

SYMPOSIUM R

Advanced Characterization of Artificially Structured Magnetic Materials

December 2 – 3, 2002

Chairs

Michael R. Fitzsimmons Los Alamos National Laboratory
Jeffrey B. Kortright Lawrence Berkeley Natl Laboratory
Collin Broholm Johns Hopkins Univ
Wolfgang Kuch Max-Planck-Institut f. Mikrostrukturphysik
Yimei Zhu Brookhaven National Laboratory

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Department of Physics, Colorado State University, Fort Collins, CO;
Wolfgang Hübner, Max-Planck-Institut für Mikrostrukturphysik,
Halle, GERMANY.

10:45 AM **R1.7**

STRAIN DRIVEN SPIN REORIENTATION TRANSITION OF
ULTRA-THIN Co FILMS. Sungkyun Park, Mike Fitzsimmons and
Marilyn Hawley, Los Alamos National Laboratory, Los Alamos, NM;
Sukmook Lee, Department of Physics, Inha University, Incheon,
KOREA; Justin Shaw and Charles M. Falco, Optical Sciences Center,
University of Arizona, Tucson, AZ.

11:00 AM ***R1.8**

ANTIFERROMAGNETISM AT Co/Pd(100) INTERFACE.
Xiaofeng Jin, D. Qian, Department of Physics, Fudan University,
Shanghai, CHINA; J. Barthel, H.L. Meyerheim, J. Kirschner,
Max-Planck Institut für Mikrostrukturphysik, Halle, GERMANY.

11:30 AM **R1.9**

STRUCTURAL AND MAGNETIC PROPERTIES OF EuSe/PbSe,
EuSe/PbTe AND EuSe/EuTe SUPERLATTICES GROWN BY
MOLECULAR BEAM EPITAXY. R.T. Lechner, T. Schüllli, G.
Springholz, G. Bauer, Johannes Kepler Universität, Institut für
Halbleiter- und Festkörperphysik, Linz, AUSTRIA; D. Lott, A.
Schreyer, H. Clemens, GKSS-Forschungszentrum, Institut für
Werkstoffforschung, Geesthacht, GERMANY; H. Krenn, Karl
Franzens Universität, Institut für Experimentalphysik, Graz,
AUSTRIA.

11:45 AM **R1.10**

STRUCTURE-PROPERTY RELATIONSHIPS IN
(La_{0.7}Sr_{0.3}MnO₃/SrTiO₃) SUPERLATTICES OF
NANOMETER-SCALE INTERLAYERS. Catherine Dubourdieu,
Milan Rosina, Laboratoire des Matériaux et du Génie Physique, St.
Martin d'Heres, FRANCE; Eric Dooryhée, Jean-Louis Hodeau,
Laboratoire de Cristallographie, Grenoble, FRANCE; Carla Abilio,
Magarida Godinho, Faculdade de Ciências, Universidade de Lisboa,
PORTUGAL.

SESSION R2: SPIN DYNAMICS

Chair: George Srajer

Monday Afternoon, December 2, 2002
Room 205 (Hynes)

* Invited paper

SESSION R1: INTERFACIAL MAGNETISM

Chair: Chris Leighton
Monday Morning, December 2, 2002
Room 205 (Hynes)

8:30 AM **R1.1**

INTERDIFFUSION, CRYSTALLINITY AND EXCHANGE BIAS IN
Mn_xPt_{1-x}/Co BILAYERS. Eric H. Morales, Yikuan Wang and D.
Lederman, West Virginia University, Dept of Physics, Morgantown,
WV.

8:45 AM ***R1.2**

STUDY OF EXCHANGE BIAS BY INTERFACE-SENSITIVE
NONLINEAR MAGNETOOPTICAL SPECTROSCOPY.
Bernad Beschoten, Markus Meissner, Tom Kammermeier, Luuk Pauli,
Gernot Güntherodt, RWTH Aachen, 2. Physikalisches Institut,
Aachen, GERMANY.

9:15 AM **R1.3**

A MAGNETO-OPTICAL STUDY OF EXCHANGE BIAS IN A
THIN FILM DISPERSION OF MnO NANOCRYSTALLITES IN Co.
Z.X. Ye, J. van Lierop, L.H. Lewis, and Qiang Li, Brookhaven
National Laboratory, Upton, NY.

9:30 AM **BREAK**

10:00 AM **R1.4**

MAGNETIC COUPLING AT SINGLE-CRYSTALLINE Fe/Mn
INTERFACES. Wolfgang Kuch, F. Offi, J. Wang, L.I. Chelaru, K.
Fukumoto, M. Kotsugi, J. Kirschner, Max-Planck-Institut für
Mikrostrukturphysik, Halle, GERMANY.

10:15 AM **R1.5**

LAYER-SELECTIVE STUDIES OF MAGNETIZATION REVERSAL
IN COMPLEX FILM STACKS USING SOFT X-RAY MOKE. C.M.
Schneider, M. Hecker, P.M. Oppeneer, Leibniz-Institute of Solid State
and Materials Research IFW Dresden, Dresden, GERMANY; D.
Abramsohn, H.-C. Mertins, BESSY GmbH, Berlin, GERMANY.

10:30 AM **R1.6**

SYMMETRY AND SUBSTRATE EFFECTS ON MAGNETIC
INTERACTIONS FROM FIRST-PRINCIPLES: A COMPARISON
BETWEEN Fe/W(100) AND Fe/W(110). Xianghong Qian,

1:30 PM **R2.1**

PROBING NANOMAGNETISM ON THE FEMTOSECOND
TIMESCALE. F. Kronast, B. Heitkamp, H.S. Rhie, H.A. Dürr, W.
Eberhardt, BESSY, Berlin, GERMANY.

1:45 PM ***R2.2**

DYNAMICS IN PATTERNED MAGNETIC STRUCTURES.
B. Hillebrands, S.O. Demokritov, Fachbereich Physik, Universitaet
Kaiserslautern, Kaiserslautern, GERMANY; A.N. Slavin, Department
of Physics, Oakland University, Rochester, MI.

2:15 PM ***R2.3**

POINT CONTACT INVESTIGATIONS OF CURRENT INDUCED
EXCITATIONS IN MAGNETIC MULTILAYERS. W.H. Rippard,
M.R. Pufall, T.J. Silva, National Institute of Standards and
Technology, Boulder, CO.

2:45 PM **BREAK**

3:15 PM ***R2.4**

MAGNETIZATION DYNAMICS IN NANOSTRUCTURED THIN
FILM FERROMAGNETS. Mark Freeman, Miroslav Belov,
Byoung-Chul Choi, Alexander Krichinsky, Zhigang Liu, Marek Malac,
Mark Roseman, Univ of Alberta, Dept of Physics, Edmonton,
CANADA.

3:45 PM ***R2.5**

OPTICAL AND INDUCTIVE STUDIES OF DAMPING IN THIN
FILM PERMALLOY. Thomas J. Silva, National Institute of
Standards and Technology, Magnetic Measurements Division, Boulder,
CO.

4:15 PM ***R2.6**

ROLE OF SPIN MOMENTUM CURRENT IN MAGNETIC
NON-LOCAL DAMPING OF ULTRATHIN FILM STRUCTURES.
Bret Heinrich, Georg Woltersdorf, Radovan Urban, Evzen Simanek[†],
Simon Fraser University, Physics Department, Burnaby, BC,
CANADA; [†]Cambria, CA.

SESSION R3: SPIN TRANSPORT FOLLOWED BY
SCATTERING FROM MAGNETIC STRUCTURES

Chair: Axel Hoffmann
Tuesday Morning, December 3, 2002
Room 205 (Hynes)

8:45 AM *R3.1

MEASUREMENT OF SPIN POLARIZATION BY ANDREEV REFLECTION. C.L. Chien, Department of Physics and Astronomy, The Johns Hopkins University, Baltimore, MD.

9:15 AM R3.2

NANOSCALE ANALYSIS OF INTERFACES IN MAGNETIC TUNNEL JUNCTIONS. J.-L. Maurice, F. Pailloux, J.-P. Contour, CNRS/Thales, Orsay, FRANCE; D. Imhoff, L. Samet, T. Sikora, C. Colliex, CNRS, Université Paris Sud, Orsay, FRANCE; A. Barthélémy, A. Fert, CNRS/Thales and Université Paris Sud, Orsay, FRANCE.

9:30 AM R3.3

UNOCCUPIED MQW STATES AND THEIR EFFECT ON CO ADSORPTION ON fccNi/Cu(100) USING INVERSE PHOTOEMISSION AND TEMPERATURE PROGRAMMED DESORPTION. A.G. Danese, R.A. Bartynski, Department of Physics Laboratory for Surface Modification, Rutgers University, Piscataway, NJ.

9:45 AM R3.4

CALCULATED 2ND- AND 4TH-ORDER ANISOTROPY IN MOLECULAR MAGNETS. Mark R. Pederson, Noam Bernstein, Tunna Baruah, Center for Computational Materials Science, Naval Research Laboratory, Washington, DC; Jens Kortus, Max-Planck-Institut für Festkörperforschung, Stuttgart, GERMANY.

10:00 AM BREAK

10:30 AM R3.5

MICROMAGNETISM IN A NANOPHASE ALLOY, STUDIED BY SMALL-ANGLE NEUTRON SCATTERING. Werner Wagner, Joachim Kohlbrecher, Paul-Scherrer-Inst, Villigen PSI, SWITZERLAND.

10:45 AM *R3.6

RESONANT MAGNETIC X-RAY SCATTERING STUDIES OF HETEROGENEOUS THIN FILMS. Eric E. Fullerton and Olav Hellwig, IBM Almaden Research Center, San Jose, CA; J.B. Kortright, Materials Science Division, Lawrence Berkeley National Laboratory, Berkeley, CA.

11:15 AM R3.7

MAGNETIZATION REVERSAL MEASUREMENTS IN Gd/Fe MULTILAYER ANTIDOT ARRAYS BY VECTOR MAGNETOMETRY USING X-RAY MAGNETIC CIRCULAR DICHROISM. D.R. Lee, Y. Choi, C.-Y. You, J.C. Lang, D. Haskel, S.D. Bader, G. Srajer, Argonne National Lab, Argonne, IL; V. Metlushko, Univ of Illinois at Chicago, Dept of Electrical and Computer Engineering, Chicago, IL; B. Ilic, Cornell Univ, School of Applied and Engineering Physics, Ithaca, NY.

11:30 AM R3.8

MAGNETO-OPTICAL LIGHT SCATTERING: A NEW METHOD TO CHARACTERIZE FERROMAGNETIC SURFACES AND INTERFACES. M.U. González, G. Armelles, C. Martínez Boubeta, A. Ceblada, Instituto de Microelectrónica de Madrid (CNM-CSIC), Tres Cantos, Madrid, SPAIN.

11:45 AM R3.9

A SMALL ANGLE POLARIZED NEUTRON SCATTERING INVESTIGATION OF MAGNETIC CORRELATIONS IN NANOCRYSTALLINE $\text{Fe}_{89}\text{Zr}_7\text{B}_3\text{Cu}_1$. O. Moze, E. Agosti, INFN, Dipartimento di Fisica, Università degli Studi di Modena e Reggio Emilia, ITALY; J.M. Cadogan, K. Suzuki, School of Physics, The University of New South Wales, AUSTRALIA; A. Heinemann, A. Hoell, BENSCH, Hahn-Meitner-Institut, Berlin, GERMANY.

SESSION R4: IMAGING MAGNETIC STRUCTURES

Chair: Yimei Zhu
Tuesday Afternoon, December 3, 2002
Room 205 (Hynes)

1:30 PM *R4.1

LORENTZ MICROSCOPY AND THE TRANSPORT-OF-INTENSITY EQUATION. Marc De Graef, Dept of Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA.

2:00 PM *R4.2

MAGNETIC INDUCTION MAPPING OF ARTIFICIALLY STRUCTURED MAGNETIC ARRAYS USING ADVANCED TEM TECHNIQUES. Vyacheslav V. Volkov, M.A. Schofield, M. Beleggia, M. Malac and Y. Zhu, Brookhaven National Laboratory, Dept of Materials Science, Upton, NY.

2:30 PM BREAK

3:00 PM R4.3

QUANTITATIVE SPIN-POLARIZED LOW-ENERGY ELECTRON MICROSCOPY. A.K. Schmid, H. Poppa, Lawrence Berkeley Lab, Berkeley, CA; N.C. Bartelt, Sandia National Labs, Livermore, CA; K.L. Man, M.S. Altman, Hong Kong University of Science and Technology, Kowloon, HONG KONG.

3:15 PM *R4.4

MAGNETIC DOMAIN AND CHEMICAL IMAGING IN NANOSCALE STRUCTURES USING X-RAY PHOTOEMISSION ELECTRON MICROSCOPY. D.J. Keavney, J.W. Freeland, Advanced Photon Source, Argonne National Laboratory, Argonne, IL; W.C. Uhlig, J. Shi, Dept. of Physics, University of Utah, Salt Lake City, UT.

3:45 PM *R4.5

FRONTIERS OF NANOMAGNETISM EXPLORED BY SPIN-POLARIZED STM. M. Bode, A. Kubetzka, O. Pietzsch, R. Wiesendanger, University of Hamburg, Inst. of Applied Physics, Hamburg, GERMANY.

SESSION R5: POSTER SESSION

Chair: Jeffrey B. Kortright
Tuesday Evening, December 3, 2002
8:00 PM
Exhibition Hall D (Hynes)

R5.1

MÖSSBAUER CHARACTERIZATION OF IRON OXIDE NANOCCLUSERS GROWN WITHIN ALUMINOSILICATE MATRICES. Georgia C. Papaefthymiou, Department of Physics, Villanova University, Villanova, PA; A. Bustamante Dominguez, Facultad de Ciencias Físicas, Universidad Mayor de San Marcos, Lima, PERU; Rosa Scorzelli, Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, BRASIL.

R5.2

MAGNETIZATION PROCESSES IN SQUARE BILAYER DOTS. Miguel A. Rivero, Eloisa Lopez, Marco Maicas, M. Carmen Sanchez, Universidad Complutense, Dept. Fisica de Materiales, Madrid, SPAIN; Claudio Aroca, Pedro Sanchez, Universidad Politécnica, I.S.O.M., E.T.S.I. Telecomunicacion, Madrid, SPAIN.

R5.3

SPIN POLARIZATION OF METAL (Mn, Fe, Cu, Mg) AND METAL-FREE PHTHALOCYANINES ON MAGNETIZED $\text{Fe}(100)$ SUBSTRATE. T. Suzuki, M. Kurahashi, X. Ju, and Y. Yamauchi, Natl. Inst. Mater. Sci., Nano-function Gr., Tsukuba, Ibaraki, JAPAN.

R5.4

CORRELATION BETWEEN MAGNETIC PROPERTY AND CATION DISTRIBUTION IN Z-TYPE HEXAGONAL BARIUM-FERRITE ($\text{Ba}_3\text{Co}_{2-x}\text{Fe}_{24x}\text{O}_{41}$) BY NEUTRON DIFFRACTION. Takeshi Tachibana, Sumitomo Special Metals Co., Ltd., Osaka, JAPAN and Graduate School of Engineering, Osaka University, Osaka, JAPAN; Yukio Takada, Kenji Izumi, Masataka Kano, Takashi Nakagawa, Takao A. Yamamoto, Graduate School of Engineering, Osaka University, Osaka, JAPAN; Takeshi Shimada, Sumitomo Special Metals Co., Ltd., Osaka, JAPAN; Shinji Kawano, Research Reactor Institute, Kyoto University, Kumatori, Osaka, JAPAN.

R5.5

MAGNETORESISTANCE AND HALL EFFECT CHARACTERIZATION ON MAGNETIC THIN FILM MULTILAYERS. Jenica Neamtu, Advanced Research Institute for Electrical Engineering, Bucharest, ROMANIA; Marius Volmer, Transilvania University, Brasov, ROMANIA.