SYMPOSIUM S

Advances in Superconductivity—Electronics and Electric Power Applications from Atomically Engineered Microstructures

December 1 – 5, 2002

Chairs

Ron Feenstra	Oak Ridge Natl Laboratory
Douglas K. Finnemore	Iowa State Univ
Hans Hilgenkamp	Univ of Twente
Terry G. Holesinger	Los Alamos National Laboratory
Victor A. Maroni	Argonne National Laboratory
Jun-ichi Shimoyama	Univ of Tokyo

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* Invited paper

TUTORIAL

FT S: ADVANCES IN SUPERCONDUCTIVITY
Sunday, December 1, 2002
1:00 p.m. - 4:00 p.m.
Room 206 (Hynes)

Superconductors form a unique class of materials with applications in detector and switching electronics, and large electrical systems utilizing the capability of loss-less current transport (wires, etc.). The tutorial will focus on two material classes under extensive research and development today: the high-temperature superconductor (HTS) copper oxides and the recently identified superconductor MgB_2 (T_c=39 K). Topics will include lattice structures and crystal chemistry of the HTS copper oxides, uniqueness and similarities with other perovskites such as the manganites, relation between structure and properties, synthesis, and modification. Progress in MgB_2 materials research has been extremely fast since the discovery of its superconducting properties a year and a half ago. Physical and chemical properties will be reviewed, as well as pathways to emerging applications. Topics will range from the fundamental mechanism that causes superconductivity in MgB_2 to the performance of practical conductor materials.

Instructors:
Masato Murakami, ISTEC
Doug Finnemore, Iowa State University

SESSION S1: MgB_2 AND NEW MATERIALS
Chairs: Douglas K. Finnemore and Rene L. Flukiger
Monday Morning, December 2, 2002
Room 306 (Hynes)

8:30 AM *S1.1
SUPERCONDUCTIVITY IN MgB_2. Jun Akimitsu, Department of Physics, Aoyama-Gakuin University, Tokyo, JAPAN.

9:00 AM *S1.2
MgB_2: SYNTHESIS, MECHANISM, AND BASIC PROPERTIES. P.C. Canfield, Ames Laboratory, Department of Physics and Astronomy, Iowa State University, Ames, IA.

9:30 AM *S1.3
STRUCTURE AND SUPERCONDUCTIVITY IN Zr-STABILIZED, NONSTOICHIOMETRIC MOLYBDENUM DIBORIDE. R.J. Cava, L.E. Muzzy, M.K. Haas, Department of Chemistry and Princeton Materials Institute, Princeton University, Princeton, NJ; M. Avdeev, and J.D. Jorgensen, Materials Science Division, Argonne National Laboratory, Argonne IL; G. Lawes and A.P. Ramirez, Los Alamos National Laboratory, Los Alamos, NM; and H.W. Zandbergen, National Centre for HREM, Laboratory of Materials Science, Delft University of Technology, Delft, THE NETHERLANDS.

10:00 AM BREAK

10:30 AM *S1.4
STRUCTURAL DEFECTS, HOLE SYMMETRY AND VALENCE ELECTRON DISTRIBUTION IN MgB_2 SUPERCONDUCTOR. Yimei Zhu, J. Tafto, L. Wu, T. Vogt, J. Davenport, A.R. Moodenbaugh, Q. Li, H. Su, G. Gu, G. Schneider, D.A. Fischer and M. Suenaga, Brookhaven National Laboratory, Upton, NY.

11:00 AM S1.5
SPECIFIC HEAT OF MgB_2: PARAMETERS CHARACTERIZING THE SUPERCONDUCTIVITY AND THE TWO ENERGY GAPS. N.E. Phillips, R.A. Fisher, F. Bouquet, LBL, Berkeley CA; D.G. Hinks, J.D. Jorgensen, ANL, Argonne, IL.

11:15 AM *S1.6
CHEMISTRY AND UNUSUAL LATTICE PROPERTIES OF MgB_2. J.D. Jorgensen, D.G. Hinks, Materials Science Division, Argonne National Laboratory, Argonne, IL; P.G. Radaelli, ISIS Facility, Rutherford Appleton Laboratory, Chilton, Didcot, UNITED KINGDOM.

11:45 AM S1.7
PHASE EQUILIBRIA IN THE SYSTEM Mg-B: EXPERIMENTAL INPUT FOR A CALCULATED DIAGRAM. Lawrence P. Cook, Ralph Klein and Winnie Wong-Ng, National Institute of Standards and Technology, Gaithersburg, MD.

SESSION S2: WIRES AND COATED CONDUCTORS
Chairs: Paul C. Canfield and Victor A. Maroni
Monday Afternoon, December 2, 2002
Room 306 (Hynes)

1:30 PM *S2.1
SPECIFIC MATERIAL OBSTACLES AND THEIR SOLUTION IN HIGH-Tc, LOW-Tc AND MgB_2 SUPERCONDUCTING WIRES AND TAPES. R. Flukiger, Department of Condensed Matter Physics (DPMC), University of Geneva, Geneva, SWITZERLAND.

2:00 PM *S2.2
RECENT ADVANCES IN OVERPRESSURE PROCESSING OF BSCCO 2223 TAPES. E.E. Hellstrom, Y. Yuan, J. Jiang, S. Patnaik, A. Polyanskii, D.C. Larbalestier, Applied Superconductivity Center, University of Wisconsin-Madison, Madison, WI; R.K. Williams, Oak Ridge National Laboratory, Oak Ridge, TN; Y. Huang and R. Parrella, American Superconductor Corp., Westborough, MA.

2:30 PM S2.3
INFLUENCE OF MICROSTRUCTURE AND HEAT TREATMENTS ON THE CRITICAL CURRENT OF POWDER IN TUBE MgB_2 WIRES AND TAPES. Adriana C. Serquis, Duncan L. Hammon, Xiaozhou Liao, Leonardo Civale, J. Yates Coulter, Yuntian T. Zhu, Terry G. Holesinger, Dean E. Peterson and Fred M. Mueller, Superconductivity Technology Center, Materials Science and Technology Division, Los Alamos National Laboratory, Los Alamos, NM.

2:45 PM S2.4
CHEMICAL COMPOSITION, MICROSTRUCTURE AND SUPERCONDUCTING PROPERTIES OF MgB2 CERAMICS, WIRES AND TAPES. D. Eyidi, O. Eibl, Institute of Applied Physics, University of Tuebingen, GERMANY; Th. Wenzel, K.G. Nickel, Institute of Geosciences, University of Tuebingen, Tuebingen, GERMANY; S.I. Schlachter, W. Goldacker, FZ Karlsruhe, Karlsruhe, GERMANY; M. Giovannini, A. Saccone, Department of Chemistry and Industrial Chemistry, University of Genova, ITALY.

3:00 PM BREAK

3:30 PM S2.5
HPCVD GROWTH OF EPITAXIAL MgB_2 THIN FILMS. A.V. Pogrebnyakov, X.H. Zeng, A. Kotcharov, J.E. Jones, J. Sosa, X.X. Xi, S.Y. Xu, Qi Li, The Pennsylvania State Univ, Dept of Physics, University Park, PA; E.M. Lysczek, J.M. Redwing, J. Lettieri, D.G. Schlom, Z.K. Liu, The Pennsylvania State Univ, Dept of Materials Science and Engineering, University Park, PA; W. Tian, X.Q. Pan, The Univ of Michigan, Dept of Materials Science and Engineering, Ann Arbor, MI.

3:45 PM S2.6
FABRICATION AND CHARACTERIZATION OF POLYCRYSTALLINE MgB_2 THIN FILMS FOR COATED CONDUCTOR AND MICROWAVE CAVITY APPLICATIONS. M. Fukutomi, K. Komori, K. Kawagishi, Y. Takano, A. Matsumoto, H. Kumakura, K. Togano, National Institute for Materials Research, Tsukuba, JAPAN; E. Ezura, S. Inagaki, S. Mitsunobu, High Energy Accelerator Research Organization, Tsukuba, JAPAN.

4:00 PM *S2.7
COATED CONDUCTORS: LARGE-AREA, HIGH-CURRENT CARRYING YBCO TAPES FOR POWER APPLICATIONS. H.C. Freyhardt[a,b], A. Usoskin[b], A. Issaev[b], J. Dzick[a], J. Hoffmann[b], S. Sievers[a], and K. Thiele[a]; [a]Universitaet Goettingen, Institut fuer Material Physik, Goettingen, GERMANY; [b]Zentrum fuer Funktionswerkstoffe GmbH, Goettingen, GERMANY.

4:30 PM *S2.8
PROGRESS IN DEVELOPMENTS OF COATED CONDUCTORS IN JAPAN. Yuh Shiohara, Superconductivity Research Laboratory, ISTEC, Tokyo, JAPAN.

SESSION S3: POSTER SESSION
BULK MATERIALS
Chairs: Yimei Zhu and James D. Jorgensen
Monday Evening, December 2, 2002
8:00 PM
Exhibition Hall D (Hynes)

S3.1
ION ASSISTED DEPOSITION OF MgB_2 THIN FILMS. Chandana Meegoda, Dan Zavitz, Michael Trenary, University of Illinois at Chicago, Dept of Chemistry, Chicago, IL.

S3.2
COLUMNAR GROWTH MODE, HIGH CRITICAL CURRENT DENSITY AND VORTEX PINNING OF IN SITU EPITAXIAL MgB_2 THIN FILMS. S.Y. Xu, Qi Li, Eric Wertz, A.V. Pogrebnyakov, X.H. Zeng, and X.X. Xi, Dept of Physics, Penn State, University Park, PA.

S3.3
THERMOCHEMISTRY OF MgB_2 THIN-FILM GROWTH USING Mg VAPOR AND NOVEL Mg-CONTAINING MOLECULAR PRECURSORS. J. Kim, R. Singh, D.J. Smith, J.M. Rowell and N. Newman, Arizona State University, Dept of Chemical and Materials Engineering, Tempe, AZ.

S3.4
ELECTROPLATING OF THE SUPERCONDUCTIVE BORIDE MgB_2 FROM MOLTEN SALTS. Hideki Abe, National Institute for Materials Science, Tsukuba, Ibaraki, JAPAN; Kenji Yoshii, Japan Atomic Energy Research Institute, Mikazuki, Hyogo, JAPAN.

S3.5
MAGNETO-OPTICAL STUDIES OF GRAIN COUPLING IN SUPERCONDUCTING Bi2212 WIRES AND MgB_2 NANO-COMPOSITES. Z.X. Ye and Qiang Li, Brookhaven National Laboratory, Upton, NY.

S3.6
LOW-TEMPERATURE SYNTHESIS AND SUPERCONDUCTIVITY OF MECHANICALLY ALLOYED MgB_2. O. Perner, A. Gümbel, J. Eckert, G. Fuchs, K. Nenkov, K.-H. Müller, W. Hässler, C. Fischer, B. Holzapfel, L. Schultz, IFW Dresden, GERMANY.

S3.7
LOW-CREEP-RATE GLASSY VORTEX DYNAMICS IN HIGH-DENSITY BULK MgB_2. Leonardo Civale, Adriana C. Serquis, Martin P. Maley, J. Yates Coulter, Yuntian T. Zhu, Xiaozhou Liao, Dean E. Peterson and Fred M. Mueller, Superconductivity Technology Center, Los Alamos National Laboratory, Los Alamos, NM; Vitali F. Nesterenko, S.S. Indrakanti, Department of Mechanical and Aerospace Engineering, University of California, San Diego, La Jolla, CA.

S3.8
THE STRUCTURES OF OXYGEN-RELATED DEFECTS IN MgB_2. Xiaozhou Liao, Adriana Serquis, Yuntian T. Zhu, Jianyu Huang, Dean E. Peterson, and Fred M. Mueller, Los Alamos National Laboratory, Superconductivity Technology Center, Los Alamos, NM; Huifang Xu, University of New Mexico, Department of Earth and Planetary Sciences, Albuquerque, NM.

S3.9
PROCESSING AND PROPERTIES OF MgB_2. Yuntian T. Zhu, Adriana C. Serquis, Xiaozhou Liao, Leonardo Civale, James Y. Coulter, Dean E. Peterson and Fred M. Mueller, Superconductivity Technology Center, Los Alamos National Laboratory, Los Alamos, NM; Duncan L. Hammon and Terry G. Holesinger, Los Alamos National Laboratory, Los Alamos, NM.

S3.10
EFFECTS OF GOLD NANO PARTICLES DOPING IN EX-SITU PROCESSED MAGNESIUM DIBORIDE TAPES. Akihiro Kikuchi, Yasuo Iijima, Yuji Yoshida, Nobuya Banno, Kiyoshi Inoue, Takao Takeuchi, Akiyoshi Matsumoto, Hiroaki Kumakura, National Institute for Materials Science, Superconducting Materials Center, Tsukuba, JAPAN.

S3.11
EFFECT OF SILVER ADDITION ON THE PROPERTIES OF MgB_2 BULK SUPERCONDUCTORS. D. Kumar and J. Sankar, Center for Advanced Materials and Smart Structures, North Carolina A&T State University, Greensboro, NC; S.J. Pennycook, Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN; J. Narayan, H. Wang and A. Tiwari, Center for Advanced Materials and Smart Structures, North Carolina State University, Raleigh, NC.

S3.12
PROCESSING OF SUPERCONDUCTING MgB_2 / METAL COMPOSITES BY LIQUID METAL INFILTRATION. Cédric von Grünigen, John DeFouw, David C. Dunand, Department of Materials Science and Engineering, Northwestern University, Evanston, IL.

S3.13
PREPARATION OF MgB_2 BY A MELTING PROCESS. Y.S. Kim, S.H. Park, H.-C. Ri, Korea Basic Science Institute, Daejeon, KOREA; H.K. Seo, H.S. Shin, Chonbuk National University, School of Chemical Engineering, Chonju, KOREA.

S3.14
PHASE STABILITY AND CHARACTERIZATION OF MAGNESIUM BORIDES. M. Guo, U.N. Roy, Y. Cui, M. Groza, G. Wright, Jennifer Jones, J. Reynolds, JoAnn Jones and A. Burger, Center for Photonic Materials and Devices, Department of Physics, Fisk University, Nashville, TN; and V.E. Lamberti, D.A. Carpenter and Z.W. Bell, L.L.C., Oak Ridge, TN.

S3.15
Abstract Withdrawn

S3.16
EPITAXIAL GROWTH OF $Bi_2Sr_2Ca_{n-1}Cu_nO_y$ (n = 2, AND 3) FILMS FROM EXFOLIATED SUPERCONDUCTING COLLOIDS. Eue-Soon Jang, Jin-Ho Choy, School of Chemistry and Molecular Engineering, Seoul National University, Seoul, KOREA.

S3.17
PHASE EQUILIBRIA OF FIRST-GENERATION BSCCO MATERIALS, REVISITED: NEW DATA ON COEXISTING Pb-2223 + LIQUID. Lawrence P. Cook, Winnie Wong-Ng, and Julia Suh, National Institute of Standards and Technology, Gaithersburg, MD.

S3.18
INVESTIGATION ON THE FEASIBILITY OF THE Bi-2223 FORMATION FROM THE MELT. Alexander Polasek, Fernando Rizzo, Pontific Catholic Univ, Dept of Materials Science and Metallurgy, Rio de Janeiro, BRAZIL; Eduardo Torres Serra, CEPEL, Electric Power Res Center, Superconductivity Lab, Rio de Janeiro, BRAZIL; Peter Majewski, Max-Planck-Institut for Metals Res, Powder Metallurgy Lab, Stuttgart, GERMANY.

S3.19
INFLUENCE OF POWDER PROPERTIES ON THE CRITICAL CURRENT DENSITY OF Bi-2212 BULK CONDUCTORS. David Sager, Ludwig J. Gauckler, Nonmetallic Inorganic Materials, Department Materials, ETH Zurich, SWITZERLAND; Makan Chen, Markus Hoidis, Willi Paul, ABB Corporate Research, Baden-Dättwil, SWITZERLAND.

S3.20
STUDIES OF HIGH ANGLE OFF-BASAL-PLANE TILT GRAIN BOUNDARIES IN Bi2212 SUPERCONDUCTORS. Qiang Li, Z.X. Ye, M. Suenaga, and A. Ghosh, Brookhaven National Laboratory, Upton, NY.

S3.21
A STUDY ON THE FABRICATION AND CHARACTERIZATION OF HIGH-TEMPERATURE SUPERCONDUCTING(HTS) TAPES IN Bi-SYSTEM. Nyeon-Ho Jeong, Tae-Hyun Sung, Young-Hee Han, Sang-Chul Han, Jun-Sung Lee, Byung-Sam Park, Kwang-Seok Oh, Je-Myung Oh, Korea Electric Power Research Institute, Daejeon, KOREA.

S3.22
TRANSPORT PROPERTIES AND STRUCTURAL CHARACTERISTICS OF MAGNETICALLY TEXTURED Bi-2212 NICKEL TAPES. Nicole Fonder, Jean-Francois Fagnard, Andre Rulmont, Marcel Ausloos, Philippe Vanderbemden and Rudi Cloots, University of Liege, SUPRAS, Liege, BELGIUM.

S3.23
TUNING Pb CONTENT IN HIGH-T_c $Bi_2Sr_2CaCu_2O_y$ SUPERCONDUCTORS STUDIED BY X-RAY ABSORPTION NEAR-EDGE STRUCTURE SPECTROSCOPY. S.C. Chang, R. Gundakaram, R.S. Liu, National Taiwan University, Dept of Chemistry, Taipei, TAIWAN; J.M. Chen, Synchrotron Radiation Research Center, Hsinchu, TAIWAN.

S3.24
CONTACTLESS MEASUREMENT OF PENETRATION DEPTH AND CRITICAL FIELD IN SUPERCONDUCTORS IN PULSE MAGNETIC FIELD USING THE TDO METHOD. Catalin Martin, Z. Bayindir, L. DeViveiros, I. Mihut, T. Coffey, C.C. Agosta, Physics Dept., Clark University, Worcester, MA; M. Tokumoto, ETL Tskuba, JAPAN.

S3.25
OXYGEN-ION DIFFUSION IN $La_{2-x}Sr_xCuO_{4-d}$ CERAMICS AND SINGLE CRYSTALS. Akihiko Yamaji, Eiichi Nakamura, Tadaharu Adchi and Yoshikazu Hidaka, Department of Mechanical Sciences and Engineering, Tokyo Institute of Technology, Meguroku, Tokyo, JAPAN.

S3.26
THICKNESS DEPENCENCE ON SUPERCONDUCTIVITY IN LPE SINGLE-CRYSTALLINE FILM of $La_{2-x}Sr_xCuO_4$. I. Tanaka, A.T.M.N. Islam, S. Watauchi, University of Yamanashi, Center for Crystal Science and Technology, Kofu, JAPAN.

S3.27
SUPERCONDUCTING PROPERTIES OF $(La_{1-x}Sr_x)_2CuO_{4+\delta}$ SINGLE CRYSTALS HAVING EXCESS OXYGEN. J. Ishida, Y. Kawakami, S. Horii, J. Shimoyama and K. Kishio, Dept. of Superconductivity, Univ. of Tokyo, Tokyo, JAPAN.

S3.28
EFFECTS OF STRONG MAGNETIC FIELD ON THE SYNTHESIS OF RE123 MELT-SOLIDIFIED BULK. H. Eto, S. Horii, J. Shimoyama and K. Kishio, Univ. of Tokyo, Dept. of Superconductivity, Tokyo, JAPAN.

S3.29
MAGNETIC TORQUE MEASUREMENTS ON BULK MELT-PROCESSED YBCO SINGLE DOMAINS. Ph. Vanderbemden, S. Dorbolo, B. Mattivi, M. Ausloos, R. Cloots, SUPRAS, University of Liege, BELGIUM; H. Babu, A.M. Campbell, IRC in Superconductivity, University of Cambridge, UNITED KINGDOM.

S3.30
DEVELOPMENTS OF RF COMPONENTS USING SINGLE DOMAIN YBCO. Donglu Shi, Tony He, Yongli Xu, Department of Materials Science and Engineering; Altan Ferendeci, Department of Electrical Engineering and Computer Science; David Mast, Department of Physics, University of Cincinnati, Cincinnati, OH; N.H. Babu, M. Kambara, and David Cardwell, IRC in Superconductivity, University of Cambridge, Cambridge, UNITED KINGDOM.

S3.31
PRESSURE INDUCED STRUCTURAL CHANGES IN $HgBa_2CuO_{4+\delta}$ (TO 9.3 GPa). N.C. Hyatt, Department of Engineering Materials, The University of Sheffield, Sheffield, UNITED KINGDOM; J.A. Hriljac, I. Gameson and P.P. Edwards, School of Chemical Sciences, The University of Birmingham, Birmingham, UNITED KINGDOM.

S3.32
UNOCCUPIED ELECTRONIC STATES IN $MgCNi_3$ SUPERCONDUCTOR: AN Ni K- and Ni L_3- EDGE STUDIES. A.Yu. Ignatov, L.M. Dieng, T.A. Tyson, New Jersey Inst of Tech, Dept of Physics, Newark, NJ; T. He, R.J. Cava, Princeton Univ, Dept of Chemistry and Princeton Material Inst, Princeton, NJ.

S3.33
THE STRUCTURE AND ELECTRONIC PROPERTIES OF THE ORTHORHOMBIC MoRuP SUPERCONDUCTOR. Winnie Wong-Ng, Ceramics Div, NIST, Gaithersburg, MD; Wai-Yim Ching, Yong-Nian Xu, Dept of Physics, Univ of Missouri-Kansas City, Kansas City, MO; James A. Kaduk, BP Chemicals, Naperville, IL; Ichimin Shirotani, Muroran Institute of Technology, Muroran-shi, JAPAN; and L. Swartzendruber, Metallurgy Div, NIST, Gaithersburg, MD.

S3.34
OPTIMIZATION OF LOW-Tc JOSEPHSON JUNCTIONS FOR RSFQ CIRCUITS BY TUNING THE BARRIER TO NEAR THE METAL-INSULATOR TRANSITION. Lei Yu, Raghu Gandikota, Jihoon Kim, Hongxue Liu, and N. Newman, Arizona State University, Dept. of Electrical Engineering and Dept. of Chemical and Material Engineering, Tempe, AZ; John Rowell, Northwestern University, Material Research Institite, Evanston IL, and Arizona State University, Dept. of Chemical and Material Engineering, Tempe, AZ; Xiaofan Meng and Ted Van Duzer, University of California, Berkeley, Dept. of Electrical and Computer Engineering, Berkeley, CA; Cathy Stampfl and Arthur Freeman, Northwestern University, Dept. of Physics, Evanston, IL.

SESSION S4: CUPRATES: STRUCTURE-PROPERTY RELATIONS
Chairs: Robert J. Cava and Jochen Mannhart
Tuesday Morning, December 3, 2002
Room 306 (Hynes)

8:30 AM *S4.1
THE "TRUE" STRUCTURE OF YBCO and YSCO. Gustaaf Van Tendeloo, Oleg Lebedev, Sara Bals, EMAT, University of Antwerp, Antwerp, BELGIUM.

9:00 AM *S4.2
CRITICAL SCALING AND VORTEX DYNAMICS IN BULK MgB_2 AND HIGH-PURITY SINGLE-CRYSTAL $Y_{1-x}Pr_xBa_2Cu_3O_{7-\delta}$ HIGH T_c SUPERCONDUCTORS. M.B. Maple, B.J. Taylor, N.A. Frederick, Department of Physics and Institute for Pure and Applied Physical Sciences, University of California, San Diego, La Jolla, CA; S. Li, 4-D Neuro Imaging, San Diego, CA; V.F. Nesterenko, S.S. Indrakanti, Department of Mechanical and Aerospace Engineering, University of California, San Diego, La Jolla, CA; M.P. Maley, Los Alamos National Laboratory, Los Alamos, NM.

9:30 AM *S4.3
HOLE DISTRIBUTION AND SUPERCONDUCTIVITY CHARACTERISTICS OF MULTI-LAYERED COPPER OXIDES. Maarit Karppinen, Hisao Yamauchi, Tokyo Institute of Technology, Materials and Structures Laboratory, Yokohama, JAPAN.

10:00 AM BREAK

10:30 AM *S4.4
UNIVERSAL GUIDING PRINCIPLES AND CHEMICAL DESIGNING OF HTSC CUPRATES FOR IMPROVED ELECTROMAGNETIC PROPERTIES AND CRITICAL CURRENTS. Kohji Kishio, Jun-ichi Shimoyama, Dept. of Applied Chemistry, Univ. of Tokyo, Tokyo, JAPAN.

11:00 AM *S4.5
LOCAL ELECTRONIC STRUCTURES OF HIGH J_c SUPERCONDUCTORS PROBED BY STM/STS. Tetsuya Hasegawa, Go Kinoda, Frontier Collaborative Research Center, Tokyo Institute of Technology, Yokohama, JAPAN; Shoichiro Nakao, Tetsuo Hanaguri, Koichi Kitazawa, Jun-ichi Shimoyama, Kohji Kishio, Dept of Superconductivity, University of Tokyo, Tokyo, JAPAN.

11:30 AM *S4.6
OBSERVATION OF CHAIN STRUCTURE OF SUPERCONDUCTING VORTICES BY LORENTZ MICROSCOPY. K. Harada[a,b,f], T. Matsuda[a,b,f], O. Kamimura[a,f], H. Kasai[a,b,f], T. Yoshida[a,f], T. Akashi[c,f], A. Tonomura[a,b,f], Y. Nakayama[d,f], J. Shimoyama[d,f], K. Kishio[d,f], T. Hanaguri[e,f] and K. Kitazawa[e,f]; [a]Advanced Research Laboratory, Hitachi, Ltd., Saitama, JAPAN; [b]FRS, The Institute of Physical and Chemical Research (RIKEN), Saitama, JAPAN; [c]Hitachi Instruments Service Co., Ltd., Tokyo, JAPAN; [d]Department of Applied Chemistry, Univ. of Tokyo, Tokyo, JAPAN; [e]Department of Advanced Materials Science, Univ. of Tokyo, Tokyo, JAPAN; [f]SORST, Japan Science and Technology Corporation (JST), Tokyo, JAPAN.

SESSION S5: GRAIN BOUNDARIES AND CRITICAL CURRENTS
Chairs: Jun-ichi Shimoyama and Lawrence P. Cook
Tuesday Afternoon, December 3, 2002
Room 306 (Hynes)

1:30 PM S5.1
WIDE RANGE PHASE FORMATION AND SUPERCONDUCTING

PROPERTIES OF SUBSTITUTED Fe-BASED CUPRATES. J. Shimoyama, M. Suzuki, M. Shiraki, K. Otzschi, S. Horii and K. Kishio, Tokyo, JAPAN.

1:45 PM *S5.2
A POSSIBLE SOLUTION OF THE GRAIN BOUNDARY PROBLEM FOR APPLICATIONS OF HIGH-Tc SUPERCONDUCTORS. Jochen Mannhart, German Hammerl, Andreas Schmehl, Christof W. Schneider, Alexander Weber, Experimentalphysik VI, Center for Electronic Correlations and Magnetism, Institute of Physics, Augsburg University, Augsburg, GERMANY.

2:15 PM S5.3
NORMAL STATE RESISTANCE AS A PROBE OF GRAIN BOUNDARIES IN $YBa_2Cu_3O_{7-\delta}$. J.H.T. Ransley, S.H. Mennema, G. Burnell, U. Balasumbramaniam, E.J. Tarte, M.G. Blamire J.E. Evetts, IRC in Superconductivity, University of Cambridge, Cambridge, UNITED KINGDOM; J.I. Kye and B. Oh, LG Electronics Institute of Technology, Seoul, KOREA.

2:30 PM S5.4
ELECTROMAGNETIC PROPERTIES OF CALCIUM-DOPED YBCO BICRYSTAL THIN FILMS. George A. Daniels, Alex Gurevich, David C. Larbalestier, University of Wisconsin, Madison WI.

2:45 PM S5.5
HIGH-Jc AND HIGH Ic YBCO FILMS ON RABiTS. A. Goyal, S. Kang, K. Leonard, D.F. Lee, N. Rutter, M. Paranthaman, L. Heatherly, X. Cui, D.M. Kroeger and R. Feenstra, Oak Ridge National Laboratory, Oak Ridge, TN.

3:00 PM BREAK

3:30 PM *S5.6
INTRA-GRANULAR Jc VERSUS GRAIN-BOUNDARY Jc AS A FUNCTION OF YBCO THICKNESS. D.M. Feldmann, Sang Il Kim, D.C. Larbalestier, University of Wisconsin, Madison, WI; R. Feenstra, A.A. Gapud, D.K. Christen, A. Goyal, F.A. List, L. Heatherly, P.M. Martin, D.M. Kroeger, Oak Ridge National Laboratory, Oak Ridge, TN.

4:00 PM S5.7
ELECTRIC FIELD DISTRIBUTION AND LOCAL DISSIPATION IN HIGH-TEMPERATURE SUPERCONDUCTORS. Christian Jooss, Volker Born, Karsten Guth, Institut für Materialphysik, University of Göttingen, GERMANY.

4:15 PM *S5.8
CURRENT-VOLTAGE CHARACTERISTICS IN YBCO COATED IBAD TAPES. T. Kiss, M. Inoue, T. Kuga, M. Ishimaru, S. Egashira, T. Ohta, K. Imamura, M. Yasunaga, M. Takeo, Dept of Electrical and Electronic Systems Engineering, Kyushu University, Fukuoka, JAPAN; T. Matsushita, Faculty of Computer Science and Systems Engineering, Kyushu Institute of Technology, Iizuka, JAPAN; Y. Iijima, K. Kakimoto, T. Saitoh, Fujikura Ltd., Tokyo, JAPAN; S. Awaji, K. Watanabe, Institute of Metals Research, Tohoku University, Sendai, JAPAN; Y. Shiohara, Superconductivity Research Laboratory, Tokyo, JAPAN.

4:45 PM S5.9
VARIATION OF $YBa_2Cu_3O_{7-\delta}$ GRAIN BOUNDARY CRITICAL CURRENT WITH ANGLE OF APPLIED FIELD. J.H. Durrell, M.J. Hogg, F. Kahlmann, B.A. Glowacki, B.P. Zeimetz, M.G. Blamire, J.E. Evetts, Univ of Cambridge, Dept of Materials Science and Metallurgy, Cambridge, UNITED KINGDOM; M-P. Delamare, R. Rössler, J.D. Pedarnig, D. Bäuerle, Univ of Linz, Applied Physics, Linz, AUSTRIA.

SESSION S6: EPITAXIAL FILMS
Chairs: Ron Feenstra and Dean J. Miller
Wednesday Morning, December 4, 2002
Room 306 (Hynes)

8:30 AM *S6.1
MBE GROWTH OF HIGH-Tc SUPERCONDUCTORS – CUPRATES TO BORIDES. Michio Naito, Shin-ichi Karimoto, Kenji Ueda, Hideki Yamamoto, and Jose Kurian, NTT Basic Research Laboratories, NTT Corp., Kanagawa, JAPAN.

9:00 AM *S6.2
INITIAL GROWTH STUDIES AND MANIPULATION OF $REBa_2Cu_3O_7$. Guus Rijnders, Low Temp. Div. and MESA Res. Inst., Dept of Applied Physics, Univ of Twente, NETHERLANDS.

9:30 AM S6.3
STRUCTURALLY CAUSED SUPERCONDUCTOR-TO-INSULATOR TRANSITION IN $YBa_2Cu_3O_7$ THIN FILMS. Anke Köhler, Institute for Surface Modification, Leipzig, GERMANY; H.W. Zandbergen, Laboratory of Materials Science, Delft, THE NETHERLANDS; S. Linzen, P. Seidel, Institute for Solid State Physics, Jena, GERMANY.

9:45 AM S6.4
FOURIER TRANSFORM INFRARED SPECTROSCOPY: WHAT IS THE TEMPERATURE AT THE SURFACE OF A GROWING THIN $YBa_2Cu_3O_7$ FILM? Gertjan Koster, Jeong-uk Huh, R.H. Hammond and M.R. Beasley, Stanford University, Stanford, CA.

10:00 AM BREAK

10:30 AM *S6.5
DEPOSITION AND CHARACTERIZATION OF SUPER-CONDUCTING $ReBa_2Cu_3O_7$ FILMS. Q.X. Jia, S.R. Foltyn, J.Y. Coulter, T.G. Holesinger, Los Alamos National Laboratory, Los Alamos, NM; V.A. Maroni, Kartik Venkataraman, Argonne National Laboratory, Argonne, IL.

11:00 AM S6.6
UNIDIRECTIONAL TWINING IN THE EPITAXY OF $YBa_2Cu_3O_7$ AND $NdBa_2Cu_3O_7$ ON $SrTiO_3$ (001). J.-L. Maurice, CNRS/Thales, Orsay, FRANCE; O. Durand, Thales TRT, Orsay, FRANCE; J. Briático, D. Crété, S. Berger and J.-P. Contour, CNRS/Thales, Orsay, FRANCE.

11:15 AM S6.7
ELECTRIC DEVICE APPLICATIONS OF SINGLE CRYSTALLINE RE123 THIN FILM GROWN BY TRI-PHASE EPITAXY. K.S. Yun, S. Arisawa, Y. Takano, S.J. Kim, A. Ishii, T. Hatano, T. Chikyo, National Institute for Materials Science, Ibaraki, JAPAN; M. Kawasaki, Tohoku Univ., Sendai, JAPAN; H. Koinuma, Tokyo Inst. of Tech., Yokohama, JAPAN.

11:30 AM S6.8
PHASE STABILITY AND CRITICAL CURRENTS OF YBCO FILMS GROWN BY HIGH-RATE IN-SITU E-BEAM. Jeong-Uk Huh, W. Jo, T. Ohnishi, M.R. Beasley, and R.H. Hammond, Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA.

11:45 AM S6.9
HIGH QUALITY DOUBLE-SIDED $YBa_2Cu_3O_{7-d}$ FILMS BY PULSED LASER DEPOSITION. J. Kim, M. Strikovski, V.V. Talanov and K.S. Harshavardhan, Neocera, Inc., Beltsville, MD.

SESSION S7: INTERFACES, JUNCTIONS, AND COATED CONDUCTORS
Chairs: Paul N. Arendt and Hans Hilgenkamp
Wednesday Afternoon, December 4, 2002
Room 306 (Hynes)

1:30 PM *S7.1
MATERIALS ISSUES IN FABRICATING HIGH-QUALITY RAMP-TYPE JUNCTIONS. Dave H.A. Blank, MESA Res. Inst., Dept of Applied Physics, Univ. of Twente, NETHERLANDS.

2:00 PM *S7.2
PROGRESS AND PROGNOSIS OF HTS INTERFACE-ENGINEERED JOSEPHSON JUNCTIONS. Brian Moeckly, Conductus, Inc., Sunnyvale, CA.

2:30 PM S7.3
GROWTH AND PROPERTIES OF [100] AND [110] YBCO BASED HETEROSTRUCTURE FOR JOSEPHSON TUNNELING. Se-jong Kim, Xavier Grison, Guillaume Passerieux, Jeanne Ayache, Marco Aprili, Jerome Lesueur, UPR5 CNRS-ESPCI, Paris, FRANCE; CSNSM CNRS-IN2P3, Orsay, FRANCE, Lawrence Berkeley Laboratory, Berkeley, CA.

2:45 PM S7.4
THEORETICAL ANALYSIS OF THE INTERACTION BETWEEN SPACE CHARGES, STRAIN FIELDS, OXYGENATION, AND DOPING AT DISLOCATIONS AND GRAIN BOUNDARIES IN 123-STRUCTURE CUPRATE SUPERCONDUCTORS. David O. Welch, Brookhaven National Laboratory, Upton, NY; Haibin Su, SUNY-Stony Brook, Stony Brook, NY.

3:00 PM BREAK

3:30 PM *S7.5
TEXTURE EVOLUTION AND CRYSTALLOGRAPHY IN YBCO COATED CONDUCTORS BASED ON INCLINED SUBSTRATE DEPOSITION ARCHITECTURES. D.J. Miller, Materials Science Division, Argonne National Laboratory, Argonne, IL; R.E. Koritala, B. Ma, M. Li, U. Balachandran, Energy Technology Division, Argonne National Laboratory, Argonne, IL; T. Aytug, J.D. Budai, D.K. Christen, P. Paranthaman, R. Feenstra, Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN.

4:00 PM *S7.6
STUDY AND CONTROL OF EPITAXIAL GROWTH OF CUBIC OXIDES ON FCC METAL SURFACES FOR COATED CONDUCTORS: BUFFER LAYER ARCHITECTURES FOR HIGHLY REACTIVE BASE METAL TAPES. Claudia Cantoni, Oak Ridge National Laboratory, Oak Ridge, TN.

4:30 PM S7.7
GROWTH OF CeO_2 THIN FILMS DEPOSITED ON BIAXIALLY TEXTURED NICKEL SUBSTRATES. Dominique Eyidi, Mihail Dan Croitoru, Oliver Eibl, Institute of Applied Physics, University of Tuebingen, GERMANY; Ralf Nemetschek, Werner Prusseit, THEVA GmbH, Eching-Dietersheim, GERMANY.

4:45 PM S7.8
ITEX YSZ BUFFER LAYERS FOR COATED CONDUCTORS. Ronald P. Reade, P. Berdahl, and Richard E. Russo, Lawrence Berkeley National Laboratory, Environmental Energy Technologies Division, Berkeley, CA.

SESSION S8: POSTER SESSION
FILMS AND COATED CONDUCTORS
Chair: Terry G. Holesinger
Wednesday Evening, December 4, 2002
8:00 PM
Exhibition Hall D (Hynes)

S8.1
PROPERTIES OF EPITAXIALLY GROWN SINGLE PHASE $RuSr_2GdCu_2O_8$ THIN FILMS PREPARED BY PULSED LASER DEPOSITION. Hanns-Ulrich Habermeier, Georg Cristiani, Oleg Lebedev.

S8.2
ANALYSIS OF ELECTRONIC STRUCTURE OF SELECTED RUTHENOCUPRATES BY THE ELECTRON ENERGY-LOSS SPECTROSCOPY. Y. Ito[a,b], P.W. Klamut[a,b], R.E. Cook[b], M.S. Maxwell[a], B.D. Armstrong[a], B. Dabrowski[a,b], [a]Northern Illinois Univ, Dept of Physics, DeKalb, IL; [b]Argonne Natl Lab, Materials Science Div, Argonne, IL.

S8.3
NON-UNIFORMITY OF J_c ACROSS THE THICKNESS OF THICK $Tl_2Ba_2CaCu_2O_8$ AND $HgBa_2CaCu_2O_6$ FILMS. X. Wang, Z.W. Xing, J.Z. Wu, Univ of Kansas, Dept of Physics and Astronomy, Lawrence, KS.

S8.4
$YBa_2Cu_4O_8$: A MODEL SYSTEM FOR GRAIN BOUNDARY STUDIES. Gertjan Koster and Theodore H. Geballe, Geballe Laboratory for Advanced Materials, Stanford University, CA.

S8.5
EFFECT OF PRECURSOR STOICHIOMETRY ON THE SUPERCONDUCTING PROPERTIES OF FLUORINE-FREE SOL GEL YBO THIN FILMS. Donglu Shi, Yongli Xu, Department of Materials Science and Engineering, University of Cincinnati, Cincinnati, OH; Haibo Yao, Bing Zhao, Kai Shi, and Zhenghe Han, Applied Superconductivity Research Center, Tsinghua University, Beijing, CHINA.

S8.6
SYSTEMATICS OF STRAIN EFFECTS ON CRYSTAL STRUCTURE AND CHEMICOPHYSICS PROPERTIES OF 123 SUPERCONDUCTORS. Haibin B. Su, David O. Welch, Department of Materials Science and Engineering, SUNY at Stony Brook, NY; Materials Science Department, Brookhaven National Laboratory, Upton, NY.

S8.7
HIGH-FREQUENCY NONLINEAR SURFACE IMPEDANCE OF A SUPERCONDUCTOR STRIP. Dan Agassi, Naval Surface Warfare Center, Carderock Division, Bethesda, MD; Daniel E. Oates, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA.

S8.8
DIFFRACTION SPACE MAPPING OF EPITAXY, STRAIN, AND TWINNING IN $MBa_2Cu_3O_{(7-x)}$ THIN FILMS ON STRONTIUM TITANATE (100) SUBSTRATES. K. Venkataraman, University of Illinois at Chicago, Chicago, IL; A.J. Kropf, A.K. Cochran, V.A. Maroni, Argonne National Laboratory, Argonne, IL; C.U. Segre, S. Chattopadhyay, Illinois Institute of Technology, Chicago, IL; Q. Jia, S.R. Foltyn, Los Alamos National Laboratory, Los Alamos, NM; A. Goyal, Oak Ridge National Laboratory, Oak Ridge, TN.

S8.9
CRYSTAL ORIENTATIONS OF RE-123 FILMS PREPARED ON $\{110\}<110>$ AND $\{100\}<001>$ TEXTURED Ag TAPES. Toshiya Doi, Yoshinori Hakuraku, Kagoshima Univ, Faculty of Engineering, Kagoshima, JAPAN; Kazunori Onabe, Fujikura Ltd, Tokyo, JAPAN; Michiya Okada, Hitachi Ltd, Ibaraki, JAPAN; Naoji Kashima, Shigeo Nagaya, Chubu Electric Power Co, Nagoya, JAPAN.

S8.10
PHASE RELATIONS IN THE Ba-R-Cu-O AND Ba-Y-Cu-O-F SYSTEMS. Winnie Wong-Ng, Lawrence P. Cook, and Julia Suh, Ceramics Division, NIST, Gaithersburg, MD.

S8.11
CRYSTAL GROWTH OF YBCO COATED CONDUCTOR UNDER LOW PRESSURE ATMOSPHERE. Masateru Yoshizumi, Igor Seleznev, Michael J. Cima, Massachusetts Institute of Technology, Dept. of Materials Science and Engineering, Cambridge, MA.

S8.12
PROPERTIES OF SOLID-SOLUTION $Y_{1-x}Gd_xBa_2Cu_3O_{7-Z}$ SUPERCONDUCTORS IN BULK AND THIN FILM SAMPLES. J.C. Tolliver, T.J. Haugan, M.E. Fowler, T.C. Spry, I. Maartense, P.N. Barnes, Air Force Research Laboratory, Wright-Patterson AFB, OH; M. Sumption, E. Collings, E. Lee, LASM, MSE, The Ohio State University, Columbus, OH.

S8.13
FLUX PINNING ENHANCEMENT of $YBa_2Cu_3O_{7-x}$ THIN FILMS WITH NANOSIZE MULTILAYER ADDITIONS. Tim Haugan, Paul Barnes, Justin Tolliver, C. Brent Cobb, Iman Maartense, Rama Nekkanti, Julie Evans, John Murphy, Air Force Research Laboratory, Wright-Patterson AFB, OH; Eungkuk Lee, Michael Sumption, The Ohio State Univ, LASM-MSE, Columbus, OH.

S8.14
IMPROVEMENT OF IN-PLANE ALIGNMENT OF $SmBa_2Cu_3Oy$ FILMS ON MgO SUBSTRATE BY USING $BaZrO_3$ BUFFER LAYER. Teruo Izumi, Katsuya Hasegawa and Yuh Shiohara, Superconductivity Research Laboratory, International Superconductivity Technology Center, Tokyo, JAPAN; Yoshihiro Sugawara and Tsukasa Hirayama, Japan Fine Ceramics Center, Nagoya, JAPAN; Fumiyasu Oba and Yuichi Ikuhara, Engineering Research Institute, School of Engineering, The University of Tokyo, Tokyo, JAPAN.

S8.15
EFFECT OF OUT-OF-PLANE MISORIENTATION ANGLE ON J_cs OF $YBa_2Cu_3O_{7-d}$ THICK FILMS. R.S. Emergo, S.H. Yun, J.Z. Wu, Univ of Kansas, Dept of Physics and Astronomy, Lawrence, KS.

S8.16
INTERGRAIN J_c CHANGES IN YBCO TAPES WITH ELEVATED TEMPERATURE PROTON IRRADIATION. E. Ibragimova, Inst Nucl Phys, Tashkent, UZBEKISTAN; M. Kirk, Argonne National Laboratory, Argonne, IL; S. Foltyn, Los Alamos National Laboratory, Los Alamos, NM; S. Ferguson, Western Michigan Univ, Kalamazoo, MI; B. Fisher, Argonne National Laboratory, Argonne, IL.

S8.17
IMPROVEMENT OF THE CRITICAL CURRENT DENSITY IN CUPRATE SUPERCONDUCTORS BY POINT DEFECT ENGINEERING. Predrag Kisa, Nicholas G. Eror, University of Pittsburgh, Materials Science and Engineering Department, Pittsburgh, PA.

S8.18
MEASURING THE DEPENDENCE OF CHARGE CARRIER CONCENTRATION ON Ca DOPING AT LOW-ANGLE [001] TILT GRAIN BOUNDARIES IN YBCO. James Buban, Nigel Browning, Univ of Illinois-Chicago, Dept of Physics, Chicago, IL; Xueyan Song, David Larbalestier, Applied Superconductivity Center, Madison, WI.

S8.19
ATOMIC STRUCTURE ORIGIN OF CRITICAL CURRENT

ENHANCEMENT OF Ca DOPED YBCO THIN FILM LOW ANGLE GRAIN BOUNDARIES. Xueyan Song[a], James Buban[b], George Daniels[a], Alex Gurevech[a], Nigel Browning[b], David Larbalestier[a]; [a]Applied Superconductivity Center, University of Wisconsin-Madison, [b]Department of Physics, University of Illinois in Chicago.

S8.20
CHARACTERIZATION OF COATED CONDUCTORS USING NEAR-FIELD SCANNING MICROWAVE AND OPTICAL DUAL PROBE. R.S. Aga Jr., J. Brookman, Z.W. Xing, J.Z. Wu, Univ of Kansas, Dept of Physics and Astronomy, Lawrence, KS.

S8.21
Abstract Withdrawn

S8.22
PREPARATION OF CeO_2 BUFFER LAYERS ON THE ELECTRODEPOSITED NICKEL SUBSTRATES. Young K. Kim, Jaimoo Yoo, and Jaewoong Ko, Korea Inst of Machinery and Materials, Changwon, SOUTH KOREA.

S8.23
LONG LENGTH ALL-SOLUTION COATED CONDUCTOR FABRICATED USING A REEL-TO-REEL DIP-COATING PROCESS. S. Sathyamurthy, M. Paranthaman, D.B. Beach, H-Y. Zhai, H.M. Christen, S. Kang, P.M. Martin, and A. Goyal, Oak Ridge National Laboratory, Oak Ridge, TN.

S8.24
EPITAXIAL GROWTH OF BUFFER LAYER STRUCTURES FOR YBCO COATED CONDUCTORS BY SOL-GEL PROCESS. Yalcin Akin[a,b], Cristiane Bacaltchuk[c], Hamid Garmestani[c], Wolfgang Sigmund[b], Yusuf S. Hascicek[a]; [a]National High Magnetic Field Laboratory, Tallahassee, FL; [b]Univ of Florida, Dept of Materials Science & Eng., Gainesville, FL; [c]FAMU-FSU College of Engineering, Center for Materials Research & Technology, Tallahassee, FL.

S8.25
FORMATION AND THERMAL STABILITY OF THIN CUBE TEXTURED NiO FILM ON Ni AND Ni-ALLOYS GROWN BY THERMAL OXIDATION AS A BUFFER LAYER FOR COATED CONDUCTOR APPLICATIONS. A. Kursumovic, R. Hühne, R. Tomov, B.A. Glowacki, J.E. Evetts and B. Holzapfel[a], IRC in Superconductivity and Department of Materials Science, University of Cambridge, Cambridge, UNITED KINGDOM; [a]IFW Dresden, Institute of Metallic Materials, Dresden, GERMANY.

S8.26
ASSESSMENT OF INSULATING $LaMnO_3$, AND CONDUCTIVE $La_{1-x}A_xMnO_3$ (A=Sr, Ca) PEROVSKITES AS SINGLE OXIDE BUFFER LAYERS FOR $YBa_22Cu_3O_{7-\delta}$ COATED CONDUCTORS. Tolga Aytug, M. Paranthaman, S. Kang, H.Y. Zhai, S. Sathyamurthy, H.M. Christen, D.K. Christen, Oak Ridge National Laboratory, Oak Ridge, TN; R.E. Ericson, 3M Company, St. Paul, MN.

S8.27
CONTINUOUS PREPARATION OF IBAD-MgO TEMPLATES FOR YBCO COATED CONDUCTORS. Sascha Kreiskott, L. Bronisz, A. Findikoglu, B. Gibbons, V. Matias, D. Peterson, Superconductivity Technology Center, Los Alamos National Laboratory, Los Alamos, NM.

S8.28
ON THE DEVELOPMENT OF HIGH STRENGTH AND STRONGLY CUBE TEXTURED COMPOSITE SUBSTRATES FOR HTS APPLICATIONS. V. Subramanya Sarma, J. Eickemeyer, L. Fernandez, IFW Dresden, Dresden, GERMANY; B. de Boer, VDM Krupp GmbH, Altena, GERMANY; B. Holzapfel, IFW Dresden, Dresden, GERMANY.

S8.29
COMPARISON BETWEEN PULSED ELECTRON DEPOSITION AND PULSED LASER DEPOSITION OF RE-BCO FILMS FOR COATED CONDUCTOR APPLICATIONS. Hong-Ying Zhai, Hans M. Christen, Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN.

S8.30
EFFECT OF GAS CLUSTER ION BEAM SMOOTHING ON STRUCTURE AND PROPERTIES OF SUPERCONDUCTING FILMS. Michael S. Hatzistergos, Harry Efstathiadis, Pradeep Haldar, and Alain E. Kaloyeros, School of NanoSciences and NanoEngineering, The University at Albany-SUNY, Albany, NY; Jodi L. Reeves and Venkat Selvamanickam, IGC-SuperPower, Schenectady, NY; Lisa P. Allen, Rory MacCrimmon, Epion Corporation, Billerica, MA.

SESSION S9: COATED CONDUCTORS - I
Chairs: Claudia Cantoni and Teruo Izumi
Thursday Morning, December 5, 2002
Room 306 (Hynes)

8:30 AM *S9.1
DEVELOPMENT OF YBCO-COATED CONDUCTORS BY INCLINED-SUBSTRATE DEPOSITION. U. Balachandran, B. Ma, M. Li, B.L. Fisher, R.E. Koritala, R. Baurceanu, S.E. Dorris, Energy Technology Division, Argonne National Laboratory; D.J. Miller, Materials Science Division, Argonne National Laboratory; K. Venkataraman, and V.A. Maroni, Chemical Technology Division, Argonne National Laboratory, Argonne, IL.

9:00 AM *S9.2
MAGNESIUM OXIDE TEMPLATES FOR YBCO COATED CONDUCTORS. P.N. Arendt, J.R. Groves, S.R. Foltyn, Q.X. Jia, T.G. Holesinger, L.A. Emmert, R.F. DePaula, P.C. Dowden, L. Stan and J.Y. Coulter, Superconductivity Technology Center, Los Alamos National Laboratory, Los Alamos, NM.

9:30 AM *S9.3
DEVELOPMENT OF LOW-COST ALTERNATIVE BUFFER LAYER ARCHITECTURES FOR YBCO-COATED CONDUCTORS. M. Paranthaman, S. Sathyamurthy, T. Aytug, D.B. Beach, S. Kang, A. Goyal, H-Y. Zhai, H.M. Christen, and D.K. Christen, Oak Ridge National Laboratory, Oak Ridge, TN.

10:00 AM BREAK

10:30 AM *S9.4
TEXTURED NICKEL AND ALLOYS FOR RABiTS-PROCESSED COATED CONDUCTORS. K. Marken, B. Czabaj, S. Hong, Oxford Instruments, Superconducting Technology, Carteret, NJ.

11:00 AM S9.5
PROGRESS IN SCALING UP CONTINUOUS COATED CONDUCTOR FABRICATION AT IGC-SUPERPOWER. V. Selvamanickam, Y. Li, H.-G. Lee, J. Reeves, Y. Qiao, and K. Lenseth, IGC-SuperPower, Schenectady, NY.

11:15 AM S9.6
LATEST DEVELOPMENTS IN USING COMBUSTION CHEMICAL VAPOR DEPOSITION TO FABRICATE COATED CONDUCTORS. Adam C. King, Shara S. Shoup, Marvis K. White, Steve L. Krebs, Dave S. Mattox, Todd A. Polley, Natalie Darnell, MicroCoating Technologies, Atlanta, GA; Ken R. Marken, Seung Hong, Bolek Czabaj, Oxford Superconducting Technology, Carteret, NJ.

11:30 AM *S9.7
HTS WIRES BASED ON YBCO COATED CONDUCTORS. U. Schoop, D. Verebelyi, M.W. Rupich, C. Thieme, X. Li, W. Zhang, T. Kodenkandath, D. Buczek, N. Nguyen, American Superconductor, Westborough, MA; A. Goyal, M. Paranthaman, ORNL Oak Ridge, TN.

SESSION S10: COATED CONDUCTORS - II
Chairs: Kenneth Marken and
Mariappan P. Paranthaman
Thursday Afternoon, December 5, 2002
Room 306 (Hynes)

1:30 PM S10.1
ACCELERATED COATED CONDUCTOR INITIATIVE AT LOS ALAMOS NATIONAL LABORATORY. Brady J. Gibbons, Vlad Matias, Alp Findikoglu, Sascha Kreiskott, Larry Bronisz, and Dean Peterson, Superconductivity Technology Center, Los Alamos National Laboratory, Los Alamos, NM.

1:45 PM S10.2
THE THICK FILM ISSUES IN YBCO, Tl-2212 AND Hg-1212 COATED CONDUCTORS. J.Z. Wu, Z.W. Xing, R.S. Emergo, Univ of Kansas, Dept of Physics and Astronomy, Lawrence, KS; D.K. Christen, Oak Ridge National Lab, Oak Ridge, TN; A. Cardona, Superconductor Technology Inc., Santa Barbara, CA; H. Schneidewind, Institute for Physical High Technology, Jena, GERMANY.

2:00 PM *S10.3
DEVELOPMENT OF MOD PROCESSING FOR COATED CONDUCTORS USING TFA PRECURSORS. Teruo Izumi, Tetsuji Honjo, Hiroshi Fuji, Yoshitaka Tokunaga, Shigenobu Asada, Junko Shibata, Ryo Teranishi and Yuh Shiohara, Superconductivity Research Laboratory, ISTEC, Tokyo, JAPAN; Yasuhiro Iijima and Takashi Saito, Fujikura Ltd., Tokyo, JAPAN.

2:30 PM *S10.4
KINETICS OF CONVERSION OF MOD-DERIVED YBCO COATED CONDUCTORS. Michael J. Cima, Igor Seleznev, Masateru Yoshizumi, Massachusetts Institute of Technology, Dept. of Materials Science and Engineering, Cambridge, MA.

3:00 PM BREAK

3:30 PM S10.5
HIGH-J_c YBCO FILMS ON METAL TAPES BY OPTIMIZED CALCINING PROCESS IN METALORGANIC DEPOSITION USING TRIFLUOROACETATES. Toshiharu Niwa, Takeshi Araki, Takemi Muroga, Yasuhiro Iijima, Yutaka Yamada, Takashi Saitoh, Yuh Shiohara and Izumi Hirabayashi, Superconductivity Research Laboratory, Atsuta-ku, Nagoya, JAPAN; Fujikura Ltd., Koto-ku, Tokyo, JAPAN.

3:45 PM S10.6
RECENT ADVANCEMENTS IN THE CHEMICAL SOLUTION DEPOSITION OF $YBa_2Cu_3O_{7-\delta}$ COATED CONDUCTORS. J.T. Dawley, P.G. Clem, Sandia National Laboratories, Albuquerque, NM; R.J. Ong, University of Illinois, Urbana-Champaign; M.P. Siegal, D.L. Overmyer, and J.A. Voigt, Sandia National Laboratories, Albuquerque, NM.

4:00 PM S10.7
MICROSTRUCTURES FOR HIGH-CURRENT DENSITY YBCO FILMS BY NO WATER POST-ANNEALING OF PRECURSOR FILMS INCLUDING BARIUM FLUORIDE. Ataru Ichinose, Shirabe Akita, CRIEPI, Komae, Tokyo, JAPAN; Akihiro Kikuchi, Kiyoshi Inoue, NIMS, Tsukuba, Ibaraki, JAPAN; Kyoji Tachikawa, Tokai Univ, Hiratsuka Kanagawa, JAPAN.

4:15 PM S10.8
PHASE FORMATION OF $Ba_2YCu_3O_{6+x}$ IN THE Ba-Y-Cu-F-O-OH SYSTEM. Winnie Wong-Ng, Igor Levin, Mark D. Vaudin, Lawrence P. Cook, James P. Cline, Ceramics Division, NIST, Gaithersburg, MD; Ron Feenstra, Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN.

4:30 PM S10.9
PHASE EQUILIBRIA IN THE SrO-CuO-TiO_2 SYSTEM; POTENTIAL APPLICATION TO HIGH-TEMPERATURE SUPERCONDUCTORS (HTS). A. Ayala and T.G. Holesinger, Materials Science and Technology Division, Los Alamos National Laboratory, Los Alamos, NM.

4:45 PM S10.10
THICKNESS DEPENDENCE OF J_c OF YBCO COATINGS PRODUCED BY A BaF_2 EX SITU PROCESS. R. Feenstra, A.A. Gapud, D.K. Christen, A. Goyal, F.A. List, L. Heatherly, P.M. Martin, D.M. Kroeger, Oak Ridge National Laboratory, Oak Ridge, TN; D.M. Feldmann, D.C. Larbalestier, University of Wisconsin, Madison, WI; T.G. Holesinger, P.N. Arendt, J.R. Groves, R.F. DePaula, Los Alamos National Laboratory, Los Alamos, NM.