

Andrew B. Kunz, Ph.D.

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EDUCATION

Ph.D., Physics - University of Minnesota, Twin Cities, August 2000

Title: “Micromagnetic Modeling of Nanoscale Nickel Dots, and Films and Thin Permalloy Films”

B.S., with distinction, Physics - University of Illinois, Urbana-Champaign, May 1995

PROFESSIONAL EXPERIENCE**Marquette University, Milwaukee, WI**

Associate Professor of Physics (August 2011-Present)

Assistant Professor of Physics (August 2004-2011)

- Courses taught include: Introductory algebra and calculus based physics including Phys 1013/1014 studio style for majors, Classical Mechanics (developed and introduced a “flipped classroom” in 2015), Advanced Lab, Modern Physics (including math methods and computation), Nuclear and Particle Physics, and Solid State Physics.
- Building a magnetization dynamics research laboratory to study the irregular domain wall motion in magnetic nanowires with undergraduate student assistance. Implementing results into courses, both intro and advanced. *Paid Undergrad RA's:* Eric Breitbart(Ph.D Maine), Sarah Reiff (Ph.D. Notre Dame), Andy Smith(Ph.D.UC-Irvine), Brian Kastor(M.S. Miami of Ohio, Illinois-Chicago), Eric Rentsh, Jonathon Priem (USAF), Jeff Maltas (M.S. Miami Univ.-Ohio, Ph.D. Univ. of Michigan), Rebecca McAuliffe (Ph.D. program Univ. of Illinois), Daniel Olsen (Ph.D. program Med. College of Wisconsin), Kyle Kimminau (Ph.D. program RPI), Jesse Vogeler-Wunsch(M.S. Oregon), Moses Misplon (B.S. program Carlton), Hoan Henry Le (M.S. UC-Irvine Mech Eng.), Demetrious Kutzke (Ph.D. program William and Mary), Chris Johlie (EPIC), Kirsten Blagg (Ph.D. program Colorado School of Mines), Austin Kingsley (M.S. program Miami-OH), Tony Francisco (Ph.D. program Notre Dame), Noah Greenberg (Sr), Ryan Schumm (Sr), Andres Damian (Jr).
- Academic advisor for a continual 20 – 25 undergraduate physics majors and science education majors (received Excellence in Faculty Advising Award from Klingler College of Arts and Sciences in 2013)
- Local advisor for student group Society of Physics Students—named SPS Outstanding Chapter 2004-2005, 2005-2006, 2004 – 2016.
- Advisor for Women in Physics at Marquette University (founded in 2012) to 2017.
- Served on department search committees, Undergraduate Curriculum Committee (Chair 2009-2010, 2012,) 2016-2018, and Graduate committee, Chair Assistant Professor Search 2014-2015, (member 2017-2018).
- Member University Committee on Academic Policies and Initiatives (2011-2014)
- Member College of Arts and Sciences Advising Committee (2013 – present)
- Co-organizer for Math/CS/Phys, Computational Biophysics Symposium (April 2015) (Anne Clough \$6000)
- Member Honors Faculty Advisory Board (2015 – present)
- Director of Undergraduate Studies for Physics Department (2016 – present)
- Member University Committee on Research (2017 – present)

Lawrence University, Appleton, WI

Visiting Assistant Professor of Physics (August 2002 – July 2004)

- Courses taught: Introductory Physics, Thermal Physics and Statistical Mechanics, Introductory Solid State Physics, Optics, Engineering Statics, and Electricity and Magnetism. (*Undergrads: Rahul Bhinge, M.S. Univ. of Michigan-Aerospace Engineering, Jason Levin-Koopman, M.S. Univ. of Minnesota-Math*)

University of Nebraska, Lincoln, NE

Visiting Summer Research Associate (June 2003-August 2003)

National Institute of Standards and Technology, Gaithersburg, MD
Research Associate (September 2000 – July 2002)

- National Resource Council Postdoctoral Fellow

University of Minnesota-Twin Cities, Minneapolis, MN

Research Assistant (May 1997 - August 2000)

Co-Instructor (January 2000 - May 2000)

Teaching Assistant (August 1995 - May 2000)

- Served as head departmental teaching assistant (Mentor TA) where I was involved in the training of new TA's, involving: leading orientation, classroom visitations and weekly education seminars during the course of the year.
- Taught introductory physics in small class discussions (<20) and laboratories to both calculus and algebra based students. Concentrated on cooperative group problem solving methods in small group settings.

RESEARCH GRANTS AWARDED

(In progress)

- PI on a proposal to be submitted (Oct 2017) for roughly \$160K to the NSF on Novel Ferromagnetic Geometries

(As Associate Professor)

- P.I. \$126,000 National Science Foundation-DMR-1309094 for the period of 9/15/2013 – 11/30/2016
- P.I. \$38,000 National Science Foundation-DMR-1006947 3rd year renewal for 9/1/2012 – 8/31/2013

(As Assistant Professor)

- P.I. \$76,000 National Science Foundation-DMR-1006947 for the period of 9/15/2010 – 8/31/2012
- P.I. \$108,000 National Science Foundation-DMR-0706194 for the period of 12/15/2007-11/30/2010
- P. I. \$29,464 Research Corporation Cottrell College Science Award for the period of 7/2007-6/2009
- \$5,500 Summer Faculty Fellowship—Marquette University (2005)

(Prior to Marquette)

- \$3000 Lawrence University Summer Research Grant (2004)
- \$12000 NSF-MRSEC Faculty/Undergraduate student Fellowship at the University of Nebraska (2003)

Major Proposals (Co- PI & Unfunded)

(As Associate Professor)

- Contributor ~\$5M, DOD MURI Proposal on Multipactor Prediction 2016
- PI \$160K, NSF DMR Proposal on Novel Geometries 2016
- NSF – STTR (with NVE Corp, Minneapolis, MN) \$250,000 2014
- NSF – STTR (with NVE Corp, Minneapolis, MN) \$250,000 2013

(As Assistant Professor)

- NSF – TUES (with Milwaukee Area Technical College) \$250,000 2009
- NSF – TUES (for lab development) \$120,000 2006

REFEREED PUBLICATIONS (undergraduate student co-authors)

Work Completed at Marquette

(in progress)

- A. Kunz, **K.F. Kimminau**, **K. Blagg**, **C. Johlle**, “The effects of bulk disorder on domain wall motion in ferromagnetic nanowires,” to be submitted to *AIP Advances* 2017
- **N. Greenberg**, A. Kunz, “Disordered Kagome Spin Ice,” to be submitted to *AIP Advances* 2017

(As Associate Professor)

- **R. Schumm** and A. Kunz, "Magnetization reversal in ferromagnetic spirals via domain wall motion," *Applied Physics Letters* 109, 202405 (2016).
- A. Kunz, **H. H. Le**, **D. Kutzke**, **J. Vogeler-Wunsch**, “Selection and control of individual domain walls in nanowire arrays via asymmetric depinning fields,” *IEEE Trans. Magn.* 52(2), 1300205 (2016).

- A. Kunz and J. Vogeler-Wunsch, “Application of local transverse field for domain wall control in ferromagnetic nanowire arrays,” *Applied Physics Letters* 101, 192402 (2012).

(As Assistant Professor)

- G. Burch, T. Shultz, A. Kunz and E.D. Dahlberg, “Magnetic Response vs. Lift Height of Thin Ferromagnetic Films,” *IEEE Transactions on Magnetics* 46 (6) 1752 - 54 (2010).
- A. Kunz and E. Rentsch, “Simulations of Field Driven Domain Wall Interactions in Ferromagnetic Nanowires,” *IEEE Transactions on Magnetics* 46 (6) 1556 - 58 (2010).
- A. Kunz and J. Priem, “Static and Dynamic Pinning Fields for Domain Walls in Ferromagnetic Nanowires,” *IEEE Transactions on Magnetics* 46 (6) 1559 - 61(2010).
- A. Kunz and S.C. Reiff, “Dependence of domain wall structure for low field injection into magnetic nanowires,” *Applied Physics Letters* 94, 192504 (2009).
- A. Kunz, “Field induced domain wall collisions in thin magnetic nanowires,” *Applied Physics Letters* 94, 132502 (2009). See also Nature Physics Research Highlights (*Nat. Phys.* 5, 313 (2009)).
- A. Kunz, E. C. Breitbach, and Andrew J. Smith, “Anti-vortex dynamics in magnetic nanostripes,” *Journal of Applied Physics* 105, 07D502 (2009). (arXiv:0810.1538)
- A. Kunz and S. C. Reiff, “Fast domain wall motion in nanostripes with out-of-plane fields,” *Applied Physics Letters* 93, 082503 (2008).
- A. Kunz and S. C. Reiff, “Enhancing domain wall speed in nanowires with transverse magnetic fields,” *Journal of Applied Physics* **103**, 07D903 (2008) (arXiv:0711.1864)
- A. Kunz, “Micromagnetics of the domain wall mobility in permalloy nanowires,” *IEEE Transactions on Magnetics* **43** (6) 2944-46 (2007).
- A. Kunz, “Simulating the maximum domain wall speed in a magnetic nanowire,” *IEEE Transactions on Magnetics* **42** (10) 3219 (2006).
- A. Kunz, “Simulated domain wall dynamics in permalloy nanowires,” *Journal of Applied Physics* **99** 08G107 (2006).

(Pre-Marquette Work)

- G.D. Skidmore, A. Kunz, C.E. Campbell, and E.D. Dahlberg, “Micromagnetic Domain Structures in Small Nickel Dots,” *Physical Review B* **70** 012410 (2004).
- R.D. McMichael, D.J. Twisselmann, and A. Kunz “Localized ferromagnetic resonance in inhomogeneous thin films,” *Physical Review Letters* **90** (22) 227601 (2003).
- A. Kunz, and R.D. McMichael, “Normal mode mixing and ferromagnetic resonance linewidth,” *IEEE Transactions on Magnetics*, **38** (5) 2400-2402 (2002).
- R.D. McMichael, A. Kunz, “Calculation of Damping Rates in Thin Magnetic Films Due to Coupling to Lattice Vibration,” *Journal of Applied Physics*, **91** (10) 8650-8652 (2002).

OTHER PUBLICATIONS

Work Completed at Marquette

- US Regular Patent, US 9,196,280 B2, Issued November 24, 2015.
- A. Kunz, “Improved magnetic domain wall control with transverse fields”, SPIE Newsletter <http://spie.org/x1004.xml>, September 24, 2010. (*invited*)
- A. Kunz, J.D. Priem, and S.C. Reiff, “Injecting, controlling, and storing magnetic domain walls in ferromagnetic nanowires,” in *Spintronics III*, edited by H.-J. M. Drouhin and J. -E. Wegrowe, M. Razeghi, Proceedings of SPIE Vol 7760 (SPIE, Bellingham, WA 2010), 776005 (*invited*).
- A. Kunz, S.C. Reiff, J. D. Priem, and E.W. Rentsch, “Controlling individual domain walls in ferromagnetic nanowires for memory and sensor applications,” Conference Proceedings (*invited*), *IEEE Xplore* (2010). 4 pages)
- A. Kunz, “Micromagnetic Simulations of the Dependence of Gilbert Damping on Domain Wall Velocities in Magnetic Nanowires,” *Digest of INTERMAG 2006, IEEE*, DR-07, 2006.

Pre-Marquette Work

- R. D. McMichael, A. Kunz, and D.J. Twisselmann, “Eigenmodes and ferromagnetic resonance line width of inhomogeneous thin films,” *Digest of INTERMAG 2003, IEEE*, AA-11, 2003.

- A. Kunz, and R. D. McMichael, “Normal mode mixing and ferromagnetic resonance linewidth,” *Intermag Europe 2002 Digest of Technical Papers, IEEE*, DD-8, 2002.
- *Instructor’s Handbook—TA Orientation*, P. Heller, K. Heller, T. Foster, J. Blue, A. Ferstl, A. Kunz, V. Kuo, L. McCullough, K. Parendo, M. Nishioka, and A. Scott, University of Minnesota, Department of Physics 2004.
- A. Kunz, C.E. Campbell, “Magnetic Vortices in Submicron Nickel Dots and Films,” *Condensed Matter Theories 16*, 2000.
- A. Kunz, “Micromagnetic Modeling of Nanoscale Nickel Dots, and Films, and Thin Permalloy Films,” Ph. D. Thesis, University of Minnesota, 2000.
- A.B. Kunz, C.E. Campbell, “Domain Evolution in Magnetic Thin Films,” *Condensed Matter Theories 15*, 1999.
- A. Kunz, C.E. Campbell, “Simulations of Magnetic Structures for Digital Technology Devices,” *Supercomputing Institute for Digital Simulation and Advanced Computation*, vol. 16, Fall, 1999.

CONTRIBUTED AND INVITED PRESENTATIONS (*with undergraduate student co-authors*)

Research Work Completed at Marquette

(As Associate Professor)

- *Effects of Disorder in Artificial Kagome Spin Ice*, Contributed Oral Presentation (Noah Greenberg) at MMM Conference, Pittsburgh, PA, November 2017.
- *The Role of Geometric Defects in Frustrated Artificial Spin Ice Systems*, Contributed Oral Presentation (Noah Greenberg) at APS March Meeting, New Orleans, LA, March 2017.
- *Magnetization reversal of spiral shaped nanowires via domain wall motion*, Contributed Poster Presentation (Ryan Schumm) at MMM Conference, New Orleans, LA, November 2016.
- *Reliable selection and control of an individual domain wall in multiwire arrays*, Oral Presentation at EMN (Energy, Materials, and Nanotechnology) Meeting, San Sebastian, Spain September 2015. (*invited*)
- *Asymmetric domain wall depinning from symmetric notches in nanowires*, Contributed Poster Presentation at MMM Conference, Denver, CO November 2013.
- *Controlling individual domain walls in nanowire arrays*, Contributed Poster Presentation at GRC Spintronics Conference, Hong Kong, August 2013.
- *Local transverse field for domain wall selection and control in nanowire arrays*, Contributed Poster Presentation at Intermag/MMM Conference, Chicago, IL January 15, 2013.
- *Fast control of domain wall motion in ferromagnetic nanowires*, Condensed Matter Seminar, Physics Department, University of South Carolina, Columbia, SC April 20, 2012 (*invited*).
- *Fast control of domain wall motion in ferromagnetic nanowires*, Physics Department Colloquium, University of Wisconsin-Stevens Point, Stevens Point, WI April 6, 2012 (*invited*).
- *The effects of magnetic defects on domain wall motion in ferromagnetic nanowires*, Contributed poster presentation at the APS March Meeting, February 29, 2012 (presented with Kyle Kimminau)
- *Domain Wall Motion and Interactions in Multi-Nanowire Systems*, Contributed Poster Presentation at the Magnetism and Magnetic Materials Conference, Scottsdale, AZ October, 31 2011.

(As Assistant Professor)

- *Controlling domain walls in ferromagnetic nanowires*, Physics Department Colloquium—Arfken Scholar, Miami of Ohio, Oxford, OH October 27, 2010 (*invited*).
- *Controlling individual domain walls in ferromagnetic nanowires for memory and sensor applications*, International Conference on Electromagnetics in Advanced Applications ‘10, Sydney, Australia, September 20, 2010 (*invited*).
- *One Way Motion: Injecting, controlling, and storing magnetic domain walls in ferromagnetic nanowires*, SPIE NanoScience+Engineering Conference, Spintronics III Symposium, San Diego, CA, August 1, 2010 (*invited*).
- *The transition from graduate student to faculty member: lessons learned in teaching and research*, presentation for “Lunch with the experts”, Joint APS/AAPT Meeting, Washington DC, February 2010 (*invited*).

- *Magnetic response vs. lift height of thin ferromagnetic films*, oral presentation at the Joint MMM-Intermag Conference, Washington, DC January 2010 Collaboration with Univ. of Minn.
- *Static and Dynamic domain wall pinning at notches in permalloy nanowires*, poster presentation at the Joint MMM-Intermag Conference, Washington, DC January 2010.
- *Field Driven domain wall interactions in single magnetic nanowires*, oral presentation at the Joint MMM-Intermag Conference, Washington, DC January 2010.
- *Controlling magnetization dynamics in ferromagnetic nanowires*, Physics Colloquium, Lawrence University, Appleton WI, April 2009 (*invited*).
- *Mechanisms for low-field, and multiple domain wall injection into magnetic nanowires*, Oral Presentation at American Physics Society March Meeting, Pittsburg, PA, March 2009. (**presented by Sarah Reiff**)
- *Physical Fundamentals of Magnetic Nanowire Devices*, Physics Colloquium, Marquette University, January 2009.
- *Controlling anti-vortices for fast domain wall motion in nanowires*, Refereed Oral Presentation at the Magnetism and Magnetic Materials Conference, Austin, TX November 2008.
- *Low field and controlled domain wall structure during injection into nanostripes*, Refereed Poster Presentation at the Magnetism and Magnetic Materials Conference, Austin, TX, November 2008. Awarded “2008 MMM Conference Best Poster”
- *Field driven domain wall dynamics in magnetic nanowires*, Physics Colloquium, University of Wisconsin-Milwaukee February 2008 (*invited*).
- *Enhancement of Domain Wall Speeds in Magnetic Nanowires*, Refereed Poster Presentation at the Magnetism and Magnetic Materials Conference, Tampa Bay, FL November 2007.
- *Micromagnetics of the Decreasing Domain Wall Mobility in Permalloy Nanowires*, Refereed Oral Presentation at the 10th MMM/Intermag Conference, Baltimore, MD, January 2007.
- *Beyond the Walker Limit: Simulating Domain Wall Dynamics in Nanowires*, Poster Presentation, Gordon Research Conference on Magnetic Nanostructures, Oxford University, Oxford UK, September 2006.
- *Micromagnetic Simulations of the Dependence of Gilbert Damping on Domain Wall Velocities in Magnetic Nanowires*, Refereed Poster Presentation, International Magnetics Conference, San Diego, CA, May 2006.
- *Domain Wall Dynamics in Permalloy Nanowires*, Refereed Poster Presentation, Magnetism and Magnetic Materials, San Jose, CA, October 2005.
- *Simulating Magnetization Dynamics*, Invited Oral Presentation, Marquette University Physics Department, Milwaukee, WI, September 2005.

Pre-Marquette Work

- *Magnetization Dynamics: A mostly classical approach to some small problems*, Invited Oral Presentation, Marquette University, Milwaukee, WI, March 2004.
- *Magnetization Dynamics: A mostly classical approach to some small problems*, Oral Presentation, PEW Nanotechnology Conference, Appleton, WI, March 2004. (*invited*)
- *Introduction to Micromagnetic Simulations*, Oral Presentation, University of Nebraska-Lincoln, July 2003. (*invited*)
- *Eigenmodes and ferromagnetic resonance line width of inhomogeneous thin films*, Refereed Oral Presentation, International Magnetics Conference, 2003.
- *Micromagnetics of Magnetic Recording Media*, Science Hall Colloquium, Lawrence University, Appleton, WI, October 2002. (*invited*)
- *Normal mode mixing and ferromagnetic resonance linewidth*, Refereed Oral Presentation, International Magnetics Conference, Amsterdam, The Netherlands, May 2002.
- *Applications of Newton's Second Law*, Physics Colloquium, Lawrence University, Appleton, WI February 2002.
- *Calculation of Damping Rates in Thin Magnetic Films Due to Coupling to Lattice Vibrations*, Refereed Oral presentation, Magnetism and Magnetic Materials, Seattle, WA, November 2001.

- *Micromagnetic Domain Structure in Nickel Films and Dots*, Refereed Poster presentation, Magnetism and Magnetic Materials, Seattle, WA, November 2001.
- *Micromagnetic Modeling of Nanoscale Nickel Dots, and Films*, Oral Doctoral Defense, August 2000.
- *Problem Based Teaching, Learning by Example*, Teaching Improvement Program, University of Wisconsin-Madison, Madison WI. **Invited** workshop with K. Heller, January 2000.
- *Simulation of Hysteresis in Permalloy Films*, Magnetism and Magnetic Materials, San Jose, CA. Refereed Poster presentation, November 1999.
- *Context Rich Problem Solving as Taught at the University of Minnesota*, University of Nebraska-Lincoln, Lincoln, NE. (**Invited**) August, 1999.
- *The Role of Mentor Teaching Assistants at the University of Minnesota*, American Association of Physics Teachers, Lincoln, NE. Oral presentation, August 1998.

OTHER PRESENTATIONS AND APPEARANCES

(As Associate Professor)

- “*The effects of void defects on domain wall motion in ferromagnetic nanowires*,” Poster Presentation by C. Johlle and K. Blagg at the Joint Math/CS/Physics Computational Biophysics Symposium, Milwaukee, WI April 2014.
- “*Selection and control of individual domain walls in nanowire arrays via asymmetric depinning fields*,” Poster Presentation by H. Le and D. Kutzke at Joint Math/CS/Physics Computational Biophysics Symposium, Milwaukee, WI April 2014.
- *The effect of magnetic defects on domain wall motion in a nanowire*, Oral Presentation by Kyle Kimminau at the Wisconsin Space Grant Consortium Meeting, Eau Claire, WI August 2011.

(As Assistant Professor)

- *Measuring Domain Wall Manipulation with Magnetic Force Microscopy*, Marquette University Forward Thinking Poster Session with UG’s Rebecca McAuliffe and Dan Olsen, December 2010.
- *Domain Wall Interactions*, Oral Presentation by Eric Rentsch and Jonathan Priem, Physics Dept. Colloquium, Marquette University, Milwaukee, WI, October 2009.
- *Controlling a Domain Wall in a Magnetic Nanowire*, Oral Presentation by Andy Smith, Physics Colloquium, Marquette University, Milwaukee WI, September 2008.
- *Nanophysics on the Desktop*, Oral Presentation by advisee Sarah Reiff, Physics Colloquium, Marquette University, Milwaukee, WI, September 2007. (also as a Poster Presentation at the joint WAPT/SPS Zone 9 Meeting held in October 2007 at Marquette University)
- *Interactive Teaching Methods in the Sciences at Marquette University*, Presentation for University Advancement Staff, November 2007. (**invited**)
- *Mock Physics Class*, Marquette University Scholarship Weekend Presentation to prospective parents, Varsity Theater, February 2008. (**invited**)
- *Physics and Climate Change*, PREVIEW, Marquette University, Milwaukee, WI, June 22 & 25 2009 (**invited**).
- *Dynamics of Interacting Vortices*, Poster Presentation, Office of Research and Sponsored Programs Forward thinking Poster Session and Research Exchange, Marquette University, November 2005 with student Nghia Le.
- *Magnetic Domain Structures in Nanocontacts*, Oral Presentation by advisee Rahul Bhinge, Physics Colloquium, Appleton, WI, July 2004.
- *Magnetic Structure of Nickel Nanocontacts*, Oral Presentation by advisee Jason Levin-Koopman, PEW Undergraduate Conference, University of Chicago, Chicago, IL, November 2003.
- *Simulations of Magnetic Nickel Nanocontacts*, Oral Presentation by advisee Jason Levin-Koopman, Physics Department Colloquium, Lawrence University, October 2003.
- *Micromagnetics of Nickel Films and Islands*, Oral Presentation, Surface Science Lunch Bunch, NIST, March 2001.
- *Micromagnetics of Nanoscale Nickel Dots*, 8th Annual Sigma Chi Poster Session, NIST, February 2001.

- *Simulation of Magnetic Domains in Nanoscale Nickel Dots and Thin Films*, American Physical Society, Minneapolis, MN. Oral presentation, March 2000.
- *Simulation of Thin Nickel Elements: A Comparison to Experiment*, University of Minnesota-Sack Lunch Seminar, December 1999.
- *Hysteresis of Permalloy Element Modeled by Monte Carlo*, University of Minnesota-Sack Lunch Seminar, February 1999.

PROFESSIONAL MEETINGS AND CONFERENCES ATTENDED

(As Associate Professor)

- 61st Magnetism and Magnetic Materials Conference, Pittsburgh, PA November 2017.
- APS March Meeting, New Orleans, LA March 2017.
- 60th Magnetism and Magnetic Materials Conference, New Orleans, LA November 2016.
- EMN Spain Meeting, San Sebastian, Spain, September 2015.
- 58th Magnetism and Magnetic Materials Conference, Hawaii, HI November 2014.
- 57th Magnetism and Magnetic Materials Conference, Denver, CO November 2013.
- Gordon Research Conference on Spintronics, Hong Kong August 2013
- 6th Midwest Conference for Undergraduate Women in Physics, Champaign, IL, January 2013.
- 12th Joint MMM/Intermag Conference, Chicago, IL, January 2013
- American Physics Society March Meeting, February 2012
- 56th Magnetism and Materials Conference, Scottsdale, AZ, October 2011

(As Assistant Professor)

- International Conference on Electromagnetics in Advanced Applications, Sydney AUS, September 2010.
- SPIE Nanoscience and Engineering Conference, San Diego, CA August 2010.
- American Physics Society April Meeting, Washington DC, February 2010.
- Joint MMM/Intermag Conference, Washington DC, January 2010.
- SPIN-UP Regional Workshop presented by the APS, AIP, NSF and AAPT, Marquette University, Milwaukee, WI June 2009.
- 3rd Annual NCAT Redesign Conference, Orlando, FL March 2009.
- American Physics Society March Meeting, Pittsburg, PA, March 2009.
 - Participated in the APS/AAPT New Faculty Reunion Workshop
- 53rd Magnetism and Magnetic Materials Conference, Austin TX, November 2008.
- 52nd Magnetism and Magnetic Materials Conference, Tampa Bay FL, November 2007.
- Joint Wisconsin Area Physics Teachers/Zone 9 SPS Meeting, Marquette University, October 2007.
- 10th Joint MMM/Intermag Conference, Baltimore, MD January 2007.
- Gordon Research Conference on Magnetic Nanostructures, Oxford UK, September 2006.
- International Magnetics Conference, San Diego, CA, May 2006.
- The 10th Annual New Faculty Workshop, APS Headquarters, College Park, MD, November 2005.
- The 50th Annual Conference on Magnetism and Magnetic Materials, San Jose, CA, October 2005.
- American Physical Society March Meeting, Los Angeles, CA, March 2005.

(Pre-Marquette)

- PEW Nanotechnology Conference, Appleton, WI, March 2004.
- International Magnetics Conference, Amsterdam, The Netherlands, May 2002.
- The 46th Annual Conference on Magnetism and Magnetic Materials, Seattle, WA November 2001.
- WTEC Spin Electronics Workshop, National Science Foundation, Arlington, VA, September, 2001.
- Third International Symposium on Hysteresis and Micromagnetics Modeling, The George Washington University, Ashburn, VA, May 2001.
- American Physical Society March Meeting, Seattle, WA, March 2001.
- The 45th Annual Conference on Magnetism and Magnetic Materials, San Antonio, TX, January 2001.
- American Physical Society March Meeting, Minneapolis, MN, March 2000.

- Teaching Improvement Program, College of Engineering-University of Wisconsin, Madison, WI, January 2000.
- The 44th Annual Conference on Magnetism and Magnetic Materials, San Jose, CA, November 1999.
- American Association of Physics Teachers Summer Meeting, Lincoln, NE, August 1998.

PROFESSIONAL AFFILIATIONS

- Marquette University Chapter of the National Academy of Inventors 2016
- IEEE, Member 2006 - current
- Sigma Xi, Member 2005.
- Sigma Pi Sigma, Member 2005 - current
- American Physical Society, Member 1999 - current
- American Association of Physics Teachers, Member 1996.

PROFESSIONAL DEVELOPMENT

- Member of the International Steering Committee on Hysteresis Modeling and Micromagnetics (2014 – current)
- Session Chair, EMN Spain Meeting 2015
- External Examiner for Ph.D. Candidate Indra Purnama, Nanyang Technological University, Singapore 2015.
- Best Student Presentation Committee Member, MMM Meeting, Denver, CO 2013.
- Referee *Science Advances*, *APL*, *JAP*, *IEEE Trans. Mag*, *Euro. Phys. Lett.*, *Mod. Phys. Lett. B*, NSF, NIST internal reviews and SBIR project proposals.
- Session Chair, Joint Intermag/MMM Conference, Washington, DC 2010.
- NSF Panel Review for Lawrence University Innovation Project, August 2009 & 2010.
- Session Chair, Magnetism and Magnetic Materials Conference, Austin TX 2008.
- Session Chair, American Physical Society-March Meeting, Seattle, WA 2001.
- Sorter, American Physical Society-Sorters Meeting, College Park, MD 2000.

AWARDS

- **Patent Recognition Award** – Marquette University (2016)
- **Faculty Development Award** – Marquette University \$1400 in travel support (2015).
- **Excellence in Faculty Advising Award** – Klingler College of Arts and Sciences (2013)
- **Faculty STAR Award** – National Residence Hall Honorary Marquette for “positively affecting the lives of students in the residence halls” (2010)
- **Travel Award from APS**—travel support for APS March Meeting (2009)
- **2008 MMM Best Poster** — Conference on Magnetism and Magnetic Materials, Austin, TX (2008).
- **ΣX Rising Star Award** — Marquette University April 2008
- **Aneesur Rahman Prize**—outstanding thesis research award, Department of Physics and Astronomy, University of Minnesota, May 2000.
- **Outstanding Departmental Teaching Assistant**, Department of Physics, University of Minnesota, May 1996.