

SYMPOSIUM P

Novel Aspects of Spintronic Materials and Devices

December 2 – 5, 2002

Chairs

Laurens W. Molenkamp Univ of Wurzburg
Hiro Munekata Tokyo Inst of Tech
Christopher J. Palmstrøm Univ of Minnesota
Igor Zutic Univ of Maryland-College Park

Symposium Support
Office of Naval Research

* Invited paper

SESSION P1: SPIN INJECTION
Chair: Igor Zutic
Monday Morning, December 2, 2002
Room 204 (Hynes)

9:00 AM *P1.1
DETECTION OF CURRENT INDUCED SPIN POLARIZATION.
Robert H. Silsbee, Cornell University, Department of Physics, Ithaca, NY.

9:30 AM *P1.2
SPIN INJECTION THROUGH RESISTIVE CONTACTS.
Emmanuel I. Rashba, The State University of New York, Department of Physics, Buffalo, NY.

10:00 AM BREAK

10:30 AM *P1.3
HIGHLY EFFICIENT SPIN INJECTION IN FERROMAGNETIC METAL / INSULATOR / SEMICONDUCTOR TUNNEL STRUCTURES. V.I. Safarov, GPEC, Department of Physics, University Aix-Marseille II, Marseille, FRANCE; V.F. Motsnyi, J. De Boeck, P. van Dorpe, W. van Roy, and G. Borghs, IMEC, Leuven, BELGIUM; E.Goovaerts, University of Antwerpen, Antwerpen, BELGIUM.

11:00 AM *P1.4
SPIN INJECTION AND SCATTERING IN SEMICONDUCTOR HETEROSTRUCTURES. B.T. Jonker, A.T. Hanbicki, G. Kioseoglou, R.M. Stroud and A. Petukhov[†], Naval Research Laboratory, Washington, DC; G. Itskos, R. Mallory and A. Petrou, State University of New York, Buffalo, NY; [†]South Dakota School of Mines & Technology.

11:30 AM P1.5
SPIN DETECTION IN FERROMAGNET-SEMICONDUCTOR SCHOTTKY DIODES. J. Strand^a, A.F. Isakovic^a, C.J. Palmstrøm^b, and P.A. Crowell^a, ^aSchool of Physics and Astronomy, ^bDepartment of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN.

SESSION P2: SPIN INJECTION AND RASHBA EFFECT
Chair: Paul A. Crowell
Monday Afternoon, December 2, 2002
Room 204 (Hynes)

1:45 PM *P2.1
SPIN-INJECTION FROM HALF-METALS AT FINITE TEMPERATURES. L. Chioncel, A.I. Lichtenstein, M.I. Katsnelson, ESM, NSRIM, KUN, Nijmegen, THE NETHERLANDS; G.A. de Wijs, R.A. de Groot, IGM-CMS, Nijmegen, THE NETHERLANDS.

2:15 PM P2.2
SPIN-DEPENDENT CURRENT IN SEMICONDUCTOR ASYMMETRIC SUPERLATTICES. C. Moyses Araujo and A. Ferreira da Silva, Universidade Federal da Bahia, Instituto de Fisica, Bahia, BRAZIL; E.A. de Andrada e Silva, Instituto Nacional de Pesquisas Espaciais-INPE, Sao Paulo, BRAZIL; C. Persson and R. Ahuja, Uppsala University, Department of Physics, Uppsala, SWEDEN.

2:30 PM BREAK

3:00 PM *P2.3
MESOSCOPIC SPINTRONIC DEVICES. Charles M. Marcus, Department of Physics, Harvard University, Cambridge, MA.

3:30 PM *P2.4
TENSILE STRAIN ENHANCEMENT OF THE EXTRAORDINARY MAGNETORESISTANCE OF METAL/SEMICONDUCTOR COMPOSITE STRUCTURES AND THE DISCOVERY OF EXTRAORDINARY PIEZOCONDUCTANCE. A.C.H. Rowe, NEC Research Institute, Princeton, NJ. (In collaboration with D.R. Hines and S.A. Solin).

4:00 PM P2.5
SPIN POLARIZATION IN SEMICONDUCTOR HETERO-STRUCTURES. Jacek A. Majewski, Peter Vogl, Walter Schottky Institute, Technical University of Munich, Garching, GERMANY.

4:15 PM *P2.6
INTERBAND TUNNELING OF SPIN POLARIZED ELECTRONS IN p-(Ga,Mn)As/n-GaAs HETEROJUNCTIONS. Y. Ohno, M. Kohda, K. Takamura, F. Matsukura, and H. Ohno, Tohoku Univ, Research Institute of Electrical Communication, Sendai, JAPAN.

SESSION P3: SPIN INJECTION AND APPLICATIONS
Chair: Berend T. Jonker
Tuesday Morning, December 3, 2002
Room 204 (Hynes)

9:00 AM *P3.1
SPIN INJECTION IN LINEAR AND NON-LINEAR RESPONSE. Georg Schmidt, Physikalisches Institut, Universität Würzburg, Würzburg, GERMANY.

9:30 AM *P3.2
BIPOLAR SPINTRONICS. Jaroslav Fabian, Karl-Franzens Univ Graz, Graz, AUSTRIA.

10:00 AM BREAK

10:30 AM *P3.3
SPIN-POLARIZED TUNNELING THROUGH SINGLE-CRYSTAL GaAs BARRIERS. S. Kreuzer, J. Moser, M. Zenger, W. Wegscheider, D. Weiss, Experimentelle und Angewandte Physik, Universitaet Regensburg, Regensburg, GERMANY.

11:00 AM *P3.4
MAGNETIC TUNNEL TRANSISTORS: A SOURCE OF HIGHLY SPIN POLARIZED ELECTRON CURRENT. Stuart S.P. Parkin, Xin Jiang, Sebastiaan van Dijken, Roger Wang, Bob Shelby, Roger MacFarlane, IBM Research Division, Almaden Research Center, San Jose, CA; Glenn Solomon and James Harris, Solid State Photonics Laboratory, Stanford University, Stanford, CA.

11:30 AM P3.5
FABRICATION OF NANOSCALE PERMALLOY-SILICON STRUCTURES IN SPIN VALVE GEOMETRY. S. Hacia, T. Last, S.F. Fischer and U. Kunze, Werkstoffe und Nanoelektronik, Ruhr-University Bochum, Bochum, GERMANY.

SESSION P4: FROM MAGNETORESISTANCE TO QUANTUM COMPUTING
Chair: Hiro Munekata
Tuesday Afternoon, December 3, 2002
Room 204 (Hynes)

1:30 PM *P4.1
MAGNETORESISTIVE SWITCH EFFECT IN METAL/ SEMICONDUCTOR HYBRID STRUCTURES. Hiro Akinaga, SYNAF-AIST, Tsukuba, JAPAN.

2:00 PM P4.2
Abstract Withdrawn

2:15 PM P4.3
SPIN POLARIZED TUNNELING IN DELTA DOPED RESONANT TUNNELING DEVICES. Derek A. Stewart, Sandia National Laboratories, Livermore, CA; Mark van Schilfgaarde, Arizona State University, Dept of Materials, Tempe, AZ.

2:30 PM P4.4

MAGNETIC FIELD DEPENDENT DIELECTRIC CONSTANT IN SeCuO_3 . G. Lawes, Los Alamos National Laboratory, Los Alamos, NM; M.A. Subramanian, DuPont Central Research and Development, Experimental Station, Wilmington, DE; A.P. Ramirez, Los Alamos National Laboratory, Los Alamos, NM.

2:45 PM BREAK**3:15 PM P4.5**

MANIPULATION OF FREE 2D ELECTRON SPINS IN Si BY PULSED ESR. Alexei Tyryshkin, S.A. Lyon, Princeton Univ, Electrical Engineering Department, Princeton, NJ; W. Jantsch, F. Schäffler, Institut für Halbleiter- und Festkörperphysik, Univ of Linz, Linz, AUSTRIA.

3:30 PM P4.6

RABI-BEAT ECHOES OF SPIN-DEPENDENT CHARGE CARRIER RECOMBINATION RATES. Christoph Boehme, Klaus Lips, Hahn-Meitner-Institut Berlin, Berlin, GERMANY.

3:45 PM P4.7

MATERIALS ENGINEERING TOWARDS REALIZATION OF AN ALL SILICON QUANTUM COMPUTER. T. Sekiguchi, Y. Matsumoto, and Kohei M. Itoh, Keio Univ, Dept Applied Physics and CREST-JST.

4:00 PM P4.8

INVESTIGATION OF SPIN LIFETIMES IN N-TYPE GALLIUM-ARSENIDE FOR FREE BAND ELECTRON SPINS AND DONOR SPINS ACROSS THE METAL-INSULATOR TRANSITION. Marcus Heidkamp, Aberrahmane Oulmqadem, Thomas Rohleder, Andrea Tillmanns, Bernd Beschoten, and Gernot Güntherodt, RWTH Aachen, 2. Physikalisches Institut, Aachen, GERMANY.

4:15 PM P4.9

G-FACTOR ENGINEERING OF InGaAs/InP HETERO-STRUCTURES. Edward T. Croke, Andrew T. Hunter, Bin Shi, HRL Laboratories, LLC, Malibu, CA; Robert N. Schwartz, Department of Chemistry and Biochemistry, University of California, Los Angeles, Los Angeles, CA.

4:30 PM P4.10

TRANSPORT SIMULATION OF PRECESSING SPIN DISTRIBUTION ACROSS SEMICONDUCTOR HETERO-JUNCTIONS. Paul von Allmen and Gerhard Klimeck, NASA, Jet Propulsion Lab, California Institute of Technology, Pasadena, CA.

4:45 PM P4.11

OPTICAL ORIENTATION AND FEMTOSECOND SPECTROSCOPY OF SPIN POLARIZED HOLES IN GALLIUM ARSENIDE. D.J. Hilton and C.L. Tang, School of Electrical and Computer Engineering, Cornell University, Ithaca, NY.

SESSION P5: POSTER SESSION
SPINTRONIC MATERIALS AND APPLICATIONS

Chair: John Y.T. Wei
Tuesday Evening, December 3, 2002
8:00 PM
Exhibition Hall D (Hynes)

P5.1

PLD GROWTH OF NOVEL MAGNETIC SEMICONDUCTOR Cr-DOPED ZnO AND ITS OPTO-SPINTRONIC PROPERTIES. Issei Satoh, Takeshi Kobayashi, Takanori Okada, Tadashi Itoh, Teruho Ono, Saburo Nasu, Dept of Physical Science, Grad Sch of Engineering Science, Osaka Univ, Osaka, JAPAN.

P5.2

MAGNETISM IN (Ga,Cr)As. A. Dakhama, B. Lakshmi, D. Heiman, Northeastern Univ, Dept of Physics, Boston, MA.

P5.3

CROSS-SECTIONAL STM AT THE EDGE: CHARACTERIZING SPINTRONIC HETEROSTRUCTURE INTERFACES. G.I. Boishin[†], A.T. Hanbicki, B.T. Jonker, and L.J. Whitman, Naval Research Laboratory, Washington, DC. [†](An employee of Nova Research, Inc., Alexandria, VA.)

P5.4

THE ELECTRONIC STRUCTURE OF RARE EARTH PNICTIDES ErAs. Takashi Komatsu, Jaewu Choi, C.N. Borca, Hae-Kyung Jeong, P.A. Dowben, University of Nebraska-Lincoln, Dept. of Physics and Astronomy, Lincoln, NE; Andre Petukhov, South Dakota School of Mines and Technology, Rapid City, SD; B.D. Schultz, and C.J.

Palmström, University of Minnesota, Dept. of Chemical Engineering and Material Science, Minneapolis, MN.

P5.5

SINGLE CRYSTALS OF DILUTE MAGNETIC SEMICONDUCTORS: GROWTH AND CHARACTERIZATION. B.C. Sales, D. Mandrus, R. Jin, J.R. Thompson, L.A. Boatner, J.O. Ramey, H.A. Mook Jr., Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN.

P5.6

FERROMAGNETISM ABOVE ROOM TEMPERATURE IN AIMnAs-CLUSTER STRUCTURES GROWN BY METAL ORGANIC VAPOUR PHASE EPITAXY. Michael Lampalzer, Kerstin Volz, Werner Treutmann, Siegfried Nau, Torsten Torunski, Wolfgang Stolz, Philipps-University Marburg, Materials Sciences Center, Marburg, GERMANY.

P5.7

A KEY TO ROOM TEMPERATURE FERROMAGNETISM IN Fe-DOPED ZnO:Cu. S.-J. Han, J.W. Song, C.-H. Yang, S.H. Park, J.-H. Park, Y.H. Jeong, Pohang Univ of Science and Technology, Dept of Physics and eSSC, Pohang, S. KOREA.

P5.8

BREAKDOWN OF Al / AlO₂ / Al TUNNELING JUNCTIONS. Takeshi Morozumi, Hideo Kaiju, Shigeo Fujita, Shiiki Kazuo, Keio Univ, Dept of Applied Physics and Physico-Informatics, Yokohama, JAPAN.

P5.9

HIGH-FREQUENCY DIELECTRIC CONSTANT CHARACTERISTICS OF SPIN TUNNELING JUNCTIONS. Hideo Kaiju, Naoaki Hirabayashi, Takeshi Morozumi, Shigeo Fujita, Kazuo Shiiki, Keio Univ, Dept of Applied Physics and Physico-Informatics, Yokohama, JAPAN.

P5.10

Abstract Withdrawn

P5.11

SPIN RELAXATION AND DEPHASING IN A GaAs QUANTUM WELL. Vadim I. Puller, Lev G. Mourokh, Norman J.M. Horing, Department of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, NJ; Anatoly Yu. Smirnov, D-Wave Systems Inc., Vancouver, BC, CANADA.

P5.12

QUANTUM CONFINEMENT EFFECTS ON SPIN WAVES IN A FERROMAGNETIC FILM. E. Hernan Vivas C., Juan Carlos Granada E., Universidad del Valle, Departamento de Fisica, Santiago de Cali, COLOMBIA.

P5.13

LOW-FIELD TRANSVERSE MAGNETOVOLTAGE IN MANGANITE FILMS. V. Moshnyaga, S.A. Köster and K. Samwer, I. Physikalisches Institut, Universität Göttingen, GERMANY.

P5.14

CURIE TEMPERATURES OF MAGNETICALLY HEAVILY DOPED III-V/Mn ALLOYS. S. Souma^a, S.J. Lee^{a,b}, N. Kim^{a,b}, T.W. Kang^a; ^a Dongguk University, Quantum-Functional Semiconductor Research Center, Seoul, KOREA; ^b Dept. of Physics, University at Buffalo, Buffalo, NY.

P5.15

INVESTIGATIONS ON Co-DOPED TiO₂ THIN FILMS PREPARED BY SPRAY PYROLYSIS. A. Manivannan, Department of Physics, West Virginia University, Morgantown, WV; S.B. Majumder, P.S. Dopal and R.S. Katiyar, Department of Physics, University of Puerto Rico, San Juan, PR.

P5.16

ADVANTAGE OF NITROGEN-RICH GROWTH FOR INCORPORATION OF MANGANESE INTO GaN USING RF PLASMA MOLECULAR BEAM EPITAXY. Costel Constantin, Muhammad Haider, Hamad Al-Britihen, and Arthur R. Smith, Ohio University, Dept. of Physics and Astronomy, Athens, OH.

P5.17

FORMATION OF Co NANOCCLUSERS IN EPITAXIAL Ti_{0.96}Co_{0.04}O₂ THIN FILMS AND THEIR FERROMAGNETISM. D.H. Kim, J.S. Yang, K.W. Lee, S.D. Bu, and T.W. Noh, ReCOE and School of Physics, Seoul National University, Seoul, KOREA; S.-J. Oh, CSCMR and School of Physics, Seoul National University, Seoul, KOREA; Y.-W. Kim, School of Materials Science and Engineering, Seoul National University, Seoul, KOREA; J.-S. Chung, Department

of Physics, Soongsil University, Seoul, KOREA; H. Tanaka, H.Y. Lee, and T. Kawai, ISIR, Osaka University, Osaka, JAPAN.

P5.18

SWITCH PHENOMENA IN $\text{La}_{2/3}\text{Mn}_{1/3}\text{O}_3/\text{Eu}_2\text{CuO}_4/\text{La}_{2/3}\text{Mn}_{1/3}\text{O}_3$ RAMP-TYPE JUNCTIONS. W.H. Tang^{a,b}, T.L. Kam^b and J. Gao^b; ^aInstitute of Physics & Center for Condensed Matter Physics, Chinese Academy of Sciences, Beijing, CHINA;

^bDepartment of Physics, the University of Hong Kong, Hong Kong, CHINA.

P5.19

SPIN RELAXATION AND CARRIER TRANSPORT IN DIAMAGNETICALLY DILUTED PEROVSKITE MANGANITES. Natalia Noginova, Empress Arthur, George B. Loutts, Center for Materials Research, NSU, VA; Vadim A. Atsarkin, IRE, Moscow, RUSSIA.

P5.20

ELECTRONIC STRUCTURE AND MAGNETISM IN MnN COMPOUNDS. Margarita Prikhodko and Walter R.L. Lambrecht, Case Western Reserve University, Cleveland, OH.

P5.21

Abstract Withdrawn

P5.22

EFFECT OF THE DIFFERENT HARD MAGNETIC LAYER ON THE RIGIDITY OF ARTIFICIAL ANTIFERROMAGNETIC SANDWICH IN SPIN VALVE STRUCTURES. Jianguo, Zhu, Dept of Materials Science, Sichuan University, Chengdu, P.R. CHINA; Zhenghohh Qian, Nonvolatile Electronics, Inc, Eden Prairie, MN; Jack H. Judy, Dept of Electrical and Computer Engineering, University of Minnesota, MN.

SESSION P6: FERROMAGNETIC SEMICONDUCTORS - I

Chair: Mark van Schilfgaarde
Wednesday Morning, December 4, 2002
Room 204 (Hynes)

8:30 AM *P6.1

SPIN-POLARIZATION AND ELECTRONIC STRUCTURE OF Mn CONTAINING DILUTE MAGNETIC III-V SEMICONDUCTORS. James R. Chelikowsky, Leeor Kronik, and Manish Jain, University of Minnesota, Department of Chemical Engineering and Materials Science, Minneapolis, MN.

9:00 AM P6.2

PREPARATION AND PHYSICAL PROPERTIES OF (Ga,In,Mn)N EPILAYERS. T. Kondo, A. Oiwa, H. Owa and H. Munekata, Imaging Science and Engineering Laboratory, Tokyo Institute of Technology, Yokohama, JAPAN.

9:15 AM *P6.3

IMPURITY BAND AND EFFECTIVE SPIN MODELS FOR THE MAGNETIC PROPERTIES OF DILUTED MAGNETIC SEMICONDUCTORS. R.N. Bhatt, Department of Electrical Engineering and Princeton Materials Institute, Princeton University, Princeton, NJ.

9:45 AM P6.4

ALTERNATIVE DOPING STRATEGIES IN THE GaMnP SYSTEM. M.E. Overberg, G.T. Thaler, R.M. Frazier, S.J. Pearton, C.R. Abernathy, Dept of Materials Science and Engineering, University of Florida, Gainesville, FL; N. Theodoropoulou, A. Hebard, Dept of Physics, University of Florida, Gainesville, FL; R.G. Wilson, Stevenson Ranch, CA; J.M. Zavada, US Army Research Office, Research Triangle, NC.

10:00 AM BREAK

10:30 AM P6.5

FERROMAGNETISM IN DILUTE MAGNETIC SEMICONDUCTORS. Priya Mahadevan and Alex Zunger, NREL, Golden, CO.

10:45 AM *P6.6

THERMODYNAMIC LIMITS TO THE MAXIMUM CURIE TEMPERATURE IN GaMnAs. W. Walukiewicz, and K.M. Yu, Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; T. Wojtowicz, University of Notre Dame, Notre Dame, IN and Institute of Physics, Polish Academy of Sciences, Warsaw, POLAND; J.K. Furdyna, University of Notre Dame, Notre Dame, IN.

11:15 AM P6.7

THEORY OF FERROMAGNETIC TRANSITION IN MAGNETICALLY DOPED SEMICONDUCTORS. V.K. Dugaev, M. Vieira, Inst Superior de Engenharia de Lisboa, Dept of Electronics and Communications, Lisbon, PORTUGAL; V.I. Litvinov, WaveBand Corp, Torrance, CA; J. Barnaś, Adam Mickiewicz Univ, Dept of Physics, Poznań, POLAND.

11:30 AM P6.8

ROOM-TEMPERATURE FERROMAGNETISM IN DIAMOND-LIKE TERNARY SEMICONDUCTORS. G.A. Medvedkin, Ioffe Physico-Technical Inst, Div of Solid State Physics, St. Petersburg, RUSSIA.

SESSION P7: FERROMAGNETIC SEMICONDUCTORS - II

Chair: Alex Zunger
Wednesday Afternoon, December 4, 2002
Room 204 (Hynes)

1:30 PM *P7.1

CONTROL OF MAGNETIZATION ORIENTATION BY OPTICALLY GENERATED SPIN-POLARIZED CARRIERS IN III-V FERROMAGNETIC SEMICONDUCTORS. Akira Oiwa, Rai Moriya, Yukiya Kashimura, and Hiroo Munekata, Imaging Science and Engineering Laboratory, Tokyo Institute of Technology, JAPAN; Tomasz Slupinski, Institute of Experimental Physics, Warsaw University, POLAND; Yasuyoshi Mitsumori, Communications Research Laboratory, JAPAN.

2:00 PM P7.2

STUDY ON THE MAGNETIZATION OF GaSb/Mn DIGITAL ALLOYS. N. Kim, S.J. Lee, H. Luo, B.D. McCombe, SUNY at Buffalo, Department of Physics, Buffalo, NY; T.W. Kang, Dongguk University, Quantum-functional Semiconductor Research Center, Seoul, KOREA.

2:15 PM P7.3

MAGNETIC EXCHANGE INTERACTIONS IN TRANSITION METAL DOPED III-V SEMICONDUCTORS. M. van Schilfgaarde, S.Y. Wu, H.X. Liu and N. Newman, Arizona State University, Dept of Chemical and Materials Engineering, Tempe, AZ.

2:30 PM P7.4

STRUCTURE AND CHEMISTRY OF ZnSe/GaMnAs/ZnSe HETEROSTRUCTURES GROWN ON GaAs. Guoda Lian, Elizabeth Dickey, Dept of Materials Science and Engineering, Pennsylvania State University, University Park, PA; Seung-Hyun Chun, Nitin Samarth, Dept of Physics, Pennsylvania State University, University Park, PA.

2:45 PM BREAK

3:15 PM *P7.5

FERROMAGNETISM IN EPITAXIAL Co-DOPED TiO₂ ANATASE - DILUTED MAGNETIC SEMICONDUCTOR OR METALLIC CLUSTERS? S.A. Chambers, T. Droubay, S. Thevuthasan, D.E. McCready, S. Lea, C. Wang, C.F. Windisch, Jr, S.M. Heald, Fundamental Science Division, Pacific Northwest National Laboratory, Richland, WA; R.F.C. Farrow, R.F. Marks, J.-U. Thiele, M. Toney, L. Folks, S. Anders, M.G. Samant, IBM Almaden Research Center, San Jose, CA.

3:45 PM P7.6

INVESTIGATION OF LATTICE OCCUPANCY OF Co ATOMS IN Co-DOPED DILUTE MAGNETIC OXIDE FILMS PREPARED BY PULSED LASER DEPOSITION. V.N. Kulkarni, S.B. Ogale, S.R. Shinde, Y.G. Zhao, R. Choudhary, R.L. Greene and T. Venkatesan, CSR, Department of Physics, University of Maryland, College Park, MD.

4:00 PM P7.7

FERROMAGNETISM IN TM-DOPED SEMICONDUCTING OXIDES. Mat Ivill, David Norton, Stephen Pearton, B.-S. Jeong, Young Woo Heo, V. Varadarajan, Univ of Florida, Dept of Materials Science and Engr, Gainesville, FL; Arthur Hebard, N. Theodoropoulou, University of Florida, Dept of Physics, Gainesville, FL; Lynn Boatner, Solid State Div, Oak Ridge National Laboratory, Oak Ridge, TN; Y. Park, Seoul National Univ, Seoul, SOUTH KOREA; R. Wilson, Stevenson Ranch, CA.

4:15 PM P7.8

STRUCTURE AND PROPERTIES OF DILUTE MAGNETIC SEMICONDUCTORS FORMED BY IMPLANTATION AND PULSED LASER MELTING. M.A. Scarpulla, O.D. Dubon, University of California at Berkeley, Dept of Materials Science and

Engineering, Berkeley, CA; K.M. Yu, O. Monteiro, Z. Liliental-Weber, Lawrence Berkeley National Laboratory, Berkeley, CA; M. Pillai, M.J. Aziz, Harvard University, Division of Engineering and Applied Sciences, Cambridge, MA; M.C. Ridgway, Australian National University, Dept of Electronic Materials Engineering, Research School of Physical Sciences and Engineering, Canberra, AUSTRALIA.

4:30 PM P7.9

MICROSTRUCTURAL INVESTIGATIONS OF FERROMAGNETIC (In,Mn)As GROWN BY METALORGANIC VAPOR PHASE EPITAXY. A.J. Blattner, P.L. Prabhuramirashi, V.P. Dravid, B.W. Wessels, Northwestern University, Department of Materials Science and Engineering and Materials Research Center, Evanston, IL.

SESSION P8: HALF-METALS AND SPIN INJECTION IN SUPERCONDUCTORS

Chair: Christopher J. Palmström
Thursday Morning, December 5, 2002
Room 204 (Hynes)

8:30 AM P8.1

A NEW FAMILY OF HALF-METALLIC FERROMAGNETS. A. Holm, S. Kauzlarich, W. Pickett, University of California Davis, Davis, CA; S.A. Morton, G.D. Waddill, University of Missouri-Rolla, Rolla, MO; J.G. Tobin, Lawrence Livermore National Laboratory, Livermore, CA.

8:45 AM P8.2

SPIN POLARIZED PHOTOEMISSION STUDY OF MAGNETITE FILMS: EVIDENCE FOR HALF METALLIC BEHAVIOR. S.A. Morton, G.D. Waddill, University of Missouri-Rolla; S. Kim, Ivan Schuller, University of California San Diego; S. Chambers, Pacific Northwest National Laboratory; J.G. Tobin, Lawrence Livermore National Laboratory.

9:00 AM P8.3

ANOMALOUS MAGNETOTRANSPORT PROPERTIES OF EPITAXIAL FULL HEUSLER ALLOYS. M.S. Lund, J.W. Dong, J. Lu, X.Y. Dong, C.J. Palmström and C. Leighton, Dept. of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN.

9:15 AM P8.4

COHERENT MAGNETIZATION ROTATION AND PHASE CONTROL BY ULTRASHORT OPTICAL PULSES IN CrO₂ THIN FILMS. Qiang Zhang, A.V. Nurmikko, Division of Engineering and Department of Physics, Brown University, Providence, RI; A. Anguelouch, G. Xiao, Department of Physics, Brown University, Providence, RI; A. Gupta, IBM T.J. Watson Research Center, Yorktown Heights, NY.

9:30 AM *P8.5

SPIN POLARIZATION OF CrO₂ ACROSS AN ARTIFICIAL BARRIER: AN ANALYSIS WITH ZEEMAN-SPLITTING OF ANDREEV CONDUCTANCE. Peng Xiong, J.S. Parker, J.G. Braden, S.M. Watts, P.G. Ivanov, P. Schlottmann, and S. von Molnár, Department of Physics and MARTECH, Florida State University, Tallahassee, FL.

10:00 AM BREAK

10:30 AM *P8.6

STM PROBE OF PAIR-BREAKING BY SPIN-INJECTION IN CUPRATE/MANGANITE THIN-FILM STRUCTURES. John Wei, Department of Physics, University of Toronto, CANADA.

11:00 AM *P8.7

MAGNETIC FIELD SCALING OF THE CONDUCTANCE OF EPITAXIAL CUPRATE MANGANITE BILAYERS. Anand Bhattacharya, P.A. Kraus and Allen M. Goldman, School of Physics and Astronomy, University of Minnesota, Minneapolis, MN.

11:30 AM P8.8

STRAIN AND DEVICE PERFORMANCE OF Sr₂FeMoO₇ THIN FILMS. A. Venimadhav, Dept of Materials Science and Metallurgy, Cambridge University, Cambridge, UNITED KINGDOM; J.P. Atfield, Dept of Chemistry, Cambridge University, Cambridge, UNITED KINGDOM; M. Blamire, Dept of Materials Science and Metallurgy, Cambridge University, Cambridge, UNITED KINGDOM.

11:45 AM P8.9

MAPPING OF MAGNETIC PHASE DIAGRAMS OF HEUSLER ALLOY SYSTEMS USING A COMPOSITION SPREAD TECHNIQUE. O. Famodu, J.C. Read, M. Aronova, F.C. Wellstood, M. Wuttig, and I. Takeuchi, Univ of Maryland, College Park, MD.

SESSION P9: FROM MANGANITES TO ORGANIC SPINTRONIC MATERIALS - I

Chairs: Anand Bhattacharya and Arthur J. Epstein
Thursday Afternoon, December 5, 2002
Room 204 (Hynes)

1:30 PM P9.1

PHOTO-INDUCED MAGNETISM IN La_{0.5}Pr_{0.5}CrO₃. Masato Arai, Mitsuru Izumi, Tokyo Univ. Merc. Marine, Lab. Appl. Phys., Koto-ku, Tokyo, JAPAN; Osami Yanagisawa, Yuge National Col. of Maritime Technology, Yuge, Ehime, JAPAN.

1:45 PM P9.2

ELECTRIC FIELD MODULATION OF DOUBLE EXCHANGE FERROMAGNETISM AT ROOM TEMPERATURE IN THE PEROVSKITE MANGANITE BASED SPINTRONIC DEVICE. Hidekazu Tanaka, Inst. of Scientific and Industrial Research, Osaka Univ., Osaka, JAPAN, and PRESTO, Japan Science and Technology Corporation; Teruo Kanki, Jun Zhang, Tomoji Kawai, Inst. of Scientific and Industrial Research, Osaka Univ., Osaka, JAPAN.

2:00 PM P9.3

COMPOSITE MANGANITE THIN FILMS: AN APPROACH TO CONTROL THE MAGNETOTRANSPORT PROPERTIES. V. Moshnyaga, S.A. Köster, B. Damaschke and K. Samwer, I. Physikalisches Institut, Universität Göttingen, GERMANY; O. Shapoval and A. Belenchuk, Institute of Applied Physics, Chisinau, MOLDOVA; O.I. Lebedev and G. van Tendeloo, EMAT, University of Antwerp (RUCA), BELGIUM.

2:15 PM P9.4

INVESTIGATION OF ELECTRON-PHONON INTERACTION AND ELECTRON DENSITY OF STATES IN SINGLE CRYSTALS OF La_{0.75}Sr_{0.25}MnO₃ AND La_{0.7}Ca_{0.3}MnO₃ BY POINT CONTACT SPECTROSCOPY AND SCANNING TUNNELING SPECTROSCOPY. J. Mitra, A.K. Raychaudhuri, Department of Physics, Indian Institute of Science, Bangalore, INDIA.

2:30 PM P9.5

COLLECTIVE MAGNON-POLARON AND LOCALIZED SPIN-POLARON REGIMES IN THE SPECIFIC HEAT AND ELECTRICAL RESISTIVITY OF La_{0.6}Y_{0.1}Ca_{0.3}MnO₃ IN ZERO MAGNETIC FIELD: THE EFFECT OF O-Mn-O BOND ENVIRONMENT. M. Ausloos, S. Dorbolo, R. Cloots, SUPRAS, Université de Liège, Liège, Euroland and A. Gilabert, Université de Nice-Sophia Antipolis, Nice, FRANCE.

2:45 PM BREAK

SESSION P10/NN7: JOINT SESSION FROM MANGANITES TO ORGANIC SPINTRONIC MATERIALS - II

Chairs: Anand Bhattacharya and Arthur J. Epstein
Thursday Afternoon, December 5, 2002
Room 204 (Hynes)

3:15 PM *P10.1/NN7.1

HYBRID SPINTRONICS: A NEW PERSPECTIVE FOR ORGANIC SEMICONDUCTORS IN SPINTRONICS. I. Bergenti, V. Dediu, P. Nozar, G. Ruani, M. Murgia C. Taliani, ISMN-Bo, CNR, Bologna, ITALY.

3:45 PM P10.2/NN7.2

ORGANIC SEMICONDUCTOR MAGNETO-ELECTRONICS. Albert H. Davis, Konrad Bussmann, Materials Physics Branch, Naval Research Laboratory, Washington, DC.

4:00 PM *P10.3/NN7.3

SPIN-DRIVEN RESISTANCE IN ORGANIC-BASED MAGNETIC SEMICONDUCTOR V[TCNE]_x (x~2). N.P. Raju, Vladimir N. Prigodin, Kostia I. Pokhodnya, Arthur J. Epstein, Department of Physics and Department of Chemistry, The Ohio State University, Columbus, OH; Joel S. Miller, Department of Chemistry, University of Utah, Salt Lake City, UT.