOMIC STRUCTURE AND CHEMISTRY OF FERROELECTRIC La_{0.5}Sr_{0.5}CoO₃/PbZr_xTi_{1-x}O₃/La_{0.5}Sr_{0.5}CoO₃ CAPACITOR GROWN ON THE CONDUCTIVE La_{0.27}Sr_{0.73}TiO₃/(001)Si TEMPLATE. W. Tian, X.Q. Pan, Department of Materials Science & Engineering, The University of Michigan, Ann Arbor, MI; B.T. Liu, K. Maki, Y. So, V. Nagarajan, and R. Ramesh, Department of Materials and Nuclear Engineering, University of Maryland, College Park, MD; J. Lettieri, J.H. Haeni, and D.G. Schlom, Department of Materials Science & Engineering, Penn State University, University Park, PA.

3:00 PM BREAK

3:15 PM V4.6

COMPARISON OF TUNNELING THROUGH THIN OXIDE LAYERS ON STEP-FREE AND NORMAL Si SURFACES. Antonio Oliver[†], Jack Blakely, Cornell University, Materials Science & Engineering, Ithaca, NY. [†]now at Sandia National Laboratories, Albuquerque, NM.

3:30 PM *V4.7

LARGE DIELECTRIC CONSTANT IN CaCu₃Ti₄O₁₂. A.P. Ramirez, G. Lawes, LANL, Los Alamos, NM; C.M. Varma, Bell Laboratories, Murray Hill, NJ.

4:00 PM V4.8

Abstract Withdrawn

4:15 PM *V4.9

K-BAND REFLECTARRAY ANTENNA BASED ON FERROELECTRIC THIN FILMS: WHAT WE HAVE LEARNED SO FAR. Felix A. Miranda, Robert Romanofsky, NASA Glenn Research Center, Cleveland, OH; Carl H. Mueller, Hadron, Inc., Cleveland, OH; Fred W. Van Keuls, The Ohio Aerospace Institute, Cleveland, OH.

4:45 PM V4.10

RECENT DEVELOPMENTS OF Al₂O₃-BASED GAS SENSING CERAMICS. Ping Yu, Dingquan Xiao, Jianguo Zhu, Sichuan Univ, Dept of Materials Science, Chengdu, P.R. CHINA.

SESSION V5: ORGANIC DEVICES

Chairs: Sue Anne Carter and David S. Ginley
Wednesday Morning, December 4, 2002
Fairfax A (Sheraton)

8:30 AM *V5.1

INTERFACES BETWEEN TRANSPARENT CONDUCTING OXIDES AND ORGANIC CHARGE TRANSPORTING ASSEMBLIES. DRAMATIC CONSEQUENCES FOR OLED CHARGE INJECTION, LUMINANCE, AND DURABILITY. Tobin J. Marks, Dept. of Chemistry and the Materials Research Center, Northwestern University, Evanston IL.

9:00 AM V5.2

INDIUM TIN OXIDE AND ORGANIC FILM INTERFACES MODIFIED AND EVALUATED BY CHEMICAL PROBE MOLECULES AS AN INDICATION OF THE RATE OF ELECTRON TRANSFER. C. Carter, N.R. Armstrong, University of Arizona, Dept of Chemistry, Tucson, AZ.

9:15 AM V5.3

DIELECTRIC INTERFACE FORMATION IN ORGANIC SEMICONDUCTOR BASED ELECTRONICS. Neil J. Watkins, Li Yan, Serkan Zorba, Yongli Gao, Department of Physics and Astronomy, University of Rochester, Rochester, NY. ♣

9:30 AM V5.4

EFFECTS OF ITO/ORGANIC INTERFACIAL ROUGHNESS ON THE INSTABILITY OF ORGANIC LIGHT EMITTING DIODE. Ki-Beom Kim, Kwang-Heum Baik, Myung-Hee Yoon and Yoon-Heung Tak, Model Development Gr., LG Electronics, OLED Division, Kumi, KOREA.

9:45 AM BREAK

10:15 AM *V5.5

PHOTOELECTRON SPECTROSCOPY INVESTIGATION OF THE ORGANIC-METAL AND ORGANIC-METAL OXIDE INTERFACES. Xavier Crispin, Dept of Physics, Linköping, SWEDEN.

10:45 AM V5.6

SURFACE SENSITIZED SCHOTTKY BARRIER SOLAR CELLS. Jing Tang, University of California-Santa Barbara, Materials Dept, Santa Barbara, CA; Eric W. McFarland, University of California-Santa Barbara, Dept of Chemical Engineering, Santa Barbara, CA; Galen D. Stucky, University of California-Santa Barbara, Dept of Chemistry and Biochemistry and Materials Dept, Santa Barbara, CA.

11:00 AM *V5.7

INTERFACE ENGINEERING FOR NANO-THICK ORGANIC-BASED PHOTONIC AND PHOTOVOLTAIC DEVICES. Ghassan E. Jabbour, Optical Sciences Center, The University of Arizona, Tucson, AZ.

11:30 AM *V5.8

CHARACTERIZATION OF THE ENERGY AND CHARGE TRANSFER PROCESSES IN π -CONJUGATED SEMICONDUCTING OLIGOMERS AND POLYMERS. Jean-Luc Brédas, University of Arizona, Department of Chemistry, Tucson, AZ; David Beljonne, Jerome Cornil, University of Mons-Hainaut, Laboratory for Chemistry of Novel Materials, Center for Molecular Electronics and Photonics, Mons, BELGIUM; Veaceslav Coropceanu, Demetrio da Silva Filho, Massimo Malagoli, University of Arizona, Department of Chemistry, Tucson, AZ; Geoffrey Pourtois, University of Mons-Hainaut, Laboratory for Chemistry of Novel Materials, Center for Molecular Electronics and Photonics, Mons, BELGIUM; Egbert Zojer, University of Arizona, Department of Chemistry, Tucson, AZ.

SESSION V6: INTERFACIAL GROWTH ISSUES

Chairs: Hideo Hosono and Janet Tate
Wednesday Afternoon, December 4, 2002
Fairfax A (Sheraton)

1:30 PM *V6.1

IBAD MgO TEMPLATE DEVELOPMENT FOR YBCO COATED CONDUCTORS. P.N. Arendt, J.R. Groves, T.G. Holesinger, S.R. Foltyn, Q.X. Jia, L.A. Emmert, R.F. DePaula, P.C. Dowden and L. Stan, Superconductivity Technology Center, Los Alamos National Laboratory, Los Alamos, NM.

2:00 PM V6.2

EXPERIMENTAL AND THEORETICAL STUDIES OF THE Si/SiO₂ INTERFACES IN DRY AND WET OXIDATION.

Dong-Un Jin, Abhijit Roychowdhuri, Christos G. Takoudis, Univ. of Illinois at Chicago, Dept of Chemical Engineering, Chicago, IL.

2:15 PM V6.3

STUDY OF THE CRYSTALLIZATION CONDITION OF Bi SUBSTITUTED YTTRIUM IRON GARNET MAGNETO-OPTIC THIN FILMS BY AEROSOL ATMOSPHERIC CVD PROCESS. Jean-Luc Deschanvres, Amine Hssassa, Laboratoire des matériaux et du génie physique, CNRS-ENSPG, St. Martin D'Herès, FRANCE.

2:30 PM V6.4

SiO₂ FORMATION AT THE ALUMINUM OXIDE-Si(100) INTERFACE. A. Roy Chowdhuri, C.G. Takoudis, Univ of Illinois at Chicago, Dept of Chemical Engineering, Chicago, IL; R.F. Klie, N.D. Browning, Univ of Illinois at Chicago, Dept of Physics, Chicago, IL.

2:45 PM V6.5

CHARGE CARRIER TRAPPING IN ULTRATHIN ANODIC TiO₂ LAYERS INVESTIGATED BY PHOTOVOLTAGE TECHNIQUE. V. Duzhko, New Jersey Institute of Technology, ECE Department, Newark, NJ; J. Rappich, Hahn-Meitner-Institut, Abt. Silizium Photovoltaik, Berlin, GERMANY; Th. Dittrich, Technische Universität München, Physik Department E16, Garching, GERMANY.

3:00 PM V6.6

A STUDY OF THE EFFECT OF TIN ON THE TRANSPORT PROPERTIES AND STRUCTURE OF AMORPHOUS AND CRYSTALLINE ITO DEPOSITED BY DC MAGNETRON SPUTTERING. Burag Yaglioglu, Elliott Deaderick, Hyo-Young Yeom, Eric Chason, and David C. Paine, Brown University, Division of Engineering, Providence RI.

3:15 PM BREAK

3:30 PM V6.7

ENGINEERING ZnO/GaN INTERFACES FOR OHMIC CONTACTS TO GaN. E. Kaminska, A. Piotrowska, K. Golaszewska, R. Kruszka, A. Kuchuk, Institute of Electron Technology, Warsaw, POLAND; J. Szade, A. Winiarski, Institute of Physics, University of Silesia, Katowice, POLAND; A. Barcz, Institute of Physics PAS, Warsaw, POLAND; J. Jasinski, Z. Liliental-Weber, Lawrence Berkeley National Laboratory, Berkeley, CA.

3:45 PM V6.8

ELECTRONIC PROPERTIES OF VALENCE-MISMATCHED PEROVSKITE HETEROINTERFACES. Akira Ohtomo, David A. Muller, Harold Y. Hwang, Don R. Hamann, Bell Labs, Lucent Technologies, NJ.

4:00 PM V6.9

HETEROEPITAXIAL GROWTH OF A WIDE GAP P-TYPE OXYSULFIDE, LaCuOS. Hidenori Hiramatsu^{a,b}, Kazushige Ueda^a, Hiromichi Ohta^b, Masahiro Hirano^b, and Hideo Hosono^{a,b}; ^aMaterials and Structures Laboratory, Tokyo Institute of Technology, JAPAN; ^bHosono Transparent Electro-Active Materials, ERATO, JST, JAPAN.

4:15 PM V6.10

PHASE EQUILIBRIA IN THE SYSTEM Ag-Bi₂O₃-Nb₂O₅-O: A MODEL SYSTEM FOR INTERFACE REACTIONS IN LTCC MATERIALS. Lawrence P. Cook, Winnie Wong-Ng, Igor Levin, Peter Schenck, Mark D. Vaudin, and Julia Suh, National Institute of Standards and Technology, Gaithersburg, MD.

4:30 PM V6.11

GROWTH AND I-V CHARACTERISTICS OF POLY- AND MONO-CRYSTALLINE LITHIUM NIOBATE. A.K. Batra, T. Gebre, J. Stephens, M.D. Aggarwal, and R.B. Lal, Department of Physics, Alabama A&M University, Normal, AL.