SYMPOSIUM Q

Magnetoelectronics—Novel Magnetic Phenomena in Nanostructures

December 1 – 5, 2002

Chairs

Ivan K. Schuller	Univ of California-San Diego
Gernot Guntherodt	RWTH Aachen
Andrew D. Kent	New York Univ
Teruya Shinjo	International Inst for Advanced Studies
Shufeng Zhang	Univ of Missouri-Columbia

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* Invited paper

TUTORIAL

FT Q: MAGNETOELECTRONICS AND NOVEL MAGNETIC PHENOMENA IN NANOSTRUCTURES
Sunday, December 1, 2002
10:00 a.m. - 5:00 p.m.
Room 209 (Hynes)

This tutorial will provide an introduction to the structural, magnetic, and transport properties of artificially engineered magnetic structures, consisting of tunneling devices, superlattices, molecular nanomagnets, and other nanostructures. A focus will be on the phenomena of giant magnetoresistance (GMR), tunneling magnetoresistance (TMR), magnetic quantum tunneling, spin-dependent transport in confined geometries, exchange bias, current-induced magnetic moment rotations and non-equilibrium spin transfer in metal systems. The speakers will coordinate their presentations to cover these topics, providing background information, a discussion of central theoretical ideas and experimental results, and the current state of the art in materials and devices. The tutorial will also include discussion of applications to magnetic field sensors, magnetic recording, and MRAM. The intention of the tutorial is to give attendees a basic and broad introduction to this rapidly moving field of materials research.

Instructors:
Sadamichi Maekawa, Tohoku University
Stuart S.P. Parkin, IBM Almaden Research Center
Dan Ralph, Cornell University
Chris Leighton, University of Minnesota
David Hendrickson, University of California, San Diego

SESSION Q1: MAGNETIC SYSTEMS
Chairs: Teruya Shinjo and Andrew D. Kent
Monday Morning, December 2, 2002
Room 209 (Hynes)

8:30 AM *Q1.1
HALF-INTEGER SPIN MOLECULAR NANOMAGNETS. David N. Hendrickson, Sheila M.J. Aubin, Ziming Sun, University of California at San Diego, Dept. of Chemistry, La Jolla, CA; Wolfgang Wernsdorfer, Laboratoire L. Neél, Grenoble, FRANCE; George Christou, Sumit Bhaduri, Núria Aliaga-Alcalde, University of Florida, Dept. of Chemistry, Gainesville, FL.

9:00 AM *Q1.2
MAGNETIC STRUCTURES AND MAGNETORESISTANCE OF MAGNETIC NANODOTS AND NANOWIRES. Ko Mibu, Kyoto Univ, Research Center for Low Temperature and Materials Sciences, Uji, JAPAN; Takuya Okuno, Kousaku Miyake, Kyoto Univ, Institute for Chemical Research, Uji, JAPAN; Kunji Shigeto, RIKEN, Frontier Research System, Wako, JAPAN; Teruo Ono, Osaka Univ, Graduate School of Engineering Science, Toyonaka, JAPAN; Teruya Shinjo, International Institute for Advanced Studies, Kizu, JAPAN.

9:30 AM *Q1.3
DEFECTS, TUNNELING AND EPR. Kyungwha Park, Florida State Univ, Dept of Chemistry and School of Computational Science and Information Technology (CSIT), Tallahassee, FL; M.A. Novotny, Mississippi State Univ, Dept of Physics and Astronomy, Mississippi State, MS; N.S. Dalal, Florida State Univ, Dept of Chemistry, Tallahassee, FL; S. Hill, Univ of Florida, Dept of Physics, Gainesville, FL; P.A. Rikvold, Florida State Univ, CSIT, Dept of Physics and Center for Materials Research and Technology, Tallahassee, FL.

10:00 AM BREAK

10:30 AM *Q1.4
SINGLE CRYSTAL EPR SPECTROSCOPY OF SINGLE MOLECULE MAGNETS. Stephen Hill, University of Florida, Dept. of Physics, Gainesville, FL; Naresh Dalal, Florida State University, Dept. of Chemistry and NHMFL, Tallahassee, FL; Kyungwha Park, Florida State University, Dept. of Physics and CSIT, Tallahassee, FL; George Christou, University of Florida, Dept. of Chemistry, Gainesville, FL; David Hendrickson, University of California at San Diego, Dept. of Chemistry, La Jolla, CA; Andrew Kent, New York University, Dept. of Physics, New York, NY.

11:00 AM *Q1.5
THE EXTRAORDINARY HIGH ROOM TEMPERATURE SPIN POLARIZATION OF EPITAXIAL $CrO_2(100)$ AND $Fe_3O_4(111)$ THIN FILMS. U. Rüdiger, Y. Dedkov, M. Fonine, C. König, and G. Güntherodt, II. Physikalisches Institut, RWTH Aachen, GERMANY.

11:30 AM Q1.6
STRUCTURE AND MAGNETIC PROPERTIES OF ULTRATHIN EPITAXIAL $La_{0.7}Ca_{0.3}MnO_3$ FILMS: STRAIN VERSUS FINITE SIZE EFFECTS. A. de Andres[a], J. Rubio[b], G. Castro[a,b], S. Taboada[a], C. Prieto[a], J.L. Martinez[a], J. Colino[c], M. Garcia-Hernandez[a], M. Varela[d], J. Santamaria[d]; [a]Instituto de Ciencia de Materiales de Madrid-CSIC, SPAIN; [b]ESRF, Grenoble, FRANCE; [c]Universidad de Castilla-la-Mancha, SPAIN; [d]Dept. Fisica Aplicada III, Universidad Complutense de Madrid, SPAIN.

11:45 AM Q1.7
INTERFACIAL INTERACTIONS IN FRACTIONAL-LAYER OXIDE SUPERLATTICES. Naoyuki Nakagawa, Mikk Lippmaa, Keisuke Shibuya, Univ of Tokyo, Inst for Solid State Materials, Kashiwa, JAPAN; Hideomi Koinuma, Tokyo Inst of Tech, Materials and Structures Lab, Yokohama, JAPAN; Masashi Kawasaki, Tohoku Univ, Inst for Materials Research, Sendai, JAPAN.

SESSION Q2: MAGNETIC MULTILAYERS
Chairs: Jagadeesh S. Moodera and
Hanns-Ulrich J. Habermeier
Monday Afternoon, December 2, 2002
Room 209 (Hynes)

1:30 PM Q2.1
EXPLORING MICROMAGNETIC INTERLAYER COUPLING BY LAYER-RESOLVED MAGNETIC MICROSCOPY. Wolfgang Kuch, L.I. Chelaru, K. Fukumoto, F. Offi, X. Gao, M. Kotsugi, J. Kirschner, Max-Planck-Institut für Mikrostrukturphysik, Halle, GERMANY.

1:45 PM Q2.2
DOMAIN WALL MAGNETORESISTANCE AND COMPLEX MAGNETIC RESPONSE IN ANTIFERROMAGNETICALLY COUPLED Fe/Cr MULTILAYERS. Farkhad Aliev, Raul Villar, Dpto. de Fisica de la Materia Condensada, C-III, Universidad Autonoma de Madrid, SPAIN; Rainer Schad, CMIT, University of Alabama, Tuscaloosa, AL; Jose Luis Martinez, ICMM-CSIC, Cantoblanco, Madrid, SPAIN.

2:00 PM Q2.3
STRUCTURAL, MAGNETIC AND MAGNETORESISTIVE PROPERTIES OF THE ELECTROCHEMICALLY DEPOSITED ARRAYS OF Co NANOWIRES AND Ag-Co NANOMULTILAYERS.

H.R. Khan[a,b] and K. Petrikowski[b]; [a]FEM, Materials Physics Department, Schwaebisch Gmuend, GERMANY; [b]Department of Physics, University of Tennessee, Knoxville, TN.

2:15 PM Q2.4
AB INITIO STUDY OF CPP TRANSPORT IN Fe/Cr/Fe TRILAYERS: INFLUENCE OF INTERDIFFUSION AND INPURITIES. Heike C. Herper, Peter Entel, Gerhard-Mercator University, Dept of Theoretical Physics, Duisburg, GERMANY; Peter Weinberger, TU Vienna, CMS, Vienna, AUSTRIA; Laszlo Szunyogh, Budapest Univ, Dept of Theoretical Physics, Budapest, HUNGARY.

2:30 PM Q2.5
MICROSTRUCTURE AND MAGNETIC PROPERTY OF L1o CoPt-20at. %C MAGNETIC THIN FILM. Dong Yean Oh, Joong Keun Park, Dept of Materials Science and Engineering, Korea Advanced Institute of Science and Technology, Daejeon, KOREA.

2:45 PM Q2.6
DEGRADATION OF Fe / Cu MULTILAYERS. Jörg Ebert, Mohammad Ghafari, Branko Stahl, and Horst Hahn Darmstadt University of Technology, Institute of Materials Science, Thin Films Division, Darmstadt, GERMANY.

3:00 PM BREAK

3:30 PM Q2.7
RELATIVISTICALLY INDUCED NON-COLLINEAR MAGNETISM IN PERMALLOY. Markus Eisenbach, Metals and Ceramics Division, Oak Ridge National Laboratory, Oak Ridge, TN; D.M. Nicholson, Computer Science and Mathematics Division, Oak Ridge National Laboratory, Oak Ridge, TN; G. Malcolm Stocks, Metals and Ceramics Division, Oak Ridge National Laboratory, Oak Ridge, TN.

3:45 PM Q2.8
BATCH-FABRICATION OF SUB-100NM SPIN-VALVE JUNCTIONS FOR SPIN-CURRENT-INDUCED MAGNETIC EXCITATION STUDIES. J.Z. Sun, D.J. Monsma[†], D.W. Abraham, M.J. Rooks, and R.H. Koch, IBM T.J. Watson Research Center, Yorktown Heights, NY; [†]IBM Almaden Research Center. Present Address: Physics Department, Harvard University, Cambridge, MA.

4:00 PM Q2.9
LOW FREQUENCY NOISE AND DOMAIN WALL DYNAMICS IN Co/Al2O3/Ni80Fe20 TUNNEL JUNCTIONS. Ruben Guerrero, Vladimir Pryadun, Farkhad Aliev, Raul Villar, Dpto. Fisica Materia Condensada, Universidad Autónoma de Madrid, SPAIN; and J. Moodera, Massachusetts Institute of Technology, Boston, MA.

4:15 PM Q2.10
BISTABLE MEMORY EFFECT IN CHROMIUM OXIDE JUNCTIONS. A. Sokolov, C.-S.Yang, E. Ovtchenkov, L. Yuan, S.-H. Liou, B. Doudin, University of Nebraska Lincoln, Department of Physics and Astronomy, Brace Laboratory, Lincoln, NE.

4:30 PM Q2.11
DIRECT OBSERVATION OF SHUNT EFFECTS IN THE EXTRAORDINARY MAGNETORESISTANCE (EMR) OF MESOSCOPIC VAN DER PAUW PLATES. S.A. Solin[†], D.R. Hines and A.C.H. Rowe, NEC Research Institute, Princeton, NJ; J.S. Tsai and Yu. A. Pashkin, NEC Fundamental Research Laboratories, Tsukuba, JAPAN; N. Goel and M.B. Santos, Department of Physics and Astronomy, University of Oklahoma, Norman, OK. [†]Current Address: Department of Physics, Washington University, St. Louis, MO.

4:45 PM Q2.12
FERROMAGNETIC SINGLE-ELECTRON TRANSISTOR WITH RC GATE. Jun-ichi Shirakashi, Akita Prefectural University, JAPAN; Yasushi Takemura, Yokohama National University, JAPAN.

SESSION Q3: MAGNETOTRANSPORT
Chairs: Shufeng Zhang and Sadamichi Maekawa
Tuesday Morning, December 3, 2002
Room 209 (Hynes)

8:30 AM *Q3.1
AB-INITIO THEORY OF CPP TRANSPORT. Peter Weinberger, Center for Computational Materials Science, Vienna, AUSTRIA.

9:00 AM *Q3.2
MEAN FREE PATH EFFECTS IN CPP TRANSPORT B.J. Hickey, L. Michez and G.J. Morgan, Department of Physics and Astronomy, E.C. Stoner Laboratory, University of Leeds, Leeds, UNITED KINGDOM; S. Shatz and N. Wiser, Department of Physics, Bar-Ilan University, Ramat-Gan, ISRAEL.

9:30 AM *Q3.3
GIANT MAGNETORESISTANCE VERSUS INTERFACE STRUCTURE IN Fe/Cr SUPERLATTICES. J. Santamaria[a], M.E. Gomez[b], M.C. Cyrille[c], Dept of Physics, University of California-San Diego, CA; J.L. Vicent, U. Complutense, Madrid, SPAIN; K.M. Krishnan, Dept. of Materials Science and Engineering, Seattle, WA; Ivan K. Schuller, Dept of Physics. University of California-San Diego, CA; [a]On leave from Universidad Complutense, Madrid, SPAIN; [b]On leave from Universidad del Valle, Cali, COLOMBIA; [c]Present address IBM Almaden.

10:00 AM BREAK

10:30 AM *Q3.4
MAGNETIZATION REVERSAL PROVOKED BY SPIN INJECTION. Jean-Eric Wegrowe, Andrea Fabian, Xavier Hoffer, Travis Wade, Laurent Gravier, and Jean-Philippe Ansermet, Institute of Nanophysics, Ecole Polytechnique Federal de Lusanne (EPFL), SWITZERLAND.

11:00 AM *Q3.5
MECHANISMS BEHIND THE TEMPERATURE DEPENDENCE OF TUNNELING MAGNETORESISTANCE. Johan Akerman, Motorola, Renu Whig Dave, J. M. Slaughter, Motorola Labs, Physical Sciences Research Laboratories, Tempe, AZ; Igor V. Roshchin, Ivan K. Schuller, Physics Department, UCSD, La Jolla, CA.

11:30 AM *Q3.6
SPIN TRANSFER IN FERROMAGNET-NORMAL METAL SYSTEMS. Arne Brataas, Harvard University, Lyman Laboratory of Physics, Cambridge, MA.

SESSION Q4: MAGNETIC NANOSTRUCTURES
Chairs: Alan S. Edelstein and
Thomas Christoph Schulthess
Tuesday Afternoon, December 3, 2002
Room 209 (Hynes)

1:30 PM Q4.1
SPIN POLARIZED TUNNELING AND MAGNETIC PROPERTIES OF MAGNETITE NANOCRYSTAL ARRAYS. Gil Markovich, Pankaj Poddar, Tcipi Fried, School of Chemistry, Tel Aviv University, Tel Aviv, ISRAEL.

1:45 PM Q4.2
NANO-GLASSES OF PREVIOUSLY NEVER VITRIFIED CERAMICS AND METALS BY EXPOSURE TO A 2.45 GHz MAGNETIC FIELD. Rustum Roy, Ramesh Peelamedu, Larry Hurtt, Jiping Cheng, Dinesh Agrawal, Materials Research Institute, The Pennsylvania State University, University Park, PA.

2:00 PM Q4.3
EFFECT OF NANO-OXIDE IN SPIN-VALVES. Yihong Wu, Nat Univ of Singapore, Dept of ECE and Data Sotrage Institute, SINGAPORE; Kebin Li, Jinjun Qiu, Guchang Han, Ping Luo, Towchong Chong, Data Storage Institute, SINGAPORE.

2:15 PM Q4.4
INERT GAS CONDENSATION OF IRON AND IRON-OXIDE NANOPARTICLES. C. Baker, University of Delaware, Department of Materials Science and Engineering, Newark, DE; S. Ismat Shah, University of Delaware, Department of Materials Science and Engineering, University of Delaware, Department of Physics and Astronomy, Newark, DE, Fraunhofer Center, Newark, DE; K. Hasanain, L. Shah, QUA University, Pakistan; G. Li, K.M. Unruh, University of Delaware, Department of Physics and Astronomy, Newark, DE.

2:30 PM Q4.5
SELECTIVE GROWTH OF COBALT NANOCLUSTERS IN DOMAINS OF BLOCK COPOLYMER FILMS AND IN SPIN-COATED INVERSE MICELLES. Jeff Abes, Robert Cohen, Massachusetts Institute of Technology, Dept of Chemical Engineering, Cambridge, MA.

2:45 PM Q4.6
SYNTHESIS AND CHARACTERIZATION OF NANO-STRUCTURED IRON POWDERS. Heng Zhang, Shihui Ge, Y.D. Zhang, Shiqiang Hui and Zongtao Zhang, Inframat Corporation, Farmington, CT.

3:00 PM BREAK

3:30 PM Q4.7
TUNNEL SPLITTINGS IN DEUTERATED Mn_{12}-ACETATE SINGLE CRYSTALS. E. del Barco, A.D. Kent, Physics Department, New York University, New York, NY; E.M. Rumberger, D.N. Hendrickson, Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA; G. Christou, Department of Chemistry, University of Florida, Gainsville, FL.

3:45 PM Q4.8
MICROMAGNETIC SIMULATION OF THERMAL EFFECTS IN MAGNETIC NANOSTRUCTURES. R. Dittrich, V. Tsiantos, T. Schrefl, D. Suess, W. Scholz, H. Forster, J. Fidler, Vienna Univ of Technology, Vienna, AUSTRIA.

4:00 PM Q4.9
MAGNETIC PROPERTIES OF MONOATOMIC COBALT CHAINS IN PLATINUM. Markus Eisenbach, G. Malcolm Stocks, Oak Ridge National Laboratory, Oak Ridge, TN.

4:15 PM Q4.10
ELECTRONIC STRUCTURE AND MAGNETIC ANISOTROPY ENERGY OF Co_4-BASED SINGLE MOLECULE NANOMAGNET. Tunna Baruah, Department of Physics, Georgetown University, Washington, DC; Mark R. Pederson, Center for Computational Materials Science, Naval Research Laboratory, Washington, DC.

4:30 PM Q4.11
FABRICATION OF PHOTONIC CRYSTALS AND PLASMONIC WAVEGUIDES WITH Au@SiO_2 COLLOIDS AS BUILDING BLOCKS. Yu Lu, Dept of Materials Science & Engineering, Univ of Washington, Seattle, WA; Younan Xia, Dept of Chemistry, Univ. of Washington, Seattle, WA.

SESSION Q5: MAGNETIC PROXIMITY EFFECT
Chairs: Peter Weinberger and Chris Leighton
Wednesday Morning, December 4, 2002
Room 209 (Hynes)

8:30 AM *Q5.1
INDUCED MAGNETISM AT THE INTERFACES OF ANTIFERROMAGNETS. Axel Hoffmann, Materials Science Division, Argonne National Laboratory, Argonne, IL.

9:00 AM *Q5.2
ORIGIN OF THE MAGNETIC PROXIMITY EFFECT. Miguel Kiwi, Facultad de Física, Pontificia Universidad Católica de Chile, Santiago, CHILE.

9:30 AM *Q5.3
ORIGIN OF SPIN POLARIZATION IN A SEMICONDUCTOR INTERFACED WITH A FERROMAGNET. L.J. Sham, C. Ciuti, J.P. McGuire, Dept of Physics, University of California-San Diego, La Jolla, CA.

10:00 AM BREAK

10:30 AM Q5.4
GROWTH MODES AND MAGNETOTRANSPORT PROPERTIES IN THIN FILM La-Ca MANGANITES. Z. Sefrioui, M. Varela, A. Asenjo, C. Leon, J. Santamaria, A. de Andres[a] and M. Garcia-Hernandez[a], GFMC, Depto. Fisica Aplicada III, Universidad Complutense de Madrid, SPAIN; [a]Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, SPAIN.

10:45 AM Q5.5
SPIN DEPENDENT TRANSPORT IN MANGANITE-BASED STEP-EDGE JUNCTIONS. Catherine Dubourdieu, Alexei Bossak, Patrick Chaudouet, Jean-Pierre Sénateur, Laboratoire des Matériaux et du Génie Physique, St Martin d'Hères, FRANCE; Thierry Fournier, CRTBT, Grenoble, FRANCE.

11:00 AM Q5.6
SPIN DEPENDENT TRANSPORT IN MAGNETITE/DOPED MANGANITE BASED TRILAYER JUNCTIONS. Guohan Hu, Yuri Suzuki, Cornell Univ, Dept of Materials Science and Engineering, Ithaca, NY; Rajesh Chopdekar, Cornell Univ, Dept of Applied and Engineering Physics, Ithaca, NY.

11:15 AM Q5.7
CUPRATE/FERROMAGNETIC OXIDE SUPERLATTICES. Hanns-Ulrich Habermeier, Georg Cristiani, MPI-FKF, Stuttgart, GERMANY.

11:30 AM Q5.8
SPIN DYNAMICS IN NICKEL NANOWIRES ARRAYS. Kornelius Nielsch, Ralf B. Wehrspohn, Ulrich Gösele, Max-Planck-Institute of Microstructure Physics, Halle, GERMANY; Zhi-Kui Wang, Meng-Hau Kuok, Ser-Choon Ng, Department of Physics, National University of Singapore, SINGAPORE; David J. Lockwood, Institute for Microstructural Sciences, Ottawa, CANADA; Michael G. Cottam, Department of Physics and Astronomy, University of Western Ontario, London, CANADA.

11:45 AM Q5.9
STUDY OF THE LOW FIELD MICROWAVE RESPONSE IN YTTRIUM ALUMINATES DILUTELY DOPED WITH MANGANESE. Rakhim Rakhimov, David Jones, George Loutts, Norfolk State University, Center for Materials Research, Norfolk, VA.

SESSION Q6: IN-ROOM POSTER SESSION
NANOSTRUCTURED MAGNETS
Wednesday Afternoon, December 4, 2002
2:00 PM
Room 209 (Hynes)

Q6.1
REORIENTATION TRANSITION OF Fe/Cu(111) THIN FILMS. B. Ujfalussy, University of Tennessee, Knoxville, TN; J. Shen, Oak Ridge National Laboratory, Oak Ridge, TN; G.M. Stocks, Oak Ridge National Laboratory, Oak Ridge, TN.

Q6.2
DOUBLE QUANTUM WIRE TUNNEL TRANSPORT AND MAGNETIC RESPONSE. Anatoly Yu. Smirnov, D-Wave Systems Inc., Vancouver, BC, CANADA; Lev G. Mourokh, Norman J.M. Horing, Department of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, NJ.

Q6.3
METAL/SELF ASSEMBLED MONOLAYERS/METAL JUNCTIONS FOR MAGNETOELECTRONICS APPLICATIONS. Yevgeniy A. Ovchenkov, Bernard Doudin, Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; Chunjuan Zhang, Jody Rodepenning, Department of Chemistry, University of Nebraska-Lincoln, Lincoln, NE.

Q6.4
CHEMICALLY FUNCTIONAL ALKANETHIOL STABILIZED MAGNETIC NANOPARTICLES. David Fleming, Mike Napolitano, Mary Elizabeth Williams, The Pennsylvania State University, Department of Chemistry, University Park, PA.

Q6.5
MAGNETIC PROPERTIES OF AMORPHOUS METAL/POLYMER NANOCOMPOSITES. Vincent H. Hammond, James M. O'Reilly, Nonmetallic Materials Division, University of Dayton Research Institute, Dayton, OH.

Q6.6
MAGNETIC PROPERTIES OF Ni NANOPARTICLES EMBEDDED IN AMORPHOUS SiO_2. Fabio Coral Fonseca, Gerardo Fabian Goya, Renato de Figueiredo Jardim, Instituto de Física, Universidade de São Paulo, São Paulo, SP, BRAZIL; Reginaldo Muccillo, Centro Multidisciplinar de Desenvolvimento de Materiais Cerâmicos CMDMC, CCTM-Instituto de Pesquisas Energéticas e Nucleares, São Paulo, SP, BRAZIL; N.L.V. Carreño, Elson Longo, and Edson R. Leite, Centro Multidisciplinar de Desenvolvimento de Materiais Cerâmicos CMDMC, Departamento de Química, Universidade Federal de São Carlos, São Carlos, SP, BRAZIL.

Q6.7
MAGNETOTRANSPORT AND HALL EFFECT IN ULTRA-THIN COLOSSAL MAGNETORESISTANCE FILMS. Trevor W. Olson, Dept of Physics, Jonathan C. Eser, Yuri Suzuki, Dept of Materials Science and Engineering, Cornell Univ, Ithaca, NY.

Q6.8
SPIN DEPENDENT TRANSPORT IN COLOSSAL MAGNETORESISTANCE TRILAYERS. Lisa Berndt Alldredge, Dept of Applied & Engineering Physics, Yuri Suzuki, Dept of Materials Science & Engineering, Cornell Univ, Ithaca, NY.

Q6.9
LARGE MAGNETORESISTANCE IN $Ni_{1-x}Ti_xS$. P. Chen, Y.W. Du, S.P. Wong, Electronic Engineering Department of Chinese University, Hong Kong, CHINA, Physics Department of Nanjing University, Nanjing, CHINA.

Q6.10
NONSTOICHIOMETRY OF EPITAXIAL $FeTiO_{3+\delta}$ FILMS. Tatsuo Fujii, Makoto Sadai, Masakazu Kayano, Makoto, Nakanishi, Jun Takada, Okayama Univ, Dept of Applied Chemistry, Okayama, JAPAN.

Q6.11
ENHANCEMENT OF THE THERMAL STABILITY OF MAGNETIC TUNNEL JUNCTIONS WITH Co/TiN/Co ARTIFICIAL ANTIFERROMAGNET PINNED LAYER. S.-H. Han, W.-C. Jeong, Z.-Z. Wang and S.-K. Joo, Seoul National Univ, School of Material Science and Engineering, Seoul, KOREA.

SESSION Q7: EXCHANGE BIAS
Chairs: Gernot Guntherodt and Mark D. Stiles
Thursday Morning, December 5, 2002
Room 209 (Hynes)

8:30 AM *Q7.1
COMPLEX EXCHANGE ANISOTROPY IN Fe/MnF2 BILAYERS. E. Dan Dahlberg[a], I.N. Krivorotov[a], C. Leighton[b], J. Nogus[c], and Ivan K. Schuller[d]; [a]Department of Physics, University of Minnesota, Minneapolis, MN; [b]Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN; [c]Instituci Catalana de Recerca i Estudis Avanats (ICREA) and Departament de Fisica, Universitat Autnoma de Barcelona, Bellaterra, SPAIN; [d]Department of Physics, University of California-San Diego, La Jolla, CA.

9:00 AM *Q7.2
EXCHANGE BIAS AND COERCIVITY. M.D. Stiles, and R.D. McMichael, National Institute of Standards and Technology, Gaithersburg, MD.

9:30 AM *Q7.3
EXCHANGE BIAS STUDIES WITH MAGNETIC DICHROISM. Boris Sinkovic, Univ of Connecticut, Storrs, CT.

10:00 AM BREAK

10:30 AM *Q7.4
SIMULATIONS OF THE DOMAIN STATE MODEL. U. Nowak, A. Misra and K.D. Usadel, Institut fuer Physik, Gerhard-Mercator Universitaet Duisburg, Duisburg, GERMANY.

11:00 AM Q7.5
EFFECT OF ANISOTROPY ON THE CRITICAL ANTIFERROMAGNET THICKNESS IN EXCHANGE BIASED BILAYERS. M.S. Lund, Dept. of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN; W.A.A. Macedo, Physics Department, University of California-San Diego, La Jolla, CA; Kai Liu, Department of Physics, University of California-Davis, Davis, CA; J. Nogues, Inst Catalana de Recerca i Estudis Avançats (ICREA) and Departament de Física, Universitat Autonoma de Barcelona, Bellaterra, SPAIN; Ivan K. Schuller, Physics Department, University of California-San Diego, La Jolla, CA; C. Leighton, Dept. of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN.

11:15 AM Q7.6
EXCHANGE BIAS AND TRAINING EFFECT IN POLYCRYSTALLINE ANTIFERROMAGNETIC/ FERROMAGNETIC BILAYERS. D. Suess, T. Schrefl, J. Fidler, Vienna University of Technology, AUSTRIA; R.L. Stamps, J.V. Kim, University of Western Australia, Crawley, AUSTRALIA.

11:30 AM Q7.7
ROTATING ANISOTROPIES WITHOUT SUPERPARAMAGNETIC GRAINS IN EXCHANGE BIAS SYSTEMS. Thomas C. Schulthess, Oak Ridge National Laboratory, Computer Science and Mathematics Division and Center for Computational Sciences, Oak Ridge, TN.

11:45 AM Q7.8
EXCHANGE BIAS FLOP IN EPITAXIAL FeF_2/Co BILAYERS. Hongtao Shi, David Lederman, Physics Department, West Virginia University, Morgantown, WV.

SESSION Q8: APPLICATIONS OF MAGNETIC NANOSTRUCTURES
Chairs: E. Dan Dahlberg and Johan Akerman
Thursday Afternoon, December 5, 2002
Room 209 (Hynes)

1:30 PM *Q8.1
ADVANCES IN MAGNETORESISTIVE RANDOM ACCESS MEMORY (MRAM). Brad N. Engel, Motorola Labs, Tempe, AZ.

2:00 PM *Q8.2
RECENT DEVELOPMENT OF MAGNETIC RECORDING HEADS. Mitsumasa Oshiki, Atsushi Tanaka, Storage System Laboratories, Fujitsu Laboratories Ltd., Atsugi, Kanagawa, JAPAN.

2:30 PM BREAK

3:00 PM *Q8.3
PATTERNED MAGNETIC MEDIA: MAGNETIC PROPERTIES, RECORDING, AND FABRICATION BY IMPRINTING. G.M. McClelland, C.T. Rettner, M. Albrecht, M.W. Hart, S. Anders, T. Thomson, M.E. Best, and B.D. Terris, IBM Research Division, Almaden Research Center, San Jose, CA.

3:30 PM *Q8.4
MAGNETIZATION DYNAMICS OF PERPENDICULARLY MAGNETIZED DOTS INSIDE A SOFTER MAGNETIC MATRIX. Claude Chappert, Thibaut Devolder, Mohamed Belmeguenai, Dafine Ravelosona, Veronique Mathet, Institut d'Electronique Fondamentale, UMR CNRS 8622, Universite Paris-Sud, Orsay, FRANCE; Y. Suzuki, Y. Yokoyama, National Institute of Advanced Industrial Science and Technology, Electronics Institute, Tsukuba, JAPAN; H. Bernas, Centre de Spectrometrie Nucleaire et de Spectrometrie de Masse, UMR CNRS 8609, Universite Paris-Sud, Orsay, FRANCE; Jacques Ferre, Jacques Miltat, Laboratoire de Physique des Solides, UMR CNRS 8502, Universite Paris-Sud, Orsay, FRANCE.

4:00 PM *Q8.5
QUANTUM COMPUTATION: FROM BRAGG REFLECTIONS TO DECOHERENCE ESTIMATES. Peter Pfeifer, Dept. of Physics, University of Missouri, Columbia, MO.

4:30 PM Q8.6
THE MEMS FLUX CONCENTRATOR: A DEVICE FOR IMPROVING MAGNETIC SENSORS. Alan S. Edelstein, Gregory A. Fischer, Army Research Laboratory, Adelphi, MD.