Curriculum Vitae – January 2006

Name: Martha R. McCartney

Address: Department of Physics and Astronomy
Arizona State University
Tempe, AZ 85287-1504

Education: B.S., The Evergreen State College, Washington, 1983

Ph.D. (Physics), Arizona State University, August 1989
Thesis entitled "Observations of electron irradiation effects at transition-metal oxide surfaces"

Employment:

1984-1985	Teaching Assistant, Department of Physics, Arizona State University
1985-1989	Research Assistant, Department of Physics, Arizona State University
1989-1990	Postdoctoral Research Associate, Center for Solid State Science, Arizona State University
1990-1992	Postdoctoral Research Associate
1993-1994	Research Scientist National Center for High Resolution Electron Microscopy, Arizona State University
1994-1998	Associate Research Scientist
1999-2005	Senior Research Scientist Center for Solid State Science Arizona State University
2005-	Associate Professor Department of Physics and Astronomy Arizona State University

Memberships: Microscopy Society of America
Materials Research Society
American Physical Society

Teaching: Physics 334 – Advanced Physics Lab. S2005
Instructor at Gatan Digital Microscopy School, February, 1992
Instructor at Arizona State University Winter Schools for High Resolution Electron Microscopy, January 1987/1989-2004, (Lecturer, 1990-2004)
Guest lecturer, MSE559 Advanced Electron Microscopy, Spring 1996-2004

Awards, Honors: EMSA Presidential Scholar, 1988
Symposium Organizer, Microscopy and Microanalysis 2003, San Antonio, Aug. 4-8, 2003
Cosseltt Award, Best Invited Paper, 2002 Microscopy & Microanalysis Mtg., Quebec City, Aug., 2002.

Graduate Committees and Supervision:

a) Committee co-chair and supervisor:

Ph.D. students - completed: J. Li
- current: A. Dhamdhere, M.-G. Han, H. Hu, H. Wang, L. Zhou

b) Committee member:

M.S. Students - completed: P.S. Chakraborty

Ph.D. students - completed: J. Cai, M. Floyd, B. Ramadurai.
- current: N. Agarwal, U. Singisetti

c) Visiting scholars supervised:

Dr. R.E. Dunin-Borkowski (University of Cambridge, England) - Jan. 1997- Jan. 1999.
H. Friedrich (Technical University of Dresden) - Sept. 2002- Aug. 2004.
Dr. M. Takeguchi (National Institute of Materials Science, Tsukuba) - Sept. 2002- Sept. 2003.
Dr. T. Fujita (JSPS Postdoctoral Fellow) - Sept. 2003 - Aug. 2005.
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Invited Lectures: 36 invited lectures at National/International conferences and 20 invited talks/seminars/colloquia at other institutions

Invited Conference Lectures:

"Surface studies in UHV: applications of high-resolution electron microscopy", at 49th Ann. Meeting, Electron Microscopy Society of America, San Jose, CA, Aug. 8-11, 1991.

"Electron microscopy of electron stimulated processes at oxide surfaces", at Fifth International Workshop on Desorption Induced by Electronic Transitions, Taos, NM, April 1-4, 1992.

"Application of off-axis to the study of semiconductor junctions", at Frontiers of Electron Microscopy in Materials Science, Oakland, CA, June 21-24, 1994.

"Off-axis electron holography", at 52nd Ann. Meeting, Electron Microscope Society of America, New Orleans, LA, Aug. 8-11, 1994

"Electron holography of p-n junctions", at International Workshop on Electron Holography, Knoxville, TN, Aug. 29-31, 1994.

Fall Meeting, Materials Research Society, Boston, MA, Nov. 28 - Dec 2, 1994.

"Application of through-focal series restoration for resolution enhancement", at 53rd Ann. Meeting, Electron Microscopy Society of America, Kansas City, MO, Aug. 13-17, 1995.

"Electron holography and Lorentz microscopy of magnetic thin films and multilayers", at 15th Pfefferkorn Conference on Image and Signal Processing, Lake George, NY, May 18-22, 1996.

"Focal series reconstruction", at Frontiers of Electron Microscopy in Materials Science, Chicago, Ill., June 4-6, 1996.

"Resolution enhancement with through-focal series restoration" and "Electron holography and Lorentz microscopy of magnetic thin films and multilayers", at 5th Brazilian Conference on Microscopy of Materials, Rio de Janeiro, Brazil, October 13-16, 1996.

"Electron holographic imaging of magnetic materials", at Image Analysis Methods in Quantitative Electron Microscopy Workshop, Tegernsee, Germany, March 10-14, 1997.

"Electron holographic imaging of magnetic materials at nanometer scale resolution", at Microscopy and Microanalysis '97, 55th Ann. Meeting, Microscopy Society of America, Cleveland, OH, August 10-14, 1997.

"Electron holography of semiconductor junctions", at Microscopy and Microanalysis '98, 56th Ann. Meeting, Microscopy Society of America, Atlanta, GA, July 12-16, 1998.

"Electron holography of nanoscale magnetic particles and cross-sectional tunnel junctions", at 14th International Congress on Electron Microscopy, Cancun, Mexico, Aug. 31- Sept. 4, 1998.

"Quantitative electron holography of magnetic materials", at Microscopy and Microanalysis '99, 57th Ann. Meeting, Microscopy Society of America, Portland, OR, Aug 2-5, 1999.

"Dynamic electron holography of magnetic materials", at Workshop on Aberration Correction in Electron Microscopy, Argonne, IL, July 2000.

"Mapping electrostatic potential across a AlGaN/InGaN/AlGaN diode by electron holography" Workshop on Polarization Effects in Semiconductors, Glacier National Park, MT, August, 2000.

"Imaging in situ response to electrostatic and magnetic fields using electron holography", at Joint NSF-JSPS Workshop on Contribution of in situ electron microscopy to understanding and creation of advanced materials, Kyoto, Japan, November, 2000.

"Electron holography and applications to magnetic and electrostatic potentials", at Pan-American Advanced Studies Institute on Physics and Technology at the Nanometer Scale, Costa Rica, June 23 - July 2, 2001.

"Electron holography for characterization of electrostatic and magnetic nano-structures" at Beijing Conference "BCEIA", Beijing, China, Oct. 17-20, 2001.

"Electron holographic characterization of magnetic and electrostatic fields at the nanometer scale" at 7th International Symposium on Advanced Physical Fields", Tsukuba, Japan, Nov. 12-15, 2001.

"Electron holography of defects in GaN" at ONR Workshop on Extended defects in wide gap semiconductors: electrical and optical effects, San Pedro, Belize, Jan. 27-31, 2002.

"Electron holography for characterization of electrostatic and magnetic nano-structures" at Florida American Vacuum Society, Orlando, FL, March 11-12, 2002.

" Electron holographic imaging of electron beam-induced charging of insulating materials" at Symposium on Characterization of Non-Conductive or Charging Materials by Microbeam Analysis, McGill University, Montreal, Canada, Aug. 2-3, 2002

"Magnetic and structural characterization of biogenic magetite" at Microscopy and Microanalysis 2002, Quebec City, Quebec Canada, Aug. 4-8, 2002.

"Electron holographic characterization of nanoscale magnetic and electrostatic fields" at Microscopy and Microanalysis 2002, Quebec City, Quebec Canada, Aug. 4-8, 2002.

"Electron holographic characterization of nanoscale magnetic and electric fields" at 15th International Conference on Electron Microscopy, Durban, South Africa, Sept. 2-6, 2002.

"Electron holography for mapping charge distributions in wide gap semiconductors" at ONR Workshop on Defect Characterization Techniques for Wide Gap Semiconductors, Wailea, Hawaii, Mar. 16-20, 2003.

"Electron holography for 2-D dopant profiling" at Ultra-Shallow Junctions 2003, Santa Cruz, CA, Apr. 27- May 1, 2003.

"Electron holography of extended defects in wide gap semiconductors" at ONR Workshop on Extended Defects in Wide Gap Semiconductors, Irvington, VA, July 13-17, 2003.

"Electron holography and TEM characterization methods", at NSF First Industrial Workshop in Ceramics: Date Storage Technology, Washington, January 22-23, 2004.

"Electron holography of nanoscale electric and magnetic fields", at 8th Asia-Pacific Conference on Electron Microscopy, Kanazawa, Japan, June 8-11, 2004.

"Electron holography of electric fields at defects in semiconductors", at Gordon Research Conference on Defects in Semiconductors, Colby-Sawyer College, New Hampshire, July 18-23, 2004.

"Principles and Practice of off-axis electron holography", at Microscopy and Microanalysis 2004, Savannah, Georgia, Aug. 1-5, 2004.

“Status of medium resolution off-axis electron holography”, at 2nd European Workshop on electron holography, Triebenberg, Germany, Aug. 29 – Sept. 01, 2004

“Imaging electrostatic and magnetic fields using electron holography” at the III Meeting of the Brazilian Materials Research Society, Igassu Fall, Brazil, Oct. 10 – 14, 2004

"Electron holographic characterization of nanoscale magnetic and electrostatic fields", at 5th. Pacific Rim International Conference on Advanced Materials and Processing, Beijing, China, Nov. 2-5, 2004.

Research seminars, colloquiua:

Hitachi Advanced Research Laboratory, Hatoyama, Japan, February, 1995.

Dept. of Materials Science, Kyushu University, Kyushu, Japan, March, 1995.

Phillips Applications Laboratory, Eindhoven, The Netherlands, December, 1995.

IFF Forschungzentrum, Jülich, Germany, 26 April, 1996.

University of Tübingen, Tübingen, Germany, 3 May, 1996.

Dept. of Materials Science, Carnegie Mellon University, Pittsburg, PA, 14 September, 1998.

Intel Advanced Characterization Group, Tempe, AZ, 4 February, 1999.

Center for Superconductivity, Houston, TX, 22 April, 1999.

CSSS Silver Jubilee Series, Arizona State University, Tempe, AZ, January, 2000.

AZ Imaging and Microanalysis Society, Tucson, AZ, February, 2000.

Dept. of Electrical and Computer Engineering, UC San Diego, La Jolla, CA, October, 2000.

Seagate Technology, Minneapolis, MN, February, 2001.

Motorola Semiconductor Products, Mesa, AZ, April, 2001

International SEMATECH, Austin, TX, May, 2001.

Dept. of Materials Science, Tsinghua University, Beijing, China, October 15, 2001.

CSSER Research Review, Mesa, AZ, Nov. 7, 2001

International SEMATECH, Austin, TX, Dec. 2-3, 2001

Department of Materials Science, Cambridge University, Cambridge, UK, July 18, 2002

International SEMATECH, Sunnyvale, CA, Dec. 12-13, 2002.

Dept. of Materials Science, Kyushu University, Kyushu, Japan, June, 2004.

Dept. of Materials Science, WuHan University, Nov. 2004.

Grace Semiconductor, Shanghai, China, Nov. 2004.

Dept. of Electronics, Beijing University, Nov. 2004

Dept. Material Science and Engineering, Shanghai Jaio-Tong University, Nov. 2004.

Publication Summary: 8 book chapters, 80 refereed journal articles, 19 refereed conference proceedings, 45 conference abstracts (18 invited)

Book Chapters:

D. J. Smith and M. R. McCartney (1999) “Practical Electron Holography”, in: Introduction to Electron Holography, eds. E. Völkl, L. F. Allard, and D.C. Joy (Plenum Press, New York) Chapter 4, pp. 87-106.

D.J. Smith, W. J. de Ruijter, J. K. Weiss, and M. R. McCartney (1999) "Quantitative Electron Holography", in: Introduction to Electron Holography, eds. E. Völkl, L. F. Allard, and D.C. Joy (Plenum Press, New York) Chapter 5, pp. 107-124.

M.R. McCartney, R.E. Dunin-Borkowski, and D.J. Smith (2001) “Electron Holography and Its Application to Magnetic Materials”, in Magnetic Imaging and Its Application to Materials, eds. M. de Graef and Y. Zhu (Academic Press, San Diego) Chapter 4.

R. E. Dunin-Borkowski and M. R. McCartney (2002) " Off-axis electron holography of nanostructured magnetic material", in Magnetic Nanostructures, ed. H. S. Nalwa, (American Scientific Publishers, Stevenson Ranch, CA) Chapter 7.

M. A. Gribelyuk and M. R. McCartney, (2002) "Electron Holography of Semiconductor Structures: Principles and Recent Results", in Microelectronic Failure Analysis (ASM International, Materials Park,OH, 2002)

M.R. McCartney, R.E. Dunin-Borkowski, and D.J. Smith (2004) "Electron Holography of Magnetic Nanostructures", in Magnetic Microscopy of Nanostructures, eds. H. Hopster and H.P. Oepen (Springer) Chapter 5.

R.E. Dunin-Borkowski, M.R. McCartney and D.J. Smith (2004) "Electron Holography of Nanostructured Materials", in: Encyclopedia of Nanoscience and Nanotechnology, ed. H.S. Nalwa (American Scientific, Stevenson Ranch, CA) Vol 3, pp41-100.

M.R. McCartney, R.E. Dunin-Borkowski, and D.J. Smith (2005) "Off-Axis Electron Holography", in: Microscopy for Nanotechnology, eds. N. Yao and Z.L. Wang (Springer-Verlag and Tsinghua University Press) in press.

Refereed Publications:

Smith, D. J., McCartney, M. R. and Bursill, L. A. (1987) The electron-beam reduction of transition metal oxide surfaces to metallic lower oxides, Ultramicroscopy 23, 299-304.

Smith, D. J., Bursill, L. A. and McCartney, M. R. (1988) Electron-beam induced reduction in transition metal oxides, in: Springer Series in Surface Science, ed. by M. van Hove and J. van der Veen (Springer, Heidelberg) pp. 588-594.

(invited review) Smith, D. J., Glaisher, R. W., Lu, P. and McCartney, M. R. (1989) Profile imaging of surfaces and surface reactions, Ultramicroscopy, 29, 123-134.

McCartney, M. R. and Smith, D. J. (1989) Epitaxial relationships in ESD processes on oxide surfaces, Mater. Res. Soc. Symp. Proc., 129, 509-514.

McCartney, M. R. and Smith, D. J. (1989) Epitaxial relationships in electron-stimulated desorption processes at transition metal oxide surfaces, Surface Science, 221, 214-232.

(invited review) Lu, P., McCartney, M. R. and Smith, D. J. (1989) Profile imaging of surfaces and surface reactions, in: Proc. Guangzhou Symposium on Electron Microscopy, Solid State Phenomena, 5, 59-72.

Crozier, P. A., McCartney, M. R. and Smith, D. J. (1990) The effects of electron irradiation on rutile crystals, Inst. Phys. Conf. Ser., 98, 227-230.

McCartney, M. R., Crozier, P.A., Weiss, J. K. and Smith, D. J. (1990) Electron-beam-induced reactions at transition metal oxide surfaces, Vacuum, 42, 301-309.

Smith, D. J., McCartney, M.R. and Tracz, E. (1990) Characterization of filamentous carbon in Ni/MgO catalysts by HREM, Ultramicroscopy, 34, 54-59.

Crozier, P. A., McCartney, M. R. and Smith, D. J. (1990) Observation of exit surface sputtering in TiO_2 using biased secondary electron imaging, Surface Science, 237, 232-240.

McCartney, M. R. and Smith, D. J. (1990) Surface structures and rearrangements in oxides, Mater. Res. Soc. Symp. Proc., 183, 311-316.

Diehl, P., McCartney, M. R. and Smith, D. J. (1990) A HREM study of electron-irradiated Group IIA fluorides, Inst. Phys. Conf. Ser., pp. 169-172.

Smith, D. J., Lu, P., McCartney, M. R. and Sharma, R. (1991) In situ observation of beam-induced effects during high-resolution electron microscopy, Mater. Res. Soc. Symp. Proc., 201, pp. 599-606.

McCartney, M. R. and Smith, D. J. (1991) Studies of electron irradiation and annealing effects on TiO_2 surfaces in ultrahigh vacuum using high-resolution electron microscopy, Surface Sci., 250, 169-178.

(invited review) Smith, D. J., Li, Z. G., Lu, P., McCartney, M. R. and Tsen, S.-C. Y. (1991) Characterization of thin films, interfaces and surfaces by high-resolution electron microscopy, Ultramicroscopy, 37, 169-179.

(invited review) Smith, D. J., Glaisher, R. W., Li, Z. G., Lu, P., McCartney, M. R., Tsen, S.-C. Y. and Datye, A. K. (1992) Recent studies of thin films and surfaces by high-resolution electron microscopy, Metall. Trans., A 23, 1063-1070.

McCartney, M. R., Youngman, R. A. and Teller, R. G. (1992) High-resolution electron microscopy of planar inversion domain boundaries in aluminum nitride, Ultramicroscopy, 40, 291-299.

Evans, K. L., Anderson, T. A., Liaw, M., Gregory, R., Munukutla, L. V., Graham, R. J. and McCartney, M. R. (1992) Characterization of epitaxial SiGe thin films on Si: Analytical considerations, Surf. and Interface Analysis, 18, 169-179.

Smith, D.J., Gajdardziska-Josifovska M., Lu, P., McCartney, M.R., Podbrdsky, J., Swann, P.R. and Jones, J.S. (1992) Development of a 300-kilovolt ultrahigh-vacuum electron microscope for surface studies, Electron Optics Bulletin, 132, 9-14.

Horita, Z., McCartney, M.R., Weiss, J.K (1992) Computer-assisted extrapolation method for absorption correction in quantitative X-ray microanalysis, Ultramicroscopy, 45, 263-265.

Gajdardziska-Josifovska, Crozier, P.A., McCartney, M.R. and Cowley, J.M. (1993) Ca segregation and step modifications on cleaved and annealed MgO (100) surfaces, Surface Sci., 284, 186-199.

Smith, D.J., Gajdardziska-Josifovska M., Lu, P., McCartney, M.R., Podbrdsky, J., Swann, P.R. and Jones, J.S. (1993) Development and applications of a 300-kiloVolt ultrahigh-vacuum high-resolution electron microscope, Ultramicroscopy, 49, 26-36.

(invited review) Smith, D. J., McCartney, M. R. and Gajdardziska-Josifovska, M. (1993) Electron microscopy of electron stimulated processes at oxide surfaces, in Desorption Induced by Electronic Transitions, DIET V, Eds. A. R. Burns, E. B. Stechel and D. R. Jennison (Springer Verlag, Berlin) pp. 218-223.

Gajdardziska-Josifovska, McCartney, M. R. and Smith, D. J. (1993) Reflection electron microscopy studies of GaP (110) surfaces in UHV-TEM, Surface Sci., 287/288, 1062-1066.

Watanabe, M., Horita, Z., Smith, D. J., McCartney, M. R., Sano, T. and Nemota, M. (1993) Interfacial structure and composition in Ni/Ni3Al diffusion couples, Defect and Diffusion Forum, 95-98, 287-292.

Gajdardziska-Josifovska, M., McCartney, M.R., de Ruijter,W.J., Smith, D. J., Weiss, J.K., and Zuo, J.M. (1993) Accurate measurements of mean inner potential of crystal wedges using digital electron holograms, Ultramicroscopy, 50, 285-299.

Weiss, J.K., de Ruijter, W.J., Gajdardziska-Josifovska, M., McCartney, M.R. and Smith, D.J. (1993) Applications of electron holography to the study of interfaces, Ultramicroscopy, 50, 301-311.

Smith, D. J., de Ruijter, W. J., McCartney, M. R. and Weiss, J. K. (1993) Progress towards quantitative high resolution electron microscopy, Ultramicroscopy, 52, 591-601.

de Ruijter, W. J., Gajdardziska-Josifovska, M., McCartney, M. R., Sharma, R., Smith, D. J. and Weiss, J. K. (1994) Quantification of high resolution lattice images and electron holograms, Proc. 10th Pfefferkorn Conference, Scanning Microscos. Supp. 6, 347-359.

McCartney, M. R. and Gajdardziska-Josifovska, M. (1994) Absolute measurements of normalized thickness, t/λ_i from off-axis electron holography, Ultramicroscopy, 53, 283-289.

Gajdardziska-Josifovska, M. and McCartney, M. R. (1994) Elimination of thickness dependence from medium resolution electron holograms, Ultramicroscopy, 53, 291-296.

Mathine, D.L., Maracas, G.N., Gerber, D.S., Droopad, R., Graham, R. J. and McCartney, M.R. (1994) Characterization of an AlGaAs/GaAs asymmetric triangular quantum well grown by a digital alloy approximation, J. Appl. Phys., 75, 4551-4556.

Hillman, J.T., Srinivas, D., Foster, R.F., Graham, R.J., Shaapur, F., and McCartney, M.R. (1994) Atomic scale morphology of LPCVD TiN films, Mater. Res. Soc. Symp. Proc., ULSI-IX, 167-172.

Watanabe, M., Horita, Z., Smith, D. J., McCartney, M. R., Sano, T. and Nemoto, M. (1994) Electron microscopy study of Ni/ Ni_3Al diffusion-couple interface - I. Microstructural observations and microchemical analysis, Acta Metall. Mater., 42, 3381-3387.

McCartney, M. R., Smith, D. J., Hull, R., Bean, J. C., Voelkl, E., and Frost, B. (1994) Direct observation of potential distribution at pn junctions using electron holography, Appl. Phys. Letts., 65, 2603-2605.

Watanabe, M., Horita, Z., Smith, D. J., McCartney, M. R., Sano,T. and Nemoto, M. (1994) Interfacial structure and composition in Ni/Ni_3Al diffusion couples, IUMRS-ICAM, 1429-1432.

(invited review) M. R. McCartney, Frost, B., Hull, R., Scheinfein, M. S., Smith, D. J., and Voelkl, E. (1995) Electron holography of p-n junctions, in Proc. International Workshop on Electron Holography - Theory, Applications and Future Prospects, Knoxville, Tennessee, USA, 29-31 August 1994, ed. by A. Tonomura, L. F. Allard, G. Pozzi, D. C. Joy and Y. A. Ono (Elsevier, Amsterdam) pp. 189-198.

(invited review) Smith, D. J., de Ruijter, W.J., Gajdardziska-Josifovska, M., McCartney, M.R.and Weiss, J.K. (1995) Quantitative applications of off-axis electron holography, in Proc. International Workshop on Electron Holography - Theory, Applications and Future Prospects, Knoxville, Tennessee, USA, 29-31 August 1994, ed. by A. Tonomura, L. F. Allard, G. Pozzi, D. C. Joy and Y. A. Ono (Elsevier, Amsterdam) pp. 181-188.

(invited review) M. Mankos, P. de Haan, V. Kambersky, G. Matteucci, M. R. McCartney, Z. Yang, M. R. Scheinfein and J. M. Cowley, (1995) STEM Holography of magnetic materials, ibid, pp. 329-341.

(invited review) Smith, D. J. and McCartney, M. R. (1995) Trends in atomic resolution electron microscopy, Mater. Res. Soc. Symp. Proc., 332, 43-52.

de Ruijter, W. J., Sharma, R., McCartney, M. R. and Smith, D. J. (1995) Measurement of lattice fringe vectors from digital HREM images: II. Experimental precision, Ultramicroscopy, 57, 409-422.

Westwood, A., Youngman, R.A., McCartney, M. R. and Notis, M. R. (1995) Oxygen incorporation in aluminum nitride via extended defects: I - Refinement of structural model for planar inversion domain boundaries, J. Mat. Res., 10, 1270-1286

Westwood, A., Youngman, R.A., McCartney, M. R. and Notis, M. R. (1995) Oxygen incorporation in aluminum nitride via extended defects: II - Structure of curved inversion domain boundaries and defect formation, J. Mat. Res.,10, 1287-1301.

Westwood, A., Youngman, R.A., McCartney, M. R., A. N. Cormack and Notis, M. R. (1995) Oxygen incorporation in aluminum nitride via extended defects: III - Reevaluation of the polytypoid structure in the aluminum nitride-aluminum oxide binary system, J. Mat. Res.,10, 1302.

Crozier, P. A. and McCartney, M. R. (1996) Elemental mapping of catalysts by energy-filtered imaging, J. Catalysis, 163, 245-254.

McCartney, M. R., Kruit, P., Buist, A. H. and Scheinfein, M. R. (1996) Differential phase contrast in TEM, Ultramicroscopy, 65, 179-186.

Zuo, J. M., McCartney, M. R. and Spence, J. C. H. (1996) Performance of imaging plates for electron recording, Ultramicroscopy, 66, 25-47.

Horita, Z., McCartney, M. R. and Kuninaka, H. (1997) Channelling-enhanced microanalysis using [111] and [001] zone-axis beam incidence for $L1_2$-type $Ni_3(Al,Ta)$, Phil. Mag., 75, 153-167.

McCartney, M. R., Smith, D. J., Farrow, R. F. C, and Marks, R. F. (1997) Electron holography of epitaxial FePt films, J. App. Phys., 82, 2461-2465.

McCartney, M.R. and Zhu, Y. (1998) Induction mapping of $Nd_2Fe_{14}B$ magnetic domains by electron holography, Appl. Phys. Lett., 72, 1380-1382.

Dieny, B., Sankar, S., McCartney, M.R., Smith, D.J., and Berkowitz, A.E. (1998) Spin-polarized tunneling in discontinuous metal/insulator multilayers, J. Mag. Mag. Mat., 185, 283-292.

Sugawara, A., Streblechenko, D., McCartney, M., and Scheinfein, M. R. (1998) Magnetic coupling in self-organized narrow-spaced Fe nanowire arrays, Trans. IEEE Mag., 34, 1081-1083.

Smith, D.J., McCartney, M R., Platt, C.L. and Berkowitz, A.E. (1998) Structural characterization of thin film ferromagnetic tunnel junctions, J. Appl. Phys, 83, 5154-5158.

McCartney, M. R. and Zhu, Y. (1998) Off-axis electron holographic mapping of magnetic domains in $Nd_2Fe_{14}B$, J. Appl. Phys., 83, 6414-6416.

Dunin-Borkowski, R.E., McCartney, M.R., Kardynal, B. and Smith. D.J. (1998) Magnetic interactions within patterned cobalt nanostructures using off-axis electron holography, J. Appl. Phys., 84, 374-378.

Farrow, R.F.C., Weller, D., Marks, R. F., Toney, M.F., Smith, D. J. and McCartney, M. R. (1998) Magnetic anisotropy and microstructure in molecular beam epitaxial FePt(110)/MgO(110), J. Appl. Phys, 84, 934-939.

Zhu, Y. and McCartney, M.R. (1998) Magnetic domain structure of $Nd_2Fe_{14}B$ permanent magnets, J. Appl. Phys., 84, 3267-3272.

Dunin-Borkowski, R. E., McCartney, M. R., Smith, D. J. and Parkin, S. S. P. (1998) Towards quantitative electron holography of magnetic thin films using in situ magnetization reversal, Ultramicroscopy, 74, 61-73.

Dunin-Borkowski, R. E., McCartney, M. R., Frankel, R.B., Bazylinski, D. A., Posfai, M. and Buseck, P. R. (1998) Correlation of physical and magnetic microstructure of magnetite within magnetotatic bacteria by electron holography, Science, 282, 1868-1870.

(invited review) Dunin-Borkowski, R. E., McCartney, M. R. and Smith, D. J. (1998) Off-axis electron holography of magnetic materials, in Recent Research Developments in Physics, 1, 119-131.

De Graef, M., Nuhfer, N. T. and McCartney, M. R. (1999),Phase contrast of spherical magnetic particles, J. Microscopy, 194, 84-94.

Dunin-Borkowski, R. E., McCartney, M. R., Smith, D. J., Gider, S., Runge, B.-U. and Parkin, S.S.P. (1999) Microstructural and micromagnetic characterization of thin film magnetic tunnel junctions, J. Appl. Phys., 85, 4815-4817.

Parkin, S.S.P., Moon, K.-S., Pettit, K.E., Smith, D.J., Dunin-Borkowski, R.E., and McCartney, M.R. (1999) Magnetic tunnel junctions thermally stable to above 300°C, Appl. Phys. Let., 75, 543-545.

Li, J., McCartney, M.R., Dunin-Borkowski, R. E. and Smith, D.J. (1999) Measurement of mean inner potential of germanium using off-axis electron holography, Acta Cryst., A55, 652-658.

Chaparro, S. A., Drucker, J., Zhang, Y., Chandrasekhar, D. McCartney, M.R. and Smith, D. J. (1999) Strain-driven alloying in Ge/Si(100) coherent islands, Phys. Rev. Lett., 83, 1199-1202.

Dunin-Borkowski, R.E., McCartney, M.R., Kardynal, B., Smith, D. J. and Scheinfein, M.R. (1999) Switching asymmetries in closely-coupled magnetic nanostructure arrays, Appl. Phys. Let., 75, 2641-2643.

McCartney, M. R., Dunin-Borkowski, R. E., Scheinfein, M.R., Smith, D.J. Gider, S. and Parkin, S.S.P. (1999) Origin of magnetization decay in spin-dependent tunnel junctions, Science, 286, 1337-1340.

Bajt, S., Barty, A., Nugent, K.A., McCartney, M., Wall, M., and Paganin, D. (2000) Quantitative phase-sensitive imaging in a transmission electron microscope, Ultramicroscopy, 83, 67-73.

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