

KAI LIU

U. C. Davis, Physics Department
Davis, CA 95616

Tel: (530) 752-4109
Fax: (530) 752-4717
kailiu@ucdavis.edu

EDUCATION

Ph.D., Physics, December 1998, The Johns Hopkins University

Baltimore, MD

EXPERIENCE

Associate Professor:	7/05-	U. C. Davis, Physics Department
Assistant Professor:	10/01-6/05,	U. C. Davis, Physics Department
Postdoctoral Fellow:	7/99-9/01,	U. C. San Diego, Physics Department
Postdoctoral Fellow:	1/99-6/99,	The Johns Hopkins University Dept. of Physics & Astronomy & MRSEC

AWARDS

Chancellor's Fellowship, UC Davis, 07
Alfred P. Sloan Research Fellowship, 05-07
Junior Faculty Research Fellowship, UC Davis, 03
Chien-Shiung Wu & Luke Chia-Liu Yuan Scholarship, 91

RESEARCH INTERESTS

Synthesis and experimental investigation of structural, electronic, magnetic, and transport properties of nanostructured materials. Topics include: intrinsic and extrinsic magnetoresistance, interlayer coupling, exchange bias, ballistic transport, magnetization reversal and hysteresis, magnetic anisotropy, current-induced switching, and finite-size effects. Expertise in advanced sputter deposition, e-beam evaporation, MBE, electrodeposition, pulsed-laser deposition, photo- and e-beam lithography, self-assembly nanolithography, x-ray diffraction, SQUID and vibrating sample magnetometry, alternating gradient magnetometry, scanning and transmission electron microscopy, atomic force microscopy.

PROFESSIONAL ACTIVITY

Member, American Physical Society, American Vacuum Society, Neutron Scattering Society of America
Over 60 refereed journal publications, over 300 SCI citations/year
3 issued patents
Over 60 invited talks and 140 other conference presentations
Featured in *Who's Who in America*, 2007, 2008 Editions
Faculty mentor for NSF-REU, MURPPS
Co-Chair, Program Committee, 2007 Conference on Magnetism & Magnetic Materials, Tampa, FL
Member, Steering Committee, 2007 Conference on Magnetism & Magnetic Materials, Tampa, FL
Member, Advisory Committee, Annual Conference on Magnetism & Magnetic Materials, 2007-10
Member, Executive Committee, American Vacuum Society – Magnetic Interfaces and Nanostructures Division, 2007-09
Member, Program Committee, 2007 MMM – Intermag Joint Conference, Baltimore, MD
Member, Organizing Committee, Oxide Nanocomposites Symposium, ICCE-12
Member, Program Committee, 2005 Conference on Magnetism & Magnetic Materials, San Jose, CA
Co-Organizer
2003 APS March Meeting DMP Focus Session on Asymmetric Nanoparticles
1st International Workshop on Magnetism, Hysteresis, and the FORC Method, Davis, CA

Session Chair, 2003-2007 APS March Meeting; 2002 APS California Section Spring Meeting; 2001, 2002, 2007 Conference on Magnetism & Magnetic Materials; 2003 Spring MRS Meeting; 2003 FORC Workshop; ICCE-10; ICCE-11.
Panelist and Reviewer for NSF
Reviewer for DoE, ACS, South Carolina – DEPCOR, Chinese Ministry of Education
Reviewer for PRL, PRB, APL, NatureNano, JAP, ADMA, ADFM, JACS, CM, JMMM, JPCM...

COURSES TAUGHT

Physics 1B, *Principles of Physics*, lower division undergraduate, non-science majors.
Physics 9B, *Classical Physics*, lower division undergraduate, physics & engineering majors.
Physics 122, *Advanced Physics Laboratory*, upper division undergraduate.
Physics 250, *Fabrication and Properties of Magnetic Nanostructures*, graduate.
Physics 298, *Condensed Matter Journal Club*, graduate.

GROUP AWARDS

Graduate Student Advisees

Joe Davies National Research Council Postdoctoral Fellowship (2007-);
2006 Intermag Student Travel Award;
2006 U. C. Davis Summer Graduate Student Researcher Award;
3rd prize Charles Kittle Award for Best Graphics at the 2005 APS-CA meeting.

Justin Olamit 2007 MMM-Intermag Student Travel Award;
3rd prize Margaret Brubidge Award for Best Experimental Research at the 2005
APS-CA meeting;
NEAT-IGERT Fellowship (2004);

Randy Dumas Leo Falicov Award at the 2006 AVS-MIND for Best Graduate Student Research
and Presentation;
1st prize Margaret Burbidge Award for Best Experimental Research at 2005 APS-
CA meeting;
Katherine Fadley Pusateri Memorial Travel Award to 2005 APS March Meeting;
McNair Fellowship (2003-04).

Undergraduate Student Advisee

Jared Wong 1st Prize Steven Chu Award for Best Undergraduate Research at the 2006 APS-CA
meeting.

Peter Greene 2nd Prize Steven Chu Award for Best Undergraduate Research at the 2007 APS-CA
meeting.

PATENTS

- C. L. Chien, P. C. Searson, and Kai Liu, *Arrays of Semimetallic Bismuth Nanowires and Fabrication Techniques Thereof*, United States Patent No. 6,187,165, February 13, 2001.
- F. Y. Yang, Kai Liu, C. L. Chien, and P. C. Searson, *Bismuth Thin Films Structure and Methods of Construction*, United States Patent No. 6,358,392, March 19, 2002.
- Kai Liu, P. Klavins, and L. Zhao, *Synthesis of LiBC and hole-doped Li_{1-x}BC*, United States Patent No. 7,144,562, December 5, 2006.

PUBLICATIONS

Referred Journal Publications

1. John Q. Xiao, K. Liu, C. L. Chien, L. F. Schelp, and J. E. Schmidt, "Effects of Ar-ion implantation and annealing on structural and magnetic properties of Co/Pd multilayers", *Journal of Applied Physics* **76**, 6081 (1994).
2. K. Liu, K. Nagodawithana, P. C. Searson, and C. L. Chien, "Perpendicular giant magnetoresistance of multilayered Co/Cu nanowires", *Physical Review B* **51**, (Rapid Communications) 7381 (1995).
3. K. Liu, X. W. Wu, K. H. Ahn, T. Sulchek, C. L. Chien, and John Q. Xiao, "Charge ordering and magnetoresistance in $\text{Nd}_{1-x}\text{Ca}_x\text{MnO}_3$ due to reduced double exchange", *Physical Review B* **54**, 3007 (1996).
4. K. H. Ahn, X. W. Wu, K. Liu, and C. L. Chien, "Magnetic properties and colossal magnetoresistance of $\text{La}(\text{Ca})\text{MnO}_3$ materials doped with Fe", *Physical Review B* **54**, 15299 (1996).
5. K. H. Ahn, X. W. Wu, K. Liu, and C. L. Chien, "Effects of Fe doping in the colossal magnetoresistive $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ ", *Journal of Applied Physics* **81**, 5505 (1997).
6. K. Liu, X. W. Wu, K. H. Ahn, C. L. Chien, and John Q. Xiao, "Origin of colossal magnetoresistance in $\text{Nd}_{1-x}\text{Ca}_x\text{MnO}_3$ ", *Journal of Chinese Electron Microscopy Society* **16** (4), 425 (1997).
7. Kai Liu, C. L. Chien, P. C. Searson, and Kui Yu-Zhang, "Giant positive magnetoresistance in arrays of semi-metallic bismuth nanowires", *IEEE Transactions on Magnetics*, **34**, 1093 (1998).
8. Kai Liu and C. L. Chien, "Magnetic and magneto-transport properties of novel nanostructured networks", *IEEE Transactions on Magnetics*, **34**, 1021 (1998).
9. Kai Liu, C. L. Chien, P. C. Searson, and Kui Yu-Zhang, "Structural and magneto-transport properties of electrodeposited bismuth nanowires", *Applied Physics Letters*, **73**, 1436 (1998).
10. S. M. Zhou, Kai Liu, and C. L. Chien, "Exchange coupling and macroscopic domain structure in a wedged permalloy/FeMn bilayer", *Physical Review B* **58**, (Rapid Communications) 14717 (1998).
11. Kai Liu, C. L. Chien, and P. C. Searson, "Finite size effect in Bi nanowires", *Physical Review B* **58**, (Rapid Communications) 14681 (1998).
12. T. Ambrose, Kai Liu, and C. L. Chien, "Doubly exchange-biased NiCoO/NiFe/Cu/NiFe/NiCoO spin valves", *Journal of Applied Physics* **85**, 6124 (1999).
13. J. W. Cai, Kai Liu, and C. L. Chien, "Exchange coupling in the paramagnetic state", *Physical Review B*, **60**, 72 (1999).
14. Kimin Hong, F. Y. Yang, Kai Liu, D. H. Reich, C. L. Chien, P. C. Searson, F. F. Balakirev, and G. S. Boebinger, "Giant positive magnetoresistance of Bi nanowire arrays in high magnetic fields", *Journal of Applied Physics* **85**, 6184 (1999).
15. Cai-Ming Liu, Zhi Yu, Ren-Gen Xiong, Kai Liu, and Xiao-Zeng You, "Crystal structure and novel magnetic of three-dimensional manganese (11)- μ -1, 3-Azido system", *Inorganic Chemistry Communications* **2**, 31 (1999).
16. Zhi Yu, Kai Liu, J. Q. Tao, Z. J. Zhong, Xiao-Zeng You, and G. G. Siu, "Rapid cooling and magnetic field induced cooperative effect for the metastable quintet state in a spin crossover complex", *Applied Physics Letters*, **74**, 4029 (1999).
17. F. Y. Yang, Kai Liu, C. L. Chien, and P. C. Searson, "Large magnetoresistance and finite-size effects in electrodeposited single-crystal Bi thin films", *Physical Review Letters* **82**, 3328 (1999).

18. H. S. Wang, Qi Li, Kai Liu, and C. L. Chien, "Low-field magnetoresistance anisotropy in ultrathin $\text{Pr}_{0.67}\text{Sr}_{0.33}\text{MnO}_3$ films grown on different substrates", *Applied Physics Letters* **74**, 2212 (1999).
19. F. Y. Yang, Kai Liu, Kimin Hong, D. H. Reich, P. C. Searson, and C. L. Chien, "Large magnetoresistance of electrodeposited single-crystal bismuth thin films", *Science* **284**, 1335 (1999).
20. V. Nikitenko, V. Gornakov, A. Shapiro, R. Shull, Kai Liu, S. M. Zhou and C. L. Chien, "Asymmetry in elementary events of magnetization reversal in a ferromagnetic/antiferromagnetic bilayer", *Physical Review Letters* **84**, 765 (2000).
21. F. Y. Yang, Kai Liu, Kimin Hong, D. H. Reich, P. C. Searson, and C. L. Chien, "Shubnikov-de Haas oscillations in electrodeposited single-crystal bismuth thin films", *Physical Review B*, **61**, 6631 (2000).
22. Kai Liu, S. M. Zhou, C. L. Chien, V. Nikitenko, V. Gornakov, A. Shapiro, R. Shull, "Anisotropy-dependent macroscopic domain structure in wedged-Permalloy/Uniform-FeMn bilayers", *Journal of Applied Physics*, **87**, 5052 (2000).
23. C. L. Chien, F. Y. Yang, Kai Liu, D. H. Reich, and P. C. Searson, "Very large magnetoresistance in electrodeposited single-crystal Bi thin films", invited, *Journal of Applied Physics*, **87**, 4659 (2000).
24. S. M. Zhou, Kai Liu, and C. L. Chien, "Dependence of exchange coupling in permalloy/ $\text{Cr}_{82}\text{Al}_{18}$ bilayers on the constituent layer thickness", *Journal of Applied Physics*, **87**, 6659 (2000).
25. Kai Liu, S. M. Baker, M. Tuominen, T. P. Russell, and I. K. Schuller "Tailoring exchange bias with magnetic nanostructures", *Physical Review B* **63**, (Rapid Communications), 060403 (2001); also included in *Virtual Journal of Nanoscale Science & Technology*, **3** (6) (2001).
26. M. R. Fitzsimmons, C. Leighton, A. Hoffmann, P. C. Yashar, J. Nogués, Kai Liu, C. F. Majkrzak, J. A. Dura, H. Fritzsche, and I. K. Schuller, "Influence of interfacial disorder and temperature on magnetization reversal in exchange-coupled bilayers", *Physical Review B* **64**, 104415 (2001).
27. M. R. Fitzsimmons, C. Leighton, J. Nogués, A. Hoffmann, Kai Liu, I. K. Schuller, C. F. Majkrzak, J. A. Dura, J. R. Groves, R. W. Springer, P. N. Arendt, V. Leiner, and H. Lauter, "Influence of antiferromagnetic crystallinity on perpendicular exchange coupling and exchange bias", *Physical Review B* **65**, 134436 (2002).
28. M. S. Lund, W. A. A. Macedo, Kai Liu, J. Nogués, I. K. Schuller and C. Leighton, "Effect of antiferromagnet anisotropy on the critical thickness in exchange biased bilayers", *Physical Review B* **66**, 054422 (2002).
29. M.I. Montero, Kai Liu, O.M. Stoll, A. Hoffmann, I. K. Schuller, J. J. Åkerman, J.I. Martín, J.L. Vicent, S.M. Baker, T.P. Russell, C. Leighton and J. Nogués, "Nanostructures and the Proximity Effect", *Journal of Physics D: Applied Physics* **35**, 2398 (2002).
30. H. G. Katzgraber, F. Pázmándi, C. R. Pike, Kai Liu, R. T. Scalettar, K. L. Verosub, and G. T. Zimányi, "Reversal-field memory in the hysteresis of spin-glasses", *Physical Review Letters*, **89**, 257202 (2002).
31. Kai Liu, J. Nogués, C. Leighton, H. Masuda, K. Nishio, I. V. Roshchin and I. K. Schuller, "Fabrication and thermal stability of arrays of Fe nanodots", *Applied Physics Letters*, **81**, 4434 (2002); also included in *Virtual Journal of Nanoscale Science & Technology*, **6** (24) (2002).
32. J. I. Martín, J. Nogués, Kai Liu, J. L. Vicent, and I. K. Schuller, "Ordered magnetic nanostructures: fabrication and properties", topical review, *Journal of Magnetism and Magnetic Materials*, **256**, 449 (2003).
33. Kai Liu, L. M. Zhao, P. Klavins, F. Osterloh and H. Hiramatsu, "Extrinsic magnetoresistance in magnetite nanoparticles", *Journal of Applied Physics*, **93**, 7951 (2003).

34. H. G. Katzgraber, F. Pázmándi, C. R. Pike, Kai Liu, R. T. Scalettar, K. L. Verosub, and G. T. Zimányi, “Reversal-field memory in magnetic hysteresis”, *Journal of Applied Physics*, **93**, 6617 (2003).
35. L. M. Zhao, P. Klavins, and Kai Liu, “Synthesis and properties of hole-doped Li_{1-x}BC ”, *Journal of Applied Physics*, **93**, 8653 (2003).
36. S. Cho, S. M. Kauzlarich, J. Olamit, Kai Liu, F. Grandjean, L. Rebbouh, and G. J. Long, “Characterization and magnetic properties of core/shell structured Fe/Au nanoparticles”, *Journal of Applied Physics*, **95**, 6804 (2004).
37. W. A. A. Macedo, B. Sahoo, V. E. Kuncser, J. Eisenmenger, I. Felner, J. Nogués, Kai Liu, W. Keune, and I. K. Schuller, “Changes in ferromagnet spin structure induced by exchange bias in Fe/MnF₂ films”, *Physical Review B*, **70**, 224414 (2004).
38. J. E. Davies, O. Hellwig, E. E. Fullerton, G. Denbeaux, J. B. Kortright and Kai Liu, “Magnetization reversal of Co/Pt multilayers: microscopic origin of high field magnetic irreversibility”, *Physical Review B*, **70**, 224434 (2004).
39. M. S. Pierce, C. R. Buechler, L. B. Sorensen, J. J. Turner, S. D. Kevan, E. A. Jagla, J. M. Deutsch, T. Mai, O. Narayan, J. E. Davies, K. Liu, J. Hunter Dunn, K. M. Chesnel, J. B. Kortright, O. Hellwig, and E. E. Fullerton, “Disorder-induced microscopic magnetic memory”, *Physical Review Letters*, **94**, 017202 (2005).
40. Y. M. Wang, A. M. Hodge, J. Biener, A. V. Hamza, D. Barnes, Kai Liu, and T. G. Nieh, “Deformation twinning during nanoindentation of nanocrystalline Ta”, *Applied Physics Letters*, **86**, 101915 (2005).
41. J. Y. Kim, F. E. Osterloh, H. Hiramatsu, R. K. Dumas, and Kai Liu, “Synthesis and real-time magnetic manipulation of a biaxial superparamagnetic colloid”, *Journal of Physical Chemistry B*, **109**, 11151-11157 (2005).
42. S. Cho, J. C. Idrobo, J. Olamit, Kai Liu, N. D. Browning, and S. M. Kauzlarich, “Growth mechanisms and oxidation-resistance of Au-coated Fe nanoparticles”, *Chemistry of Materials*, **17**, 3181-3186 (2005).
43. J. E. Davies, O. Hellwig, E. E. Fullerton, J. S. Jiang, S. D. Bader, G. T. Zimányi, and Kai Liu, “Anisotropy-dependence of irreversible switching in Fe/SmCo and FeNi/FePt spring magnet films”, *Applied Physics Letters*, **86**, 262503 (2005).
44. J. Olamit, E. Arenholz, Z. P. Li, O. Petravic, I. V. Roshchin, R. Morales, X. Batlle, I. K. Schuller, and Kai Liu, “Loop bifurcation and magnetization rotation in exchange biased Ni/FeF₂”, *Physical Review B*, **72**, 012408-1-4 (2005).
45. S. M. Gravano, R. K. Dumas, Kai Liu, and T. E. Patten, “Methods for the surface functionalization of $\gamma\text{-Fe}_2\text{O}_3$ nanoparticles with initiators for atom transfer radical polymerization and formation of core-shell inorganic-polymer structures”, *Journal of Polymer Science A*, **43**, 3675-3688 (2005).
46. E. Arenholz and Kai Liu, “Angular dependence of the magnetization reversal in exchange biased Fe/MnF₂”, *Applied Physics Letters*, **87**, 132501-1-3 (2005).
47. F. E. Osterloh, H. Hiramatsu, R. K. Dumas, and Kai Liu, “Fe₃O₄-LiMo₃Se₃ nanoparticle clusters as superparamagnetic nanocompasses”, *Langmuir*, **21**, 9709-9713 (2005).
48. J. E. Davies, J. Wu, C. Leighton, and Kai Liu, “Magnetization reversal and nanoscopic magnetic phase separation in $\text{La}_{1-x}\text{Sr}_x\text{CoO}_3$ ”, *Physical Review B*, **72**, 134419-1-8 (2005).

49. M. C. Qian, C. Y. Fong, Kai Liu, W. E. Pickett, J. E. Pask, and L. H. Yang, “Half-metallic digital ferromagnetic heterostructure composed of a δ -doped layer of Mn in Si”, *Physical Review Letters*, **96**, 027211-1-4 (2006).
50. J. Olamit, Z. P. Li, I. K. Schuller, and Kai Liu, “Angular dependence of exchange anisotropy on cooling field in FM/fluoride thin films”, *Physical Review B*, **73**, 024413-1-7 (2006).
51. S. Cho, A. M. Shahin, G. J. Long, J. E. Davies, Kai Liu, F. Grandjean, and S. M. Kauzlarich, “A magnetic and Mössbauer spectral study of core/shell structured Fe/Au nanoparticles”, *Chemistry of Materials*, **18**, 960-967 (2006).
52. E. Arenholz, Kai Liu, Z. P. Li, and I. K. Schuller, “Magnetization reversal of uncompensated Fe moments in exchange biased Ni/FeF₂ bilayers”, *Applied Physics Letters*, **88**, 072503-1-3 (2006).
53. Z. P. Li, O. Petravic, R. Morales, J. Olamit, X. Batlle, Kai Liu, and I. K. Schuller, “Origin of asymmetric reversal in exchange biased bilayers”, *Physical Review Letters*, **96**, 217205-1-4 (2006).
54. R. Morales, Z. P. Li, O. Petravic, X. Batlle, I. K. Schuller, J. Olamit, and Kai Liu, “Magnetization depth-dependence in exchange-biased thin films”, *Applied Physics Letters*, **89**, 072504-1-3 (2006).
55. B. Sahoo, W. A. A. Macedo, W. Keune, V. Kuncser, J. Eisenmenger, J. Nogués, I. K. Schuller, I. Felner, Kai Liu, and R. Röhlberger, “Mössbauer spectroscopical investigation of the exchange biased Fe/MnF₂ interface”, *Hyperfine Interactions*, **169**, 1371-1377 (2006).
56. J. Olamit, Kai Liu, Z. P. Li, and I. K. Schuller, “Irreversibility of magnetization rotation in exchange biased Fe/epitaxial-FeF₂ thin films”, *Applied Physics Letters*, **90**, 032510-1-3 (2007).
57. D. Dosev, M. Nickkova, R. K. Dumas, S. J. Gee, B. D. Hammock, Kai Liu, and I. M. Kennedy, “Magnetic/luminescent core/shell particles synthesized by spray pyrolysis and their application in immunoassays with internal standard”, *Nanotechnology*, **18**, 055102-1-6 (2007).
58. A. Lazicki, C.-S. Yoo, W. J. Evans, H. Cynn, W. E. Pickett, J. Olamit, Kai Liu, and Y. Ohishi, “Search for superconductivity in LiBC at high pressure”, *Physical Review B*, **75**, 054507-1-6 (2007).
59. J. Olamit and Kai Liu, “Rotational hysteresis of the exchange anisotropy direction in Co/FeMn thin films”, *Journal of Applied Physics*, **101**, 09E508-1-3 (2007).
60. M. S. Pierce, C. R. Buechler, L.B. Sorensen, S.D. Kevan, E.A. Jagla, J.M. Deutsch, T. Mai, O. Narayan, J. E. Davies, Kai Liu, G.T. Zimanyi, H. G. Katzberger, O. Hellwig, E. E. Fullerton, P. Fischer, and J. B. Kortright, “Disorder induced magnetic memory: Experiments and theories”, *Physical Review B*, **75**, 144406-1-23 (2007).
61. R. K. Dumas, C. P. Li, I. V. Roshchin, I. K. Schuller, and Kai Liu, “Magnetic fingerprints of sub-100 nm Fe nanodots”, *Physical Review B*, **75**, 134405-1-5 (2007) ; also included in *Virtual Journal of Nanoscale Science & Technology*, **15** (15) (2007).
62. R. K. Dumas, Kai Liu, C. P. Li, I. V. Roshchin, and I. K. Schuller, “Temperature Induced Single Domain - Vortex State Transition in sub-100nm Fe Nanodots”, *Applied Physics Letters*, **91**, 202501 (2007).
63. J. E. Davies, O. Hellwig, E. E. Fullerton, and Kai Liu, “Temperature Dependent Magnetization Reversal in (Co/Pt)/Ru Multilayers”, *Physical Review B*, **77**, 014421 (2008).
64. M. Winklhofer, R. K. Dumas, and Kai Liu, “Identifying reversible and irreversible magnetization changes in prototype patterned media using first- and second-order reversal curves”, *Journal of Applied Physics*, **103**, 07C518-1-3 (2008).
65. C. Y. Fong, M. C. Qian, Kai Liu, L. H. Yang, and J. E. Pask, “Design of Spintronic Materials with Simple Structures”, *Journal of Nanoscience and Nanotechnology*, in press.

66. Chunsheng Du, J. Yun, R. K. Dumas, X. Yuan, Kai Liu, N. D. Browning and Ning Pan, “Three-dimensionally Intercrossing Mn₃O₄ Nanowires”, *Acta Materialia*, in press.

OTHER PUBLICATIONS

1. K. Nagodawithana, K. Liu, P. C. Searson, and C. L. Chien, “Processing and properties of electrodeposited Co/Cu multilayered nanowires” in *Proceedings of the Symposium on Nanostructured Materials in Electrochemistry*, Electrochemical Society Proceedings Vol. 95-8, edited by P. C. Searson and G. J. Meyer, p.237-243 (1995).
2. Kai Liu, J. Nogués, C. Leighton, I. K. Schuller, S. M. Baker, M. Tuominen, T. P. Russell, H. Masuda, and K. Nishio, “Exchange biased magnetic nanostructures”, **invited**, *Proceedings of the 2002 Symposium for Chinese Scholars on Magnetolectronics and Superconducting Electrical Engineering*, p.64-75 (2002).
3. Kai Liu, L. Zhao, P. Klavins, F. E. Osterloh, J. Nogués, C. Leighton, H. Masuda, K. Nishio, I. V. Roshchin, and I. K. Schuller, “Synthesis and Thermal stability of nanomagnets”, **invited**, *Proceedings of the 10th Annual International Conference on Composites/Nano Engineering (ICCE-10)*, p.429-430 (2003).
4. Kai Liu, J. E. Davies, O. Hellwig, E. E. Fullerton, G. Denbeaux, J. B. Kortright, H. G. Katzgraber, C. R. Pike, R. T. Scalettar, K. L. Verosub, G. T. Zimanyi, and I. K. Schuller, “Fingerprinting magnetic hysteresis”, **invited**, *Proceedings of the 11th Annual International Conference on Composites/Nano Engineering (ICCE-11)*, p445 (2004).
5. Kai Liu, Sung-Jin Cho, S. M. Kauzlarich, J. C. Idrobo, J. E. Davies, J. Olamit, N. D. Browning, A. M. Shahin, G. J. Long, and F. Grandjean, “Fe-Core/Au-Shell Nanoparticles: Growth Mechanisms, Oxidation and Aging Effects”, **invited**, in *Degradation Processes in Nanostructured Materials*, edited by M. Chipara, O. Puglisi, R. Skomski, and B. S. Hsiao (*Materials Research Society Symposium Proceedings*, **887**, Warrendale, PA 2006) 0887-Q07-04.
6. D. Dosev, M. Nichkova, R. K. Dumas, Kai Liu, I. M. Kennedy, “Spray pyrolysis synthesis of particles possessing magnetic and luminescent properties. Application of magnetic/luminescent particles in immunoassays”, in *BioMEMS and Nanotechnology II*, Dan V. Nicolau, Editor, *Proceedings of SPIE* Vol. **6036**, 60360T-1-10 (2006).
7. M. Asta, S. M. Kauzlarich, Kai Liu, A. Navrotsky, and F. E. Osterloh, “Inorganic Nanoparticles – Unique Properties and Novel Applications”, *Material Matters*, **2**, (1), 3-6 (2007).

RECENT CONFERENCE INVITED TALKS

- “Fingerprinting magnetic nanostructures by first order reversal curves”, DCMP, American Physical Society March Meeting, Denver, Colorado, March 7, 2007.
- “Fingerprinting magnetization reversal in magnetic nanostructures”, Workshop on Nanomagnetism within LBNL-MSD – Opportunities for the Future, Lawrence Berkeley National Laboratory, Berkeley, California, January 19, 2007.
- “Magnetization reversal in magnetic nanostructures”, 2006 American Vacuum Society 53rd International Symposium & Exhibition, San Francisco, California, November 14, 2006.

- “Magnetic Fingerprints of Sub-100nm Fe Nanodots”, International Workshop on Nanomagnets by Self-organization, Eisenerz, Austria, October 9, 2006.
- “Fingerprinting magnetization reversal in magnetic nanostructures”, the 5th International Conference on Condensed Matter Theory and Materials Computation, Lanzhou, China, July 10, 2006.
- “First-order reversal curve studies of magnetization reversal in magnetic nanostructures”, plenary talk, The 2006 Taiwan Association for Magnetic Technology Annual Meeting, Taipei, Taiwan, June 28, 2006.
- “Fingerprinting magnetization reversal in magnetic nanostructures”, The 5th Joint Meeting of Chinese Physicists Worldwide (OCPA5), Taipei, Taiwan, June 27, 2006.
- “First-order reversal curve studies of magnetization reversal in prototype recording media”, 2006 IEEE International Magnetism Conference, San Diego, California, May 12, 2006.
- “Fingerprinting magnetization reversal in magnetic nanostructures”, 2006 Spring Materials Research Society Meeting, San Francisco, April 19, 2006.
- “Growth mechanisms and oxidation-resistance of gold-coated iron nanoparticles”, 2005 Materials Research Society Fall Meeting, Boston, Massachusetts, November 30, 2005.
- “Magnetization reversal in magnetic nanostructures”, Physics by the Bay IV, Berkeley, California, October 1, 2005.
- “Magnetization reversal in magnetic nanostructures”, 1st US-Spain Workshop on Nanoscale Materials, Segovia, Spain, September 21, 2005.
- “Multifunctional magnetic nanostructures for information technology and bio-science applications”, ChinaNANO 2005, China International Conference on Nanoscience and Technology, Beijing, China, June 9, 2005.
- “FORC studies of magnetization reversal in Co/Pt and exchange spring magnet films”, Engineering Conference International: L1₀ Ordered Intermetallic and Related Phases for Permanent Magnet and Recording Applications, Copper Mountain, Colorado, August 19, 2004.
- “Fingerprinting magnetic hysteresis”, International Conference on Composites/Nano Engineering (ICCE-11), Hilton-Head Island, South Carolina, August 10, 2004.