

# P. CHRIS HAMMEL

DEPARTMENT OF PHYSICS  
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## Education

- B.A. in Physics, University of California, San Diego, Magna Cum Laude 1977.
- Ph.D. in Physics, Cornell University 1984,  
Thesis topic: “Magnetic Coupling Across the Liquid  $^3\text{He}$ -Substrate Interface”  
Advisor: Prof. R.C. Richardson.

## Employment and Appointments

- **Professor** and **Ohio Eminent Scholar**, The Ohio State University, June 2002 to present
- **Director**, Center for Emergent Materials (CEM), a National Science Foundation funded Materials Research Science and Engineering Center (MRSEC) October 2011 to August 2023
- **Fellow**, Los Alamos National Laboratory, July 2000 to present
- **Staff member**, Condensed Matter and Thermal Physics Group, Los Alamos National Laboratory, October 1989 to June 2002
- **Visiting Associate in Physics**, California Institute of Technology, Pasadena, CA, 1996–2000
- **J. Robert Oppenheimer Fellow**, Los Alamos National Laboratory, October 1986 to October 1989
- **Postdoctoral Fellow**, MIT with Prof. John S. Waugh, January 1984 to October 1986
- **Research Assistant**, Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, NY, June 1979–January 1984

## Research Interests

- Nanoscale spin dynamics and microwave magnetics
- Magnetic resonance force microscopy
- Optically detected magnetic resonance
- Biomagnetism

## Awards and Honors

- Oppenheimer Fellow, Los Alamos National Laboratory, October 1986
- Fellow, Los Alamos National Laboratory, July 2000
- Los Alamos National Laboratory Fellows Prize, February 1995
- Fellow, The American Physical Society, 1998
- Fellow, The American Association for the Advancement of Science, 2006
- Recipient, College of Engineering *Building Bridges* Award, 2016

## Professional Activities

- Founding Director, Center for Exploration of Novel Complex Materials (ENCOMM) 2005–2011
- Member, Search Committee, Dean, College of Engineering, The Ohio State University, 2020
- Member, Office of Research Interdisciplinary Research Center Leaders
- Chair, Talent and Culture Sub-Committee for the Research Pillar of the OSU Strategic plan 2019
- Chair, Executive Committee, Center for Emergent Materials, (MRSEC)
- Member, Exploration of Novel and Complex Materials (ENCOMM) Science Board
- Chair Proto-IRG Seed Program Executive Committee and Member, OSU Materials Seed Grant Program Executive Committee
- Member, NanoSystems Laboratory User Committee
- Member, President's and Provost's Advisory Committee (PPAC), The Ohio State University
- Member, External Advisory Board, Cornell University MRSEC, January 22, 2021
- Member, Electorate Nominating Committee of the Physics Section of the American Association for the Advancement of Science, 2016-2019
- Invited Panelist, Review Panel for DOE Energy Frontier Research Centers (EFRC), 19-20 January 2016, Bethesda, MD
- Invited Panelist, DOE BES workshop on Basic Research Needs (BRN) for Quantum Materials for Energy Relevant Technology, 8-10 February 2016, Gaithersburg MD
- Member, External Review Committee for E3S Science and Technology Center, 12–14 January 2015 and 8–10 January 2013, Berkeley, CA
- Member-At-Large, Executive Committee of The American Physical Society Topical Group on Magnetism and its Applications, 2010–2015
- Member, External Review Committee for US DOE, Office of Basic Energy Sciences (BES) Materials Chemistry Research Program at the Lawrence Berkeley National Laboratory (LBNL) 13–16 January 2014 and 15–18 January 2008, Berkeley, CA
- Member Visiting Committee, Cornell Center for Materials Research, an NSF MRSEC, 1–2 May 2013, Ithaca, NY
- Member, DOE Committee of Visitors Review of the Materials Sciences and Engineering Division May 22–24, 2012, DOE Germantown Complex
- External reviewer for the Department of Physics at Kent State University
- Member, Program Committee, 2011 Magnetism and Magnetic Materials International Conference
- Member, American Physical Society (1979-present)
- Member, Penn State University MRSEC Visiting Committee
- Member, Executive Committee of the *Instrumentation and Measurement Sciences Topical Group* of the American Physical Society (2001-2005)

- Co-chair, *International Workshop on Novel Magnetic Materials*, Leibniz Institute for Solid State and Materials Research, 23–25 August 2010, Dresden, Germany
- Member, American Association for the Advancement of Science (2002-present)
- Proposal referee and panelist, National Science Foundation,
- Proposal referee, Department of Energy, The Research Foundation and the Petroleum Research Foundation
- Manuscript referee, *Physical Review Letters*, *Science*, *Nature*, *Physical Review B*, *Applied Physics Letters*, *Journal of Applied Physics* and *Physica C*
- Chairman, DOE BES Electron and Scanning Probe Microscopies Contractors Meeting, October 26–29, 2008
- Member, External Review Committee, Materials Division, Argonne National Laboratory, Argonne, IL, 14–16 May 2008
- Invited panelist, Scientific Review of Stanford’s *Center for Probing the Nanoscale*, 16–19 September, 2009
- Co-organizer, *International Conference on Experimental Implementation of Quantum Computation*, January 16–19, 2001, Sydney, Australia
- Co-organizer of workshop on *Scanned Probe Microscopy in Biology, Chemistry and Physics*, December 9–12, 2001 Santa Fe, NM.
- Member, Quantum Information Science and Technology Expert Panel, tasked with developing a national quantum information roadmap (2000-2002)
- Member, International Advisory Committee, Australian Research Council Special Research Centre for Quantum Computer Technology (2000-2002)
- Member, Los Alamos National Laboratory Postdoctoral Committee (2000-2002)
- Leader, Complex Functional Nanomaterials Thrust of the LANL/Sandia Center for Integrated Nanomaterials (2001-2002)

## Invited Talks

### American Physical Society

1. “ $^{17}\text{O}$  NMR in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ,” presented at the March Meeting of the American Physical Society, Anaheim, California, March 16–20, 1990.
2. “NMR Studies of  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the March meeting of the American Physical Society, Seattle, Washington, March 22–26, 1993.
3. “NMR/NQR Studies of Oxygen Doped  $\text{La}_2\text{CuO}_4$ : Inhomogeneous Structure and Hole Localization,” presented at the March meeting of the American Physical Society, St. Louis, Missouri, March 18–22, 1996.
4. “Ferromagnetic Resonance in Microscopic Magnets Using Magnetic Resonance Force Microscopy,” presented by Z. Zhang at the March meeting of the American Physical Society, Kansas City, Missouri, March 17–21, 1997.
5. “Magnetism of Charge-Stripe Ordered 2D Transition Metal Oxides,” presented at the March meeting of the American Physical Society, Atlanta, GA, March 21–26, 1999.
6. “Magnetic Resonance Readout in the Silicon-Based Nuclear Spin Quantum Computer,” presented at the March meeting of the American Physical Society, Minneapolis, MN, March 20–24, 2000.
7. “Scanning MRFM of Microscopic Ferromagnets” presented at the March meeting of the American Physical Society, Indianapolis, IN, March 18–22, 2002.
8. “Force-Detected Scanned Probe Magnetic Resonance Microscopy,” presented at the March meeting of the American Physical Society, Montreal, Canada, March 26, 2004
9. “Ferromagnetic Resonance Imaging with Magnetic Resonance Force Microscopy,” presented by Denis Pelekhov at the March Meeting of the American Physical Society, March 2009
10. “Nanoscale scanning probe ferromagnetic resonance imaging using localized modes,” presented at the March Meeting of the American Physical Society, Dallas TX, March 2011
11. “Spatially-resolved measurement of spin transport across nanoscale interfaces,” presented by Rohan Adur at the March Meeting of the American Physical Society, San Antonio TX, March 2015
12. “Spin Transport via Collective Spin Excitations,” presented at the March Meeting of the American Physical Society, Baltimore MD, March 2016
13. “High Sensitivity Magnetic Resonance: Spectroscopy and Spin Dynamics” presented at the March Meeting of the American Physical Society, Las Vegas, NV, March 8, 2023

### Gordon Research Conferences

1. “Anisotropic Knight Shifts and Relaxation Rates in  $\text{YBa}_2\text{Cu}_3\text{O}_7$ ,” presented at the *Gordon Research Conference on Magnetic Resonance*, Plymouth NH, June 19–23, 1989.
2. “Phase Separation, Structure and Superconductivity in Oxygen-Annealed  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the *Gordon Research Conference on Superconductivity*, Oxnard, CA, January 4–8, 1993.
3. “Localized Holes in Superconducting Lanthanum Cuprate,” presented at the *Gordon Research Conference on Superconductivity*, Ventura, CA, January 12–17, 1997.

4. “Glassy Spin Freezing in Lanthanum Cuprate” presented at the *Gordon Research Conference on Superconductivity*, Oxford, England, 9–14 September 2001.
5. “Scanned Probe Ferromagnetic Resonance Studies of Microscopic Ferromagnets,” presented at the *Gordon Research Conference on Magnetic Nanostructures*, May 12–17, 2002 in Il Ciocco, Italy.
6. “Nanoscale scanning probe ferromagnetic resonance imaging using localized modes,” *Gordon Research Conference on Magnetic Nanostructures*, Bates College, ME, 8–13 August 2010.
7. “Scanned Probe Ferromagnetic Resonance Imaging,” *Gordon Research Conference on Magnetic Resonance*, 15 June 2011, University of New England, Biddeford, ME.

## International Conferences and Workshops

1. “Incommensurate Spin Fluctuations and Oxygen Doping in Super-Oxygenated  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the *Distinguished Visitors Workshop on Spin Effects in High Temperature Superconductors*, University of Illinois at Urbana-Champaign April 2–4, 1992.
2. “Magnetism, Phase Separation, Local Structure and Superconductivity in Super-Oxygenated  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the *International School of Solid State Physics Workshop: Aspects of Phase Separation in Cuprate Superconductors*, May 6–13, 1992, Erice, Sicily.
3. “NMR Study of Local Structural Inhomogeneity in Metallic  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the *International Conference on Strongly Correlated Electron Systems*, August 16–19, 1993, La Jolla, California.
4. “NMR Study of Local Structural Inhomogeneity in Metallic  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the *Second International Workshop on Phase Separation in Cuprate Superconductors*, September 5–10, 1993 in Cottbus, Germany.
5. “Local Structure in Oxygen-Doped  $\text{La}_2\text{CuO}_{4+\delta}$ ” presented at the *International Workshop on Anharmonic Properties of High- $T_c$  Cuprates*, Bled, Slovenia, September 1–6, 1994.
6. “Sub-surface Imaging with the Magnetic Resonance Force Microscope” presented at the *Symposium on Quantum Fluids & Solids-95*, Cornell University, June 12–17, 1995.
7. “NMR Studies of the Cuprates: Localization of Doped Holes in Metallic  $\text{La}_2\text{CuO}_{4+\delta}$  and An Examination of the Oxygen Relaxation Rate in  $\text{YBa}_2\text{Cu}_3\text{O}_7$ ,” presented at the *Third International Workshop on Phase Separation, Electronic Inhomogeneities and Related Mechanisms for High- $T_c$  Superconductors*, Erice, Italy, July 9–15, 1995.
8. “The Magnetic Resonance Force Microscope: Recent Experiments” presented at the *Southeast Magnetic Resonance Conference*, Tallahassee, FL, December 1, 1995.
9. “Localized Holes in Superconducting Lanthanum Cuprate,” presented at the *International Conference on Stripes, Lattice Instabilities and High  $T_c$  Superconductivity*, Rome, Italy, December 8–12, 1996.
10. “Microscopic Characterization of Magnetic Materials Using Magnetic Resonance Force Microscopy,” presented at the *NATO Advanced Study Institute: Frontiers in Magnetism of Reduced Dimension Systems*, Crimea, Ukraine, May 25–June 3, 1997.
11. “Charge Inhomogeneity in Lanthanum Cuprate and Lanthanum Nickelate,” presented at the *Workshop on Spin-Charge-Lattice Coupling in Complex Electronic Materials*, Los Alamos, NM, August 12–14, 1997.

12. "Microscopic Characterization of Magnetic Materials Using Magnetic Resonance Force Microscopy," presented at the 4<sup>th</sup> *International Conference on Magnetic Resonance Microscopy and Macroscopy*, Albuquerque, NM, September 21–25, 1997.
13. "Microscopic Characterization of Layered Magnetic Materials Using Magnetic Resonance Force Microscopy," presented at the 25<sup>th</sup> *Conference on the Physics and Chemistry of Semiconductor Interfaces*, Salt Lake City, Utah, 18–22 January 1998.
14. "Charge Inhomogeneity in Transition Metal Oxides," presented at the *Second International Conference on Stripes and High  $T_c$  Superconductivity*, Rome, Italy, 2-6 June 1998.
15. "Microscopic Characterization of Magnetic Materials Using Magnetic Resonance Force Microscopy," presented at the 3<sup>rd</sup> *International Symposium on Metallic Multilayers*, Vancouver, British Columbia, Canada, 14–19 June 1998.
16. "Magnetism of Charge-Striped 2D Transition Metal Oxides" presented at the *Colloquium on Magnetic Resonance in High- $T_c$  Superconductors*, Engelberg, Switzerland, 17–21 January 1999.
17. "High Resolution Scanned Probe Magnetic Resonance Microscopy," plenary talk presented at the Swiss-US workshop on *Tools and Simulations in Nanotechnology*, Zürich, Switzerland, 20–21 September 1999.
18. "Inhomogeneous Low Frequency Spin Dynamics in  $\text{La}_{1.8-x}\text{Eu}_{0.2}\text{Sr}_x\text{CuO}_4$ " presented at the Symposium on *Itinerant and Localized States in HTSC* in Klosters, Switzerland, 6–10 April, 2000.
19. "Glassy Spin Freezing in Lanthanum Cuprate," presented at the *Workshop on High Temperature Superconductivity*, Institute for Theoretical Physics, University of California, Santa Barbara, CA, August 14–18, 2000.
20. "Glassy Spin Freezing and Stripe Order in Lanthanum Cuprate," presented at *Stripes 2000* in Rome, Italy, 25–30 September 2000.
21. "The Magnetic Resonance Force Microscope: Readout for a Silicon-Based Nuclear-Spin Quantum Computer," presented at the International Conference on Experimental Implementation of Quantum Computation, Sydney Australia, 16–19 January, 2001.
22. "Glassy Spin Freezing in Lanthanum Cuprate," presented at the *Aspen Winter Physics Conference*, Aspen, CO, January 21–27, 2001.
23. "Probing Materials with Magnetic Resonance," presented at the *The Future of Materials Physics* Workshop in honor of Zachary Fisk, August 13-15, 2001, Los Alamos, NM
24. "Force-Detected Scanned Probe Magnetic Resonance Microscopy," presented at the Physical Phenomena at High Magnetic Fields-IV Conference, Santa Fe, New Mexico, October 19–25, 2001
25. "Force Detected Scanned Probe Magnetic Resonance: The Magnetic Resonance Force Microscope," presented at *Physical Properties of Amyloid Diseases Workshop*, the University of California, San Francisco, CA November 29–December 1, 2001
26. "The Silicon-Based Nuclear Spin Quantum Computer," to be presented at the SPIE International Conference "Photonics West", San Jose, CA, Jan 20–25, 2002
27. "The Silicon-Based Quantum Computer," presented at the 3<sup>rd</sup> *Annual Conference of the Southwest Quantum Information and Technology Network*, NIST, Boulder, CO, March 8-10, 2002.
28. "Ultrasensitive Electron Spin Resonance with the Magnetic Resonance Force Microscope," presented at *EPR 2005*, Columbus, OH, on 7 September 2005.

29. "The Magnetic Resonance Force Microscope: A New Tool for High Resolution Materials Studies," presented at the 135th Annual Meeting of *The Minerals, Metals & Materials Society (TMS)*, San Antonio, TX, March 13, 2006.
30. "The Magnetic Resonance Force Microscope: A New Tool for High Resolution Materials Studies" presented at the Summer School on Magnetic Resonance Force Microscopy, Ithaca, NY, June 23, 2006
31. "Ultrasensitive Magnetic Resonance Detection with Micromechanical Cantilevers" presented at the Symposium on Nonlinear Dynamics of Nanosystems at Chemnitz, Germany, August 29, 2007.
32. "Submicron Ferromagnetic Resonance Imaging Using Scanned Probe MRFM," presented at the 2007 Aspen Conference on Spins in Nanostructures, Aspen, CO, January 2007
33. "Scanned Probe Ferromagnetic Resonance Imaging," presented at the Third International Workshop on Nanomagnetism, Coma Ruga, Spain, 2 July 2007
34. "The Spirit of Adventure in the Search for Truth: Magnetic Resonance Studies of Condensed Matter," presented at the Conference honoring Bob Richardson, 12–13 April 2008, Ithaca, NY
35. "Mechanisms of FMR imaging," invited presentation, International Conference on Nanoscience & Technology 21–25 July, 2008
36. "Scanned Probe Magnetic Resonance Imaging and Spectroscopy of Materials," invited presentation at the DOE sponsored Workshop on *Frontiers of Atomic-Scale Functionality Imaging* 28–30 September, 2008, Annapolis, MD
37. "Scanned Probe Magnetic Resonance Imaging and Spectroscopy of Materials," invited presentation at the International Conference on *Physics and Chemistry of Surfaces and Interfaces*, January 9, 2009, Santa Barbara, CA
38. "Scanned Probe Magnetic Resonance" presented at the Conference on *Functional Materials by Design*, Los Alamos National Lab, 20 January, 2009
39. "Ferromagnetic Resonance Imaging," presented at the Workshop *Molecular Imaging 2009: Routes to Three-Dimensional Imaging of Single Molecules*, August 9–13, 2009, Ithaca NY
40. "Generation of Localized Ferromagnetic Resonance Modes for Scanned Probe Imaging," to be presented at the Workshop: *Opportunities for Magnetism in MEMS/NEMS*, Argonne National Laboratory, 16–17 April 2010
41. "Nanoscale scanned probe ferromagnetic resonance imaging using localized modes," to be presented at the *3rd nano-MRI research conference: Exploring the Frontiers of Magnetic Resonance Imaging* to be held at Le Tremblay sur Mauldre, France, 12–16 July 2010
42. "Scanned probe imaging of spin physics," presented at the *International Workshop on Novel Magnetic Materials*, Leibniz Institute for Solid State and Materials Research, 23–25 August 2010, Dresden, Germany
43. "Localized Ferromagnetic Resonance Modes for Scanned Probe Imaging," *55th Annual Conference on Magnetism & Magnetic Materials*, 14–18 November 2010, Atlanta, GA
44. "Spin Transport Driven by Magnetization Dynamics: Nanoscale studies of spin dynamics," invited talk presented at the *8th ASRC International Workshop on Spin Mechanics*, Tokai, Japan, 24–26 February 2013
45. "Spin dynamics and transport in nanoscale volumes," Keynote talk presented at the 2014 Annual Meeting of the AAAS, 13–17 February 2014, Chicago, IL

46. “Probing the Influence of Interfaces in Spin Pumping,” SPIE Spintronics VII, 17–21 August 2014, San Diego, California
47. “The Role of Interfaces in Dynamic Spin Transport,” 59th Annual Magnetism and Magnetic Materials Conference, 3–7 November 2014, Honolulu, Hawaii
48. “Spin Transport by Collective Magnetization Excitations,” Santorini IV Workshop on Complex Oxides, Porquerolles, France, 16 June 2016
49. “Spin Transport by Collective Spin Excitations,” Spin Mechanics 4, Lake Louise, Canada, 20-25 February 2017
50. “Spin Transport by Collective Spin Excitations,” invited speaker ISMAR, Quebec City, July 2017
51. “Broadband Paramagnetic Resonance Spectroscopy Through Non-resonant Coupling to NV Centers in Diamond,” invited speaker, Spin Mechanics and Nano-MRI, 11-16 February 2018, Ecole de Physique des Houches, France
52. Invited Speaker, “International Workshop “Quantum Magnonics” to be held from May 11 to 29, 2020 at the International Institute of Physics, Natal-Brazil. Cancelled due to COVID-19 pandemic
53. Invited Speaker, “Frontiers in Magnetism: Quantum Technologies” Conference. to be held at New York University in New York City, October 13th to 16th 2020. Postponed due to COVID-19 pandemic
54. Invited Speaker “QDiamond20 workshops on quantum science and technology with diamond” at Castle Oud-Poelgeest, Netherlands July 6-9, 2020. Cancelled due to COVID-19 pandemic
55. Heraeus Foundation workshop on “Localized Magnetic Resonance: Spectroscopy & Spin Dynamics” at the WE-Heraeus-Seminar *Magnetism at the Nanoscale: Imaging - Fabrication - Physics*, 6–8 January 2021, Berlin, Germany (held virtually after several delays)

## Colloquia and Seminars

1. “Magnetism in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-y}$ : Insights from NMR” at the Physics and Theoretical Division Colloquium, Los Alamos National Lab, March 1990.
2. “ $^{139}\text{La}$  Magnetic Resonance Studies of Single Crystal  $\text{La}_2\text{CuO}_{4+\delta}$ ”, Physics Department, Northwestern University, Evanston Illinois, March 18, 1991.
3. “ $^{139}\text{La}$  Magnetic Resonance Studies of Single Crystal  $\text{La}_2\text{CuO}_{4+\delta}$ ”, Materials Science Division, Argonne National Laboratory, March 19, 1991.
4. “NMR Studies of the High Temperature Superconductors  $\text{YBa}_2\text{Cu}_3\text{O}_{7-y}$ ,” Joint Los Alamos National Laboratory and Sandia National Laboratories Office of Basic Energy Sciences Materials Sciences Information and Review Meeting, May 29–30, 1991.
5. “Magnetism, Phase Separation, Local Structure and Superconductivity in Super-Oxygenated  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the Theory Institute of the Swiss Federal Institute of Technology (ETH), Zurich, Switzerland, May 18, 1992.
6. “Magnetism, Phase Separation, Local Structure and Superconductivity in Super-Oxygenated  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the Solid State Physics Laboratory of the University of South Paris, Orsay, France, May 25, 1992.
7. “NMR Study of Local Structure in Metallic  $\text{La}_2\text{CuO}_{4+\delta}$ ,” presented at the University of Köln, September 16, 1993.



8. "NMR Study of Local Structure and Charge Distribution in Metallic  $\text{La}_2\text{CuO}_{4+\delta}$ ," presented at the Condensed Matter Physics Department, California Institute of Technology, January 11, 1994.
9. "NMR Study of Local Structure and Charge Distribution in Metallic  $\text{La}_2\text{CuO}_{4+\delta}$ ," presented at the Physics Department, University of California at Riverside, January 13, 1994.
10. "Phase Separation and Local Structure in Oxygen-Doped  $\text{La}_2\text{CuO}_{4+\delta}$ ," presented to the Physics Department at the University of California at Los Angeles, May 18, 1994.
11. "An Examination of the Oxygen Relaxation Rate in  $\text{YBa}_2\text{Cu}_3\text{O}_7$ " presented to the Physics Department, University of Florida, Gainesville, FL, November 27, 1995.
12. "The Magnetic Resonance Force Microscope: Recent Experiments" presented to the Physics Department, University of Florida, Gainesville, FL, November 28, 1995.
13. "Localized Holes in Superconducting Lanthanum Cuprate," presented at the Condensed Matter Physics Seminar, Physics Department, University of Illinois at Urbana/Champaign, February 21, 1997.
14. "Doped Holes and Stripes in 2D Cuprates and Nickelates," presented at the Condensed Matter Physics Seminar, Department of Physics, Florida State University and National High Magnetic Field Laboratory, Tallahassee, FL, April 11, 1997.
15. "The Magnetic Resonance Force Microscope: A New Probe of Magnetic Materials," presented at the Condensed Matter Seminar, Department of Physics, The Ohio State University, Columbus, OH, November 12, 1997.
16. "The Magnetic Resonance Force Microscope: A New Probe of Magnetic Materials," presented at the Physics Colloquium, Texas A&M University, College Station, TX, December 4, 1997.
17. "Consequences of Inhomogeneous Charge Structures for Magnetism in 2D Transition Metal Oxides from NMR" presented at the University of Köln, Köln, Germany, May 25, 1998.
18. "Consequences of Inhomogeneous Charge Structures for Magnetism in 2D Transition Metal Oxides from NMR" presented at the University of Augsburg, Augsburg, Germany, May 27, 1998.
19. "The Magnetic Resonance Force Microscope: A New Probe of Magnetic Materials," presented at the University of Zürich, Zürich, Switzerland, May 28, 1998.
20. "The Magnetic Resonance Force Microscope: A New Approach to Microscopic Subsurface Imaging," Physics Department Colloquium presented at the University of California, Davis, February 22, 1999.
21. "Magnetism of Charge-Striped 2D Transition Metal Oxides," presented at the University of California, Riverside, February 23, 1999.
22. "Magnetism of Charge-Stripe Ordered Transition Metal Oxides," presented at Solid State Sciences Seminar, Caltech, Pasadena, CA May 25, 1999.
23. "High Resolution Scanned Probe Magnetic Resonance Microscopy," Physics Colloquium, The Ohio State University, Columbus, OH, November 2, 1999.
24. "Inhomogeneous Low Frequency Spin Dynamics in  $\text{La}_{1.8-x}\text{Eu}_{0.2}\text{Sr}_x\text{CuO}_4$ ," Physics Colloquium, University of California, San Diego, 8 March, 2000.
25. "The Silicon-Based Nuclear Spin Quantum Computer," presented at the Physics Colloquium, Boston College, April 26, 2000.

26. "Glassy Spin Freezing and Stripe Order in Lanthanum Cuprate," presented at the UCLA Solid State Seminar, May 10, 2000.
27. "Glassy Spin Freezing in Lanthanum Cuprate," presented at the University of Köln, Köln, Germany, October 2, 2000.
28. "Magnetic Resonance Readout in the Silicon-Based Nuclear Spin Quantum Computer," presented at the University of Stuttgart, Stuttgart, Germany October 4, 2000.
29. "Glassy Spin Freezing in Lanthanum Cuprate," presented at the Max Planck Institute, Stuttgart, Germany, October 5, 2000.
30. "The Magnetic Resonance Force Microscope: Imaging Magnetic Materials," presented at the Ohio State University, November 20, 2000.
31. "Glassy Spin Freezing in Lanthanum Cuprate," presented to the Applied Physics Department, Stanford University, November 30, 2000.
32. "Magnetic Resonance Readout in the Silicon-Based Nuclear Spin Quantum Computer," presented at the University of California, San Diego, La Jolla, CA, February 14, 2001.
33. "High Resolution Scanned Probe Magnetic Resonance," presented to the Department of Radiology, The Ohio State University, Columbus, OH, May 29, 2001.
34. "Force Detected Scanned Probe Magnetic Resonance: The Magnetic Resonance Force Microscope," presented at the University of California, Santa Barbara, May 25, 2001.
35. "Force-Detected Scanned Probe Magnetic Resonance Microscopy," presented at the University of Illinois at Urbana/Champaign on October 29, 2001, Urbana, Illinois.
36. "Force-Detected Scanned Probe Magnetic Resonance Microscopy: The Magnetic Resonance Force Microscope," presented at Cornell University on December 18, 2001, Ithaca, NY.
37. "Force-Detected Scanned Probe Magnetic Resonance Microscopy," Department of Physics Colloquium presented at the University of Akron September 4, 2003
38. "Force-Detected Scanned Probe Magnetic Resonance Microscopy," Physics Colloquium, Kenyon College, January 23, 2004
39. "Force-Detected Scanned Probe Magnetic Resonance Microscopy," Physics Colloquium, University of Wisconsin-Madison, January 30, 2004
40. "Scanned Probe Magnetic Resonance: The Magnetic Resonance Force Microscope," Condensed Matter Physics Seminar presented at Case Western Reserve University, April 18, 2005.
41. "Force-Detected Scanned Probe Magnetic Resonance Microscopy," Colloquium presented at Miami University of Ohio, October 19, 2005.
42. "Ultrasensitive Magnetic Resonance Detection with Micromechanical Cantilevers" Seminar presented at the Institute for Solid State Research of the Leibniz Institute for Solid State and Materials Research, Dresden, Germany, September 1, 2006.
43. "Submicron Ferromagnetic Resonance Imaging Using Scanned Probe MRFM," Solid state seminar presented at the Department of Physics, Cornell University, Ithaca, NY, 14 November 2006.
44. "Submicron Ferromagnetic Resonance Imaging Using Scanned Probe MRFM," presented at the Los Alamos National Lab Materials Colloquium, Los Alamos, NM, 21 February, 2007
45. "Scanned Probe Magnetic Resonance Imaging for Magnetoelectronics," Colloquium, Department of Physics, Kent State University, Kent, OH, 12 April, 2007

46. "Scanned Probe Magnetic Resonance Imaging for Magnetoelectronics," Seminar presented at the Leibniz Institute for Solid State and Materials Research, Dresden, Germany, 5 July, 2007
47. "Scanned Probe Magnetic Resonance Imaging for Magnetoelectronics," Colloquium, Department of Physics, Carnegie Mellon University, Pittsburgh, PA, 10 September, 2007
48. "Scanned Probe Magnetic Resonance Imaging for Magnetoelectronics," Colloquium, Department of Physics, Wayne State University, Detroit, MI, 6 December 2007
49. "Scanned Probe Magnetic Resonance Imaging for Magnetoelectronics," Colloquium, Department of Physics, Northwestern University, Evanston, IL, 1 February 2008
50. "Scanned Probe Ferromagnetic Resonance," Condensed Matter Seminar, Department of Physics and Astronomy, Michigan State University, East Lansing, MI, October 13, 2008
51. "Scanned Probe Magnetic Resonance", Colloquium, University of Illinois, Urbana-Champaign, IL, January 30, 2009
52. "Scanned Probe Magnetic Resonance Imaging for Magnetoelectronics," Colloquium, Department of Physics, Penn State University, 19 February 2009
53. "Scanned Probe Ferromagnetic Resonance Imaging," Condensed Matter Physics Seminar, University of California, Riverside, 20 April, 2011
54. "Scanned Probe Ferromagnetic Resonance Imaging," Physics Department Colloquium, University of California, Irvine, 21 April, 2011
55. "Scanned Probe Ferromagnetic Resonance Imaging," Center for Nonlinear Studies Colloquium, Los Alamos National Laboratory, Los Alamos, NM, 31 May 2011
56. "Spin Transport Driven by Magnetization Dynamics," Colloquium presented at Boston College Department of Physics, Chestnut Hill, MA, December 5, 2012
57. "Spin dynamics and transport in nanoscale volumes," Condensed Matter Physics Seminar, UCLA Department of Physics & Astronomy presented 17 January 2014, Los Angeles, CA
58. "Spin dynamics and transport in nanoscale volumes," Materials Colloquium, Los Alamos National Laboratory, 22 January, 2014, Los Alamos, NM
59. "Probing the Influence of Interfaces in Spin Pumping," Condensed Matter Seminar, Service de Physique de l'Etat Condensé, CEA, Saclay, France, 23 September 2015
60. "Probing the Influence of Interfaces in Spin Pumping," Seminar, SPINTEC, CEA Grenoble, France, 15 October 2015
61. "Probing the Influence of Interfaces in Spin Pumping," Seminar, Institute for Metallic Materials (IMW) Leibniz Institute for Solid State and Materials Research Dresden, 21 October 2015
62. "Local Magnetic Resonance Studies of Interfacial Magnetic Interactions: Spectroscopy & Spin Dynamics", PQI Distinguished Seminars in Quantum Science & Engineering, Pittsburgh, PA, 12 September 2023

## Publications

10,417 citations

*h*-index: 50: Google Scholar profile

ORCID-ID

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