

JENNIFER T. BERNHARD

Department of Electrical and Computer Engineering
University of Illinois at Urbana-Champaign, MC 702
Urbana, IL 61801

Telephone: 217-333-0293
Fax: 217-333-5962
E-mail: jbernhar@illinois.edu

EDUCATION

Ph.D., Electrical Engineering, 1994, Duke University, Durham, North Carolina.

Thesis: *Waveguides and Cavities with Dielectric Slab-Loading that Support Uniform TEM Modes.*

M.S., Electrical Engineering, 1990, Duke University, Durham, North Carolina.

Thesis: *Microwave Bandpass Filters Using Series Cascaded Sections of Microstrip Line.*

B.S., Electrical Engineering, 1988, Cornell University, Ithaca, New York.

PROFESSIONAL EXPERIENCE

Professor	August 2008 – Present
Department of Electrical and Computer Engineering University of Illinois at Urbana-Champaign, Urbana, Illinois	
Research Professor	August 2008 – Present
Micro and Nanotechnology Laboratory University of Illinois at Urbana-Champaign, Urbana, Illinois	
Research Professor	August 2008 – Present
Coordinated Science Laboratory University of Illinois at Urbana-Champaign, Urbana, Illinois	
Affiliated Faculty Member	August 2005 – Present
Information Trust Institute University of Illinois at Urbana-Champaign, Urbana, Illinois	
Associate Professor	August 2003 – August 2008
Department of Electrical and Computer Engineering University of Illinois at Urbana-Champaign, Urbana, Illinois	
Research Associate Professor	August 2003 – August 2008
Micro and Nanotechnology Laboratory University of Illinois at Urbana-Champaign, Urbana, Illinois	
Research Associate Professor	August 2004 – August 2008
Coordinated Science Laboratory University of Illinois at Urbana-Champaign, Urbana, Illinois	
Assistant Professor	August 1999 – August 2003
Department of Electrical and Computer Engineering University of Illinois at Urbana-Champaign, Urbana, Illinois	
Research Assistant Professor	December 2000 – August 2003
Micro and Nanotechnology Laboratory University of Illinois at Urbana-Champaign, Urbana, Illinois	
Adjunct Assistant Professor	August 1999 – August 2003
Department of Electrical and Computer Engineering University of New Hampshire, Durham, New Hampshire	
Visiting Assistant Professor	August 1998 - August 1999
Department of Electrical and Computer Engineering University of Illinois at Urbana-Champaign, Urbana, Illinois	
Class of 1944 Assistant Professor	August 1995-August 1999
Department of Electrical and Computer Engineering	

University of New Hampshire, Durham, New Hampshire	August 1997 - Present
Private Consultant on Wireless Communication Systems	August 1994 - July 1995
Post-doctoral Research Associate	
Departments of Radiation Oncology and Electrical Engineering	
Duke University, Durham, North Carolina	
Consultant, Wireless Technology Associates	August 1993 - July 1994
Durham, North Carolina	
National Science Foundation Graduate Fellow	1990 - 1993
Department of Electrical Engineering	
Duke University, Durham, North Carolina	
Research Engineer, Avnet Development Labs	May 1989 - August 1989
Durham, North Carolina	

PROFESSIONAL AND HONORARY ORGANIZATIONS

IEEE, Senior Member
International Union of Radio Science (U.S. Commission B)
International Union of Radio Science (U.S. Commission D)
Sigma Xi
Tau Beta Pi
Eta Kappa Nu
ASEE (American Society for Engineering Education)

BEST PAPER AWARDS

2004 H. A. Wheeler Applications Prize Paper Award, from the IEEE Antennas and Propagation Society, for the paper "Analysis and design of broad-band single-layer rectangular U-slot microstrip patch antennas," S. Weigand, G. Huff, K. Pan, and J. T. Bernhard, *IEEE Transactions on Antennas and Propagation*, vol. 51, no. 3, pp. 457-468, March 2003. The H. A. Wheeler Award recognizes the paper considered to be the best applications paper in the *IEEE Transactions on Antennas and Propagation* for the past year.

Best Paper of the Year, NASA Communications Technology Division, 2000. For R. R. Romanofsky, J. T. Bernhard, F. W. Van Keuls, F.A. Miranda, G. Washington, and C. Canedy, "K-band phased array antennas based on $\text{Ba}_{0.60}\text{Sr}_{0.40}\text{TiO}_3$ thin-film phase shifters," *IEEE Transactions on Microwave Theory and Techniques*, vol. 48, no. 12, December 2000, pp. 2504-2510.

RESEARCH AWARDS AND FELLOWSHIPS

U. S. Defense Science Study Group Member, Sponsored by DARPA, 2008-2009.
U.S. Frontiers of Engineering Symposium Participant, sponsored by the National Academy of Engineering, 2007.
Xerox Award for Faculty Research, UIUC College of Engineering, 2006.
Willett Faculty Scholar Award, UIUC College of Engineering, 2005-2009.
Willett Faculty Scholar Award, UIUC College of Engineering, 2002-2005.
NASA-ASEE Summer Faculty Fellowship, NASA Glenn Research Center, 2000.
NSF CAREER Award, 2000.
NASA-ASEE Summer Faculty Fellowship, NASA Glenn Research Center, 1999.
Summer Faculty Fellowship, University of New Hampshire, 1996.
Class of 1944 Professorship, University of New Hampshire, 1995 - 1998.
NSF Graduate Fellowship, Duke University, 1990 - 1993.

RESEARCH GRANTS

- United States Army Research Office STIR Grant, (Co-PI), 2007-2008. With Prof. D. Jones (PI). Title: "Feasibility Study of DOA Determination with Small Antennas and the FMW Algorithm."
- Motorola Research Grant (PI), 2006-2009. Title: "Investigations into Approaches for Antenna Tunability and Compatibility."
- Samsung Research Grant (PI), 2006-2007. Title: "Investigations in Approaches for Antenna Pattern Reconfigurability in Wireless Portable Devices."
- United States Army Research Office Grant (PI), 2006-2009. With Prof. J. Papapolymerou (Co-PI), Department of Electrical and Computer Engineering, Georgia Institute of Technology. Title: "Collaborative Research: Enabling Technology for MIMO Systems on Mobile Military Platforms: Antennas, Switches, and Packaging."
- NSF OISE Grant (PI), 2006, International Workshop Grant. Title: "U.S.-Japan Bio-Inspired Sensing Workshop; Yokohama, Japan; December 6-8, 2006."
- NSF CMS Grant (PI), 2006-2009. With Prof. S. Hagness (Co-PI), Department of Electrical and Computer Engineering, University of Wisconsin and Prof. K. Hill (Co-PI), Department of Civil Engineering, University of Minnesota. Title: "Collaborative Research: Development of a Three Dimensional Sensing System for Applications in Materials, Environmental, and Civil Infrastructure Research."
- Ball Aerospace Corporation, Unrestricted Research Grant (PI), 2006. Title: "Advanced Multifunction Antennas."
- Anvik Corporation, through NASA Phase I SBIR Program, 2006. Title: "Highly Integrated, Reconfigurable, Large-Area, Flexible Radar Antenna Arrays."
- Intel Corporation, 2005-2008, Unrestricted Research Grant. Title: "Investigations Into Approaches For Antenna Tunability and Miniaturization."
- UIUC Critical Research Initiative Grant (Co-PI), 2005-2008. With Prof. N. Vaidya (PI). Title: "Next Generation RFID Systems: People and Object Tracking for Homeland Security Applications."
- NSF BES Grant (Co-PI), 2005-2008. With Prof. M. Rood (PI), Dept. of Civil and Environmental Engineering, UIUC. Title: "Microwave-Swing Adsorption to Capture Hazardous Air Pollutants and Volatile Organic Compounds from Gas Streams."
- NSF ECS Grant (PI), 2005-2008. With Prof. J. Papapolymerou (Co-PI), Department of Electrical and Computer Engineering, Georgia Institute of Technology. Title: "Collaborative Research: Enabling Technology for MIMO Systems on Mobile Devices: Antennas, Switches, and Packaging."
- Anvik Corporation, through NASA Phase I SBIR Program, 2005. Title: "Highly Integrated, Reconfigurable, Large-Area, Flexible Radar Antenna Arrays."
- NSF CISE Research Resources Grant (Co-PI), 2004-2007. Title: "Wireless Wind Tunnel: A Testbed for Experimental Evaluation of Wireless Networks."
- United States Navy through UIUC NCASSR Grant (PI), 2004-2005. Title: "Antennas for Wireless Sensing Applications."
- United States Air Force Research Laboratory Grant (PI), 2004-2005. Title: "Wideband Conformal Antennas and Arrays."
- Phonak Communications Grant (PI), 2003-2004. Title: "Electromagnetic Study of Integrated Hearing Aid Antennas."
- United States Army Research Office Grant (PI), 2003-2005. Title: "Supplemental Funding for 'Low-Profile Radiators in Aperiodic Wideband Arrays' for Undergraduate Research Experiences."
- NSF CAREER Research Experience for Undergraduates Supplement (PI), 2003 - 2004.
- United States Army Research Office Grant (PI), 2003-2004. Title: "Instrumentation in Support of 'Low-Profile Radiators in Non-Periodic Wideband Arrays.'"
- NASA NRA Grant (PI), 2003-2006. Title: "Miniaturized Antennas in Random Sensor Arrays for Planetary Surface and Atmosphere Exploration."
- NSF Supplement NSF Supplement to NSF CMS-02-01305 (sponsored by the Federal Highway Administration), (PI), 2003-2005. Title: "Electromagnetic Feasibility Study of Cyberliths."

UIUC Grainger Fund, (Co-PI), 2003-2005. Title: "RF MEMS Switches for Reconfigurable Circuits and Antennas."

United States Army Research Office Grant (PI), 2002-2005. Title: "Low-Profile Radiators in Aperiodic Wideband Arrays."

Phonak Communications Grant (PI), 2002-2003. Title: "Electromagnetic Study of Integrated Hearing Aid Antennas and Wireless Programming."

NSF CAREER Industry Matching Supplement (PI), 2002 - 2003.

NSF Grant (PI), 2002-2005. Title: "A Wireless Embedded Sensor System to Monitor and Assess Corrosion in the Tendons of Prestressed Concrete Girders."

Phonak Communications Grant (PI), 2001 - 2002. Title: "Electromagnetic Feasibility Study Of Integrated Hearing Aid Antennas."

NSF CAREER Industry Matching Supplement (PI), 2001 - 2002.

NASA NRA Grant (PI), 2001 - 2004. Title: "Reconfigurable Antennas for High Data Rate Multi-beam Communication Systems."

NSF CAREER Industry Matching Supplement (PI), 2000 - 2001.

NSF CAREER Grant (PI), 2000 - 2004. Title: "Intelligent Portable Antenna Systems for High-Speed Wireless Communication."

Amphenol T&M Antennas, Inc. Research Grant (PI), 2000 - 2002. Title: "Internal Antenna Systems for Portable Wireless Communication."

NASA Cooperative Research Grant (PI), 2000 - 2001. Title: "Microstrip Antennas with Broadband Integrated Phase Shifting."

University of Illinois Research Board Grant (PI), 1999 - 2001. Title: "Novel Active Antenna Elements for High Performance Phased Reflectarrays."

DARPA Reconfigurable Aperture Grant (Co-PI), 1999 - 2002. Title: "Mechanically Conformal and Electronically Reconfigurable Apertures Using Low Voltage MEMS and Flexible Membrane for Space Based Radar Applications."

NSF POWRE Grant (PI), 1997 - 1999. Title: "Team-based Research on Integrated Antenna Diversity."

NSF Academic Research Infrastructure (Equipment) Grant (Co-PI), 1996 - 1999. Title: "Laboratory for Advanced Communication Systems."

NSF Research Planning Grant (PI), 1996 - 1998. Title: "Local Electromagnetic Field Characterization."

Vice President's Discretionary Fund Award, University of New Hampshire, 1996 - 1997.

EDUCATION AWARDS AND FELLOWSHIPS

List of Teachers Ranked as Excellent by Their Students, ECE 457: Microwave Circuit Design, UIUC, Spring 2005.

Accenture Engineering Council Award for Excellence in Advising, UIUC College of Engineering, 2004.

List of Teachers Ranked as Excellent by Their Students, ECE 457: Microwave Circuit Design, UIUC, Spring 2002.

Anderson Consulting Award for Excellence in Advising, UIUC College of Engineering, 2000.

List of Teachers Ranked as Excellent by Their Students, ECE 457: Microwave Circuit Design, UIUC, Spring 2000.

Collins Scholar, Teaching College (UIUC) Academy for Excellence in Engineering Education, 1999-2000.

UNH College of Engineering and Physical Sciences Teacher of the Year, 1997-1998.

Tau Beta Pi (UNH Chapter) Outstanding Teacher Award, ECE Department, 1997-1998.

Sloan New Faculty Fellow, Frontiers in Education Conference, 1997.

Tau Beta Pi (UNH Chapter) Outstanding Teacher Award, ECE Department, 1996-1997.

EDUCATION GRANTS

- Grant from Ford Motor Company Foundation, Laboratory Expansion and Upgrade for ECE 437: Sensors and Instrumentation, 2006.
- IEEE-Central Illinois Section Outreach Grant, 2005. Title: "Demonstration and Hands-on Experiments in Electricity and Magnetism for Young Students."
- Gift from Northrop Grumman Corporation in support of Senior Design Projects in Applied Electromagnetics, 2006.
- Gift from Northrop Grumman Corporation in support of Senior Design Projects in Applied Electromagnetics, 2005.
- Gift from the Rockwell Collins Foundation in support of Senior Design Projects in Applied Electromagnetics, 2004-2005.
- Grant for New Course Development from Kimberly-Clark, Inc. 2000-2003. Used to develop ECE 437: Sensors and Instrumentation.

PATENT DISCLOSURES, APPLICATIONS, AND PATENTS

- Patent Application and Disclosure: "Reconfigurable Beam-Steering Microstrip Patch Antenna." J. Ruyle and J. T. Bernhard, 2007.
- Disclosure: "Terahertz Wire Waveguide with Reduced Bending Loss." K. C. Kerby and J. T. Bernhard, 2007.
- Patent Application and Disclosure: "Method for Method for Isolating Antennas Using Meandered-Line Ground Plane Surface Wave Filter." G. Alvey and J. T. Bernhard, 2006.
- Patent Application and Disclosure: "Technology and Methodology for a System for Tracking Submerged or Buried Passive Sensors." G. H. Huff, J. T. Bernhard, D. Laefer, and S. Hagness, 2005.
- Disclosure: "Dual-band Two-Slot Planar Inverted F Antenna (PIFA) for Simultaneous Operation in the 2.4 GHz and 5 GHz Unlicensed Bands." B. Herting and J. T. Bernhard, 2002.
- Disclosure: "Method for Improving the Radiation Characteristics of Microstrip Antennas with Finite Ground Planes." J. T. Bernhard and G. H. Huff, 2001.
- Disclosure: "Monolithic Electric or Magnetic Field Detectors at High Frequencies." W. D. Palmer and J. T. Bernhard, 1995.
- Patent: Reconfigurable, Microstrip Antenna Apparatus, Devices, Systems, and Methods, S. Zhang, J. T. Bernhard, G. Huff, and G. Cung. US Patent Number 7,330,152, February 12, 2008.

BOOKS

- J. T. Bernhard, *Reconfigurable Antennas*. Published by Morgan & Claypool Publishers in the Antennas and Propagation Series, Constantine Balanis, Editor. 2007.

BOOK CHAPTERS

- "Reconfigurable Antennas," with G. H. Huff, in *Modern Antenna Handbook*, C. Balanis, Editor, John Wiley & Sons. 2008.
- "Reconfigurable Antennas," in *Antenna Engineering Handbook*, 4th Edition, J. Volakis, Editor, McGraw Hill. 2007.
- "Printed Antennas in Packages," in *Printed Antennas for Wireless Systems*, R. Waterhouse, Editor, John Wiley & Sons. 2007.

“Reconfigurable Antennas,” in *The Wiley Encyclopedia of RF and Microwave Engineering*, K. Chang, Editor, John Wiley & Sons, February 2005.

“Antenna Parameters, Various Generic Antennas and Feed Systems, and Available Software,” with Eric Michielssen, in *Handbook on Antennas in Wireless Communications*, L. Godara, Editor, CRC Press LLC, 2001.

JOURNAL PUBLICATIONS

1. J. M. Martin, G. W. Swenson, Jr., and J. T. Bernhard, “Method for efficiency measurements of electrically small monopoles for animal tracking,” To appear in *IEEE Antennas and Propagation Magazine*, April 2009.
2. D. Schaubert, J. Bernhard, R. Mailloux and W. D. Palmer, “The State-of-the-Art in Antenna Technology: A Report from the 2008 Antenna Applications Symposium,” To appear in *Microwave Journal* (cover feature article) in January 2009.
3. J. Boerman and J. T. Bernhard, “Performance study of pattern reconfigurable antennas in MIMO communication systems,” *IEEE Transactions on Antennas and Propagation*, vol. 56, no. 1, pp. 231-236, Jan. 2008.
4. T. L. Roach, G. H. Huff, and J. T. Bernhard, “A comparative study of diversity gain and spatial coverage: fixed versus reconfigurable antennas for portable devices,” *Microwave and Optical Technology Letters*, vol. 49, no. 3, pp. 535-539, March 2007.
5. J. A. Fladie and J. T. Bernhard, “On the radiation characteristics of right- and left-handed microstrip patch antenna designs,” *IEEE Antennas and Wireless Propagation Letters*, vol. 5, pp. 563-565, 2006.
6. B.L. Ervin, J.T. Bernhard, D.A. Kuchma and H. Reis, “Estimation of general corrosion damage to steel reinforced mortar using frequency sweeps of guided mechanical waves,” *INSIGHT - Journal of the British Institute for Non-Destructive Testing*, vol. 48, no. 11, pp. 682-692, Nov. 2006.
7. K. C. Kerby and J. T. Bernhard, “Sidelobe level and wideband behavior of arrays of random subarrays,” *IEEE Transactions on Antennas and Propagation*, vol. 54, no. 8, pp. 2253-2262, Aug. 2006.
8. G. H. Huff and J. T. Bernhard, “Integration of packaged RF MEMS switches with radiation pattern reconfigurable square spiral microstrip antennas,” *IEEE Transactions on Antennas and Propagation*, vol. 54, no. 2, pp. 464-469, Feb. 2006.
9. K. Hietpas, B. Ervin, J. Banasiak, D. Pointer, D. Kuchma, H. Reis, and J. T. Bernhard, “Ultrasonics and electromagnetics for a wireless sensing system embedded in reinforced concrete girders,” *Smart Structures and Systems*, vol. 1, no. 3, pp. 267-282, Sept. 2005.
10. H. Reis, B. L. Ervin, D. A. Kuchma, and J. T. Bernhard, “Estimation of corrosion damage in steel reinforced mortar using waveguides,” *ASME Journal of Pressure Vessel Technology*, vol. 127, pp. 255-261, August 2005.
11. S. Zhang, G. Huff, G. Cung, and J. T. Bernhard, “Three variations of a pattern reconfigurable microstrip parasitic array,” *Microwave and Optical Technology Letters*, vol. 45, pp. 369-372, June 2005.
12. G. H. Huff, J. Feng, S. Zhang, and J. T. Bernhard, “Directional reconfigurable antennas on laptop computers: simulation, measurement, and evaluation of candidate integration positions.” *IEEE Transactions on Antennas and Propagation*, vol. 52, pp. 3220-3227, December 2004.
13. S. Zhang, G. H. Huff, J. Feng and J. T. Bernhard, “A pattern reconfigurable microstrip parasitic array,” *IEEE Transactions on Antennas and Propagation*, vol. 52, pp. 2773-2776, October 2004.
14. G. Cung, G. H. Huff, and J. T. Bernhard, “Ground plane edge serrations for improved performance of microstrip active reflectarray elements.” *IEEE Antennas and Wireless Propagation Letters*, vol. 2, pp. 334-336, 2003.
15. R. Clark, G. H. Huff, and J. T. Bernhard, “An integrated active microstrip reflectarray element with an internal amplifier,” *IEEE Transactions on Antennas and Propagation*, vol. 51, no. 5, pp. 993-999, May 2003.

16. J. T. Bernhard, "Reply to Comments on 'Resonant frequencies of rectangular microstrip antennas with flush and spaced dielectric superstrates,'" *IEEE Transactions on Antennas and Propagation*, vol. 51, no. 4, p. 917, April 2003.
17. J.-C. Langer, J. Zou, C. Liu, and J. T. Bernhard, "Reconfigurable out-of-plane microstrip patch antenna using MEMS plastic deformation magnetic actuation," *IEEE Microwave and Wireless Components Letters*, vol. 13, no. 3, pp. 120-122, March 2003.
18. S. Weigand, G. H. Huff, K. Pan, and J. T. Bernhard, "Analysis and design of broadband single-layer rectangular U-slot microstrip patch antennas," *IEEE Transactions on Antennas and Propagation*, vol. 51, no. 3, pp. 457-468, March 2003.
19. G. Huff, J. Feng, S. Zhang, and J. T. Bernhard, "A novel radiation pattern and frequency reconfigurable single turn square microstrip spiral antenna," *IEEE Microwave and Wireless Components Letters*, vol. 13, no. 2, pp. 57-59, February 2003.
20. G. Huff and J. T. Bernhard, "Improvements in the performance of microstrip antennas on finite ground planes through ground plane edge serrations," *IEEE Microwave and Wireless Components Letters*, vol. 12, August 2002, pp. 308-310.
21. J. Haley, T. Moore, and J. T. Bernhard, "Experimental investigation of antenna-handset-feed interaction during wireless product testing," *Microwave and Optical Technology Letters*, vol. 34, no. 3, August 5, 2002, pp. 169-172.
22. J. T. Bernhard, E. Kiely, and G. Washington, "A smart mechanically-actuated two-layer electromagnetically coupled microstrip antenna with variable frequency, bandwidth, and antenna gain," *IEEE Transactions on Antennas and Propagation*, vol. 49, no. 4, April 2001, pp. 597-601.
23. R. R. Romanofsky, J. T. Bernhard, F. W. Van Keuls, F.A. Miranda, G. Washington, and C. Canedy, "K-band phased array antennas based on $\text{Ba}_{0.60}\text{Sr}_{0.40}\text{TiO}_3$ thin-film phase shifters," *IEEE Transactions on Microwave Theory and Techniques*, vol. 48, no. 12, December 2000, pp. 2504-2510.
24. C. Williamson, J. T. Bernhard, and K. Chamberlin, "Perspectives on an internet-based synchronous distance learning experience," *Journal of Engineering Education*, vol. 89, January 2000, pp. 53-61.
25. J. T. Bernhard and C. Tousignant, "Resonant frequencies of rectangular microstrip antennas with flush and spaced dielectric superstrates," *IEEE Transactions on Antennas and Propagation*, vol. 47, no.2, February 1999, pp. 302-308.
26. E. Kiely, G. Washington, and J. T. Bernhard, "Design and development of smart microstrip patch antennas," *Smart Materials and Structures*, vol. 7, no. 6, December 1998, pp. 792-800.
27. J. T. Bernhard and W. T. Joines, "Theory and modeling of bandpass filters in waveguide using thin ferrite layers," *Microwave and Optical Technology Letters*, vol. 18, no. 2, June 5, 1998, pp. 117-120.
28. J. T. Bernhard and W. T. Joines, "Dielectric slab-loaded resonant cavity for applications requiring enhanced field uniformity," *IEEE Transactions on Microwave Theory and Techniques*, vol. 44, no. 3, March 1996, pp. 457-460.
29. J. T. Bernhard and W. T. Joines, "Electric field distributions in TEM waveguides versus frequency," *Journal of Microwave Power and Electromagnetic Energy*, vol. 30, no. 2, 1995, pp. 109-116.
30. J. T. Bernhard and W. T. Joines, "Microwave bandpass filters using series-cascaded sections of microstrip line," *Microwave and Optical Technology Letters*, vol. 5, no. 4, April 1992, pp. 177-181.

CONFERENCE/WORKSHOP PAPERS AND PRESENTATIONS

31. C. Van Niekerk and J. T. Bernhard, "Retroreflector Element with Frequency and Polarization Selectivity used as a Radar Target for Granular Material Research," in *Proc. URSI 2000 National Radio Science Meeting*, January 2009.
32. T. L. Roach and J. T. Bernhard, "Investigating Pattern Reconfigurable Antennas for use in Adaptive Arrays," in *Proc. URSI 2009 National Radio Science Meeting*, January 2009.
33. T. Wojtaszek, G. Huff, D. J. Chung, J. Papapolymerou and J. T. Bernhard, "Reconfigurable Antennas with Integrated RF MEMS Switches for Military MIMO Applications," in *Proc. URSI 2009 National Radio Science Meeting*, January 2009.

34. J. J. Adams and J. T. Bernhard, "Characteristic Mode Analysis of a TM_{10} Electrically Small Spherical Antenna," in *Proc. URSI 2009 National Radio Science Meeting*, January 2009.
35. M. D. Anderson, C. D. Schmitz, D. L. Jones, and J. T. Bernhard, "Direction of Arrival Estimation of Electromagnetic Signals with an Electrically Small Antenna Array," in *Proc. URSI 2009 National Radio Science Meeting*, January 2009.
36. K. C. Kerby and J. T. Bernhard, "Comparison and Analysis of Ground Plane Slot Structures for Cosited Antennas," in *Proc. URSI 2009 National Radio Science Meeting*, January 2009.
37. L. Y. Ting and J. T. Bernhard, "Dual-fed Single Microstrip Patch Antenna for Polarization and Angle Diversity Realization in MIMO Applications," in *Proc. URSI 2009 National Radio Science Meeting*, January 2009.
38. K. C. Kerby and J. T. Bernhard, "Investigation of Ground Plane Slot Designs for Isolation of Cosited Microstrip Antennas," in *Proc. 2008 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2008.
39. J. E. Ruyle and J. T. Bernhard, "Investigations of a Reconfigurable Stacked Patch with Beamsteering Capabilities," in *Proc. 2008 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2008.
40. J. J. Adams and J. T. Bernhard, "A Class of Electrically Small Spherical Antennas with Near-Minimum Q," in *Proc. 2008 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2008. [Student Paper Competition Finalist]
41. M. P. Daly and J. T. Bernhard, "Phased Array for Multi-Direction Secure Communication," in *Proc. 2008 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2008.
42. T. L. Roach and J. T. Bernhard, "Antenna Element Pattern Reconfigurability in Adaptive Arrays," in *Proc. 2008 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2008.
43. J. J. Adams and J. T. Bernhard, "A Low Q Electrically Small Spherical Antenna," in *Proc. 2008 IEEE/URSI International Symposium on Antennas and Propagation*, San Diego, CA, July 2008.
44. M. J. Slater, H. K. Pan, and J. T. Bernhard, "Preliminary Results in the Development of a Compound Reconfigurable Antenna," in *Proc. 2008 IEEE/URSI International Symposium on Antennas and Propagation*, San Diego, CA, July 2008.
45. H. K. Pan, J. Tsai, J. U. Martinez, S. Golden, V. K. Nair, and J. T. Bernhard, "Reconfigurable Antenna Implementation in Multi-radio Platform," in *Proc. 2008 IEEE/URSI International Symposium on Antennas and Propagation*, San Diego, CA, July 2008.
46. J. E. Ruyle, C. W. Jung, and J. T. Bernhard, "Reconfigurable Stacked Patch Antenna with Beamsteering Capabilities," in *Proc. 2008 IEEE/URSI International Symposium on Antennas and Propagation*, San Diego, CA, July 2008.
47. K. H. Coles, K. C. Kerby, and J. T. Bernhard, "Comparisons of Ground Plane Techniques for the Isolation of Cosited Microstrip Antennas," in *Proc. 2008 IEEE/URSI International Symposium on Antennas and Propagation*, San Diego, CA, July 2008.
48. M. P. Daly and J. T. Bernhard, "RF MEMS Switch Model for Reconfigurable Antenna Design," in *Proc. 2008 IEEE/URSI International Symposium on Antennas and Propagation*, San Diego, CA, July 2008.
49. S. Barot and J. T. Bernhard, "Permittivity Measurement of Layered Media Using a Microstrip Testbed," in *Proc. 2008 IEEE/URSI International Symposium on Antennas and Propagation*, San Diego, CA, July 2008.
50. J. T. Bernhard, C. Van Niekerk, Y. Fan, E. Zastrow, S. Hagness and K. Hill, "Retroreflector Particles for 3-D Translational Particle Tracking Measurements for Basic and Applied Granular Materials Research," in *Proc. Inaugural Int. Conf. of the Engineering Mechanics Institute*, Minneapolis, MN, May 2008, p. 49.
51. J. M. Martin, G. W. Swenson, Jr., and J. T. Bernhard, "Challenges and Solutions for the Efficiency Measurement of an Electrically Small Antenna for Animal Tracking," in *Proc. 2007 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2007.

52. (Invited Plenary Paper and Presentation) J. T. Bernhard, "Reconfigurable Multifunction Antennas: Next Steps for the Future," in *Proc. 2007 IEEE International Symposium on Microwave, Antenna, Propagation, and EMC Technologies for Wireless Communication*, Hangzhou, China, August 2007.
53. Z. Zhang and J. T. Bernhard, "A Circular Wire Antenna for Ultra Wideband Applications," in *Proc. 2007 IEEE International Symposium on Microwave, Antenna, Propagation, and EMC Technologies for Wireless Communication*, Hangzhou, China, August 2007.
54. (Invited Special Session Paper) T. L. Roach, G. H. Huff, and J. T. Bernhard, "On the applications for a radiation reconfigurable antenna," in *Proc. NASA/ESA Conference on Adaptive Hardware and Systems*, Edinburgh, Scotland, UK, August 2007.
55. (Invited Special Session Paper) T. L. Roach and J. T. Bernhard, "Exploration of amplitude tapering in phased arrays with pattern reconfigurable elements," in *Proc. 2007 International Symposium on Electromagnetic Theory*, Ottawa, Canada, July 2007.
56. S. F. Barot, Z. Hashisho, M. J. Rood, and J. T. Bernhard, "Measurement of activated carbon fiber cloth dielectric properties at microwave frequencies," in *Proc. 2007 North American Radio Science Meeting*, Ottawa, Canada, July 2007.
57. H. K. Pan, G. Huff, T. Roach, Y. Palaskas, S. Pellerano, P. Seddighrad, V. K. Nair, D. Choudhury, B. R. Bangerter, and J. T. Bernhard, "Increasing channel capacity on MIMO systems employing adaptive pattern/polarization reconfigurable antenna," in *Proc. 2007 IEEE International Symposium on Antennas and Propagation*, Honolulu, HI, June 2007.
58. K. C. Kerby and J. T. Bernhard, "Comparison of bend loss in terahertz waveguide and optical fiber," in *Proc. 2007 IEEE International Symposium on Antennas and Propagation*, Honolulu, HI, June 2007.
59. (Invited Special Session Paper) T. L. Roach and J. T. Bernhard, "Investigation of sidelobe level performance in phased arrays with pattern reconfigurable elements," in *Proc. 2007 IEEE International Symposium on Antennas and Propagation*, Honolulu, HI, June 2007.
60. H. L. Reis, B. L. Ervin, J. T. Bernhard, and D. A. Kuchma, "Estimation of general corrosion damage to steel reinforced mortar using high frequency guided mechanical waves," in *Proc. SPIE Smart Structures/NDE*, vol. 6529, n. 1, 2007.
61. G. H. Huff and J. T. Bernhard, "A model for MEMs-based perturbations in open (leaky) waveguide structures: application to the trough waveguide antenna," in *Proc. 2006 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2006.
62. N. C. Soldner, C. J. Lam, A. C. Singer, and J. T. Bernhard, "Beamforming in intelligent randomly distributed sensor networks using electrically-small dual-sector antennas for planetary exploration," in *Proc. Second IEEE Int. Conf. on Space Mission Challenges for Information Technology*, July 2006.
63. G. H. Huff, N. Soldner, W. D. Palmer, and J. T. Bernhard, "Study of error vector magnitude patterns (EVRP) for a transmit/receive pair of microstrip patch antennas," in *Proc. IEEE Antennas and Propagation Int. Symp.*, July 2006, pp. 449-452.
64. Z. Zhang and J. T. Bernhard, "Two-arm Archimedean spiral with filter-based reactive loading," in *Proc. IEEE Antennas and Propagation Int. Symp.*, July 2006, pp. 3677-3680.
65. S. Zhang and J. T. Bernhard, "Performance study of a reconfigurable microstrip parasitic array (RMPA) phased array," in *Proc. IEEE Antennas and Propagation Int. Symp.*, July 2006, pp. 2305-2308.
66. K. C. Kerby and J. T. Bernhard, "Arrays of random subarrays for wideband applications," in *Proc. GOMACTech-2006*, San Diego, CA, March 2006.
67. G. R. Alvey, H. K. Pan, and J. T. Bernhard, "Investigation into techniques for packaging cosite microstrip patch antennas into handheld devices," in *Proc. 2006 IEEE International Workshop on Antenna Technology: Small Antennas and Novel Metamaterials*, March 2006.
68. H. K. Pan, J. T. Bernhard, and V. K. Nair, "Reconfigurable single-armed square spiral microstrip antenna design," in *Proc. 2006 IEEE International Workshop on Antenna Technology: Small Antennas and Novel Metamaterials*, March 2006.
69. B. L. Ervin, J. T. Bernhard, D. A. Kuchma, and H. Reis, "Estimation of corrosion damage to steel reinforced mortar using frequency sweeps of guided mechanical waves," in *Proc. SPIE Smart Structures/NDE*, vol. 6174, n. 1, 2006, pp 6170H1-12.

70. (Invited paper) J. T. Bernhard, "Electromagnetic issues for embedded wireless sensing: planning, path loss, and feasibility," *Proc. 85th Annual Meeting of the U.S. Transportation Research Board of the National Academies*, January 2006.
71. H. K. Pan, P. Atkins, V. K. Nair, and J. T. Bernhard, "RF MEMS integration in reconfigurable bent monopole antenna design," in *Proc. URSI 2006 National Radio Science Meeting*, January 2006, p. 76.
72. (Invited paper) G. H. Huff and J. T. Bernhard, "Radiation and beam-steering of a W-band trough waveguide antenna using MEMS perturbations," in *Proc. URSI 2006 National Radio Science Meeting*, January 2006, p. 20.
73. (Invited paper) G. H. Huff and J. T. Bernhard, "Electromechanical beam steering of a W-band trough waveguide antenna for use in integrated automated radar systems," *Ansoft Converge - Applications Workshop for High Performance Design*, Detroit, MI, Nov. 2005, p. 8.
74. [Winner, Student Paper Competition] N. C. Soldner, P. E. Mayes, and J. T. Bernhard, "Improvement of electrically small dual-sector antenna through integration of planar inductive feeds and inductive loads," in *Proc. 2005 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2005, pp. 108 – 126.
75. G. H. Huff and J. T. Bernhard, "Electromechanical beam steering of a trough waveguide antenna using cantilever perturbations," in *Proc. 2005 Antenna Applications Symposium*, Allerton Park, Monticello, IL, Sept. 2005, pp. 152 – 165.
76. (Invited paper) J. T. Bernhard, K. C. Kerby, G. Cung, and P. E. Mayes, "Wideband random phased arrays: theory and design," in *Proc. IEE Seminar on Wideband and Multi-band Antennas and Arrays*, Sept. 2005.
77. N. H. Vaidya, J. Bernhard, V. Veeravalli, P. R. Kumar, R. Iyer, "Illinois Wireless Wind Tunnel: A Testbed for Experimental Evaluation of Wireless Networks," in *Proc. SIGCOMM 2005, E-Wind Workshop*, August 2005.
78. Z. Zhang and J. T. Bernhard, "An extremely broadband antenna for software defined radio," in *Proc. 2005 IEEE/URSI International Symposium on Antennas and Propagation*, July 2005.
79. G. H. Huff and J. T. Bernhard, "Modeling of ferroelectric thin films and materials for microwave devices and antennas," in *Proc. 2005 IEEE/URSI International Symposium on Antennas and Propagation*, July 2005.
80. J. Fladie and J. T. Bernhard, "Analysis of sectioned substrate patch antennas utilizing a deterministic approach," in *Proc. 2005 IEEE/URSI International Symposium on Antennas and Propagation*, July 2005.
81. N. Soldner, P. E. Mayes, and J. T. Bernhard, "Electrically-small inductively-loaded low-profile dual sector antennas in random arrays for surface exploration and mapping," in *Proc. 2005 IEEE/URSI International Symposium on Antennas and Propagation*, July 2005.
82. G. H. Huff and J. T. Bernhard, "Frequency reconfigurable CPW-fed hybrid folded slot/slot dipole antenna," in *Proc. 2005 IEEE/ACES International Conference on Wireless Communications and Applied Computational Electromagnetics*, 3-7 April 2005, pp. 574-577.
83. J. T. Bernhard, G. Cung, K. C. Kerby, and P. E. Mayes, "Development of Wideband Random Phased Arrays Composed of Modified Canted Sector Antennas," in *Proc. 2005 IEEE/ACES International Conference on Wireless Communications and Applied Computational Electromagnetics*, 3-7 April 2005, pp. 229-232.
84. J. T. Bernhard, G. Cung, K. C. Kerby, and P. E. Mayes, "Wideband Random Phased Arrays: Cost-effective Multifunction Performance," in *Proc. GOMACTech-2005*, Las Vegas, NV, March 2005.
85. G. H. Huff, M. Reeder, and J. T. Bernhard, "A frequency and radiation pattern reconfigurable CPW-fed dual-slot antenna for CPW RF MEMS," in *Proc. URSI 2005 National Radio Science Meeting*, January 2005, p.110.
86. T. L. Roach, G. H. Huff, and J. T. Bernhard, "A comparative study of diversity and spatial coverage: fixed vs. reconfigurable antennas for portable devices," in *Proc. URSI 2005 National Radio Science Meeting*, January 2005.

87. H. Reis, B. Ervin, D. A. Kuchma, and J. Bernhard, "Estimation of corrosion damage in steel reinforced concrete using wave guides," in *Proc. SPIE Smart Structures/NDE 2005*, vol. 5767, n. 1, 2005, pp. 105-114.
88. G. H. Huff and J. T. Bernhard, "Analysis of a radiation and frequency reconfigurable microstrip antenna," Finalist in student paper competition, in *Proc. 2004 Antenna Applications Symposium*, Sept. 2004, pp. 175-191.
89. K. C. Kerby and J. T. Bernhard, "Array of rotated random subarrays," in *Proc. 2004 Antenna Applications Symposium*, Sept. 2004, pp. 293-307.
90. K. Hietpas, B. Ervin, D. Kuchma, H. Reis, and J. T. Bernhard, "Wireless embedded rust monitoring system," in *Proc. 2004 Antenna Applications Symposium*, Sept. 2004, pp. 27-44.
91. (Invited Paper) G. H. Huff, K. Hietpas, and J. T. Bernhard "Reconfigurable microstrip antennas in phased arrays: performance and potential," in *Proc. 2004 Progress in Electromagnetics Research Symposium (PIERS) Symposium*, Nanjing, China, August 2004, p. 17.
92. K. Hietpas, G. H. Huff, and J. T. Bernhard, "Investigation of phased array beamsteering using reconfigurable antennas," in *Proc. IASTED Int. Conf. on Antennas, Radar, and Wave Propagation*, July 2004, pp. 41-44.
93. G. H. Huff and J. T. Bernhard, "Effects of mutual coupling in arrays of radiation reconfigurable antennas," in *Proc. IASTED Int. Conf. on Antennas, Radar, and Wave Propagation*, July 2004, pp. 92-96.
94. K. C. Kerby and J. T. Bernhard, "Wideband periodic array of random subarrays," in *Proc. 2004 IEEE/URSI Int. Symp. on Antennas and Propagation*, Monterey, CA, v. 1, June 2004, pp. 555-558.
95. S. Zhang and J. T. Bernhard, "A pattern reconfigurable microstrip antenna using solid state switches," in *Proc. 2004 IEEE/URSI Int. Symp. on Antennas and Propagation*, Monterey, CA, v. URSI, June 2004, p. 555-558.
96. G. H. Huff, T. L. Roach, and J. T. Bernhard, "A study of diversity performance of integrated combinations of fixed and reconfigurable antennas on portable devices," in *Proc. 2004 IEEE/URSI Int. Symp. on Antennas and Propagation*, Monterey, CA, v. URSI, June 2004, p. 137.
97. G. H. Huff, T. L. Roach, and J. T. Bernhard, "Conformal integration of broadside to endfire radiation reconfigurable antennas onto canonical structures," in *Proc. 2004 IEEE/URSI Int. Symp. on Antennas and Propagation*, Monterey, CA, v. URSI, June 2004, p. 138.
98. G. Cung, J. Fladie, P. E. Mayes, and J. T. Bernhard, "Investigation of canted compound sector antennas for wideband periodic arrays," in *Proc. 2004 IEEE/URSI Int. Symp. on Antennas and Propagation*, Monterey, CA, v. 2, June 2004, pp. 1887-1890.
99. G. Cung, J. Fladie, P. E. Mayes, and J. T. Bernhard, "Wideband low-profile canted antennas for broadside radiation in aperiodic arrays," in *Proc. GOMACTech-2004*, Monterey, CA, March 2004, p.167-170.
100. J. T. Bernhard, G. H. Huff, J. Feng, and S. Zhang, "Individually reconfigurable elements in arrays: operation from broadside to endfire," in *Proc. GOMACTech-2004*, Monterey, CA, March 2004.
101. J. T. Bernhard, "Linking electromagnetic design to system performance: measuring bit error rate as a function of antenna properties and more," in *Proc. URSI National Radio Science Meeting*, Jan. 2004, p. 78.
102. J. T. Bernhard, G. H. Huff, J. Feng, and S. Zhang, "Radiation pattern reconfigurable antennas and arrays: operation and switch integration," in *Proc. URSI National Radio Science Meeting*, Jan. 2004, p. 114.
103. J. T. Bernhard, "Antennas for multifunction RF systems: current work and future directions," Poster presentation, in *Proc. DARPA/ONR Workshop on Future Directions for Multifunction RF Systems*, November 2003.
104. J. T. Bernhard, G. H. Huff, J. Feng, S. Zhang, and G. Cung, "Reconfigurable portable antenna systems for high-speed wireless communication," in *Proc. 2003 IEEE Topical Conf. on Wireless Communication Technology*, October 2003, pp. 82-83.

105. J. T. Bernhard, K. Hietpas, E. George, D. Kuchma, and H. Reis, "An interdisciplinary effort to develop a wireless embedded sensor system to monitor and assess corrosion in the tendons of prestressed concrete girders," in *Proc. 2003 IEEE Topical Conf. on Wireless Communication Technology*, October 2003, pp. 241-243.
106. G. H. Huff, J. Feng, and J. T. Bernhard, "A modified pattern reconfigurable microstrip antenna for IC fabrication and integration with RF MEMS switches," in *Proc. 2003 IEEE Topical Conf. on Wireless Communication Technology*, October 2003, pp.378-379.
107. J. T. Bernhard, P. E. Mayes, D. Schaubert, and R. Mailloux, "A commemoration of Deschamps' and Sichak's 'Microstrip Microwave Antennas': 50 years of development, divergence, and new directions," in *Proc. 2003 Antenna Applications Symposium*, pp. 189-230, Sept. 2003.
108. G. H. Huff, J. Feng, and J. T. Bernhard, "A small array of boresight to endfire radiation reconfigurable antennas," in *Proc. 2003 Antenna Applications Symposium*, pp. 147-161, Sept. 2003.
109. J. T. Bernhard, B. Herting, J. Fladie, D. Chen, and P. E. Mayes, "Investigation of wideband low-profile canted antennas for broadside radiation in aperiodic arrays," in *Proc. 2003 Antenna Applications Symposium*, pp. 318-326, Sept. 2003.
110. D. A Strohschein, K. Sivaprasad, and J. T. Bernhard, "Investigation of the relationship between the characteristic electromagnetic modes of isolated near-resonant sized structures and systems of the structures." In *Proc. ITG Conference on Antennas*, Berlin, Germany, September 2003.
111. H. L. M. dos Reis, B. Ervin, D. A. Kuchma, and J. T. Bernhard, "Evaluation of corrosion damage in steel reinforced concrete," in *Proc. International Workshop on Structural Health Monitoring*, Stanford, CA, September 2003, pp. 139-146.
112. G. H. Huff, J. Feng, S. Zhang, J. T. Bernhard, "Behavior of pattern and/or frequency reconfigurable antennas in small arrays," in *Proc. 2003 IEEE/URSI Int. Symp. on Antennas and Propagation*, URSI, June 2003, p. 151.
113. (*Invited Paper*) J. T. Bernhard, E. C. George, K. Hietpas, P. Lee, A. Zoeteman, and J. Hill, "Embedding antennas into concrete for sensing applications: a packaging adventure," in *Proc. 2003 IEEE/URSI Int. Symp. on Antennas and Propagation*, URSI, June 2003, p. 299.
114. J. T. Bernhard, B. Herting, P. Mayes, N. Chen, and E. Michielssen, "Wideband low-profile canted antennas for array applications," in *Proc. 2003 IEEE/URSI Int. Symp. on Antennas and Propagation*, URSI, June 2003, p. 694.
115. J. T. Bernhard, B. Herting, N.-W. Chen, P. Mayes, and E. Michielssen, "Low Profile Radiators for Wideband Arrays," in *Proc. GOMACTech-2003*, Tampa, FL, April 2003.
116. Keynote Address: J. T. Bernhard, "Reconfigurable Antennas and Apertures: State-of-the-Art and Future Outlook," *Proc. SPIE Conf. on Smart Electronics, MEMS, BioMEMS, and Nanotechnology*, vol. 5055, March 2003, pp. 1-9.
117. B. Herting, A. Perrotta, and J. T. Bernhard, "Finite ground plane packaging effects on a dual-band PIFA," in *Proc. IEEE Topical Mtg. on Electrical Performance of Electronic Packaging*, pp. 95-98.
118. G. H. Huff, G. Cung, and J. T. Bernhard, "Investigation of polarization purity and port isolation in circularly polarized microstrip patch antennas with ground plane edge serrations," in *Proc. 2002 Antenna Applications Symposium*, Allerton Park, Monticello, IL, 2002, pp. 307-319.
119. J. Hazen and J. T. Bernhard, "Improved impedance bandwidth prediction of stacked reconfigurable bowtie antennas," in *Proc. 2002 Antenna Applications Symposium*, Allerton Park, Monticello, IL, 2002, pp. 353-362.
120. H. Chao, K. Pirapaharan, V. Bodrov, T. Cui, H. Hsu, G. Huff, X. Zhang, J. Zhao, J. T. Bernhard, and W. Chew, "Simulation of vehicle antennas by the multilevel fast multipole algorithm," in *Proc. 2002 Antenna Applications Symposium*, Allerton Park, Monticello, IL, 2002, pp. 140-147.
121. D. A. Kuchma, J. T. Bernhard, and H. L. M. dos Reis, "A wireless embedded sensor system to monitor and assess corrosion in tendons of prestressed concrete girders," in *Proc. of the U.S.-Korea Workshop on Smart Infra-Structural Systems*, August 2002, pp. 273-282.

122. (Invited Paper) G. Huff, S. Zhang, J. Feng, and J. T. Bernhard, "Performance and packaging issues of novel reconfigurable antennas in laptop computers," in *Proc. 2002 IEEE/URSI International Symposium on Antennas and Propagation*, vol. URSI, p. 178.
123. S. Zhang, G. Huff, J. Feng, and J. T. Bernhard, "Design model development for spiral microstrip antennas," in *Proc. 2002 IEEE/URSI International Symposium on Antennas and Propagation*, vol. URSI, p. 286.
124. M. Kim, D. Oh, I. Park, and J. T. Bernhard, "One-arm microstrip spiral antenna with a circular aperture on the ground plane," in *Proc. 2002 IEEE/URSI International Symposium on Antennas and Propagation*, vol. 3, pp. 830-833.
125. J. Hazen, R. Clark, P. Mayes, and J. T. Bernhard, "Stacked reconfigurable antennas for space-based radar applications," in *Proc. 2001 Antenna Applications Symposium*, Allerton Park, Monticello, Illinois, 2001, pp. 59-69.
126. S. Zhang, G. Huff, and J. T. Bernhard, "Antenna efficiency and gain of two new compact microstrip antennas," in *Proc. 2001 Antenna Applications Symposium*, Allerton Park, Monticello, Illinois, 2001, pp. 108-116.
127. J. Haley, T. Moore, and J. T. Bernhard, "Experimental investigation of antenna-handset-feed interaction during wireless product testing," in *Proc. 2001 Antenna Applications Symposium*, Allerton Park, Monticello, Illinois, 2001, pp. 117-134.
128. J. T. Bernhard, "Compact single-arm square spiral microstrip antenna with tuning arms," in *Proc. IEEE/URSI Antennas and Propagation Soc. International Symp.*, vol. 2, 2001, p. 696-699.
129. D. A. Stroschein, K. Sivaprasad, and J. T. Bernhard, "Application of characteristic modes to antenna placement on portable wireless devices," in *Proc. IEEE/URSI Antennas and Propagation Soc. International Symp.*, vol. URSI, 2001, p. 222.
130. K. H. Pan, T. Moore, and J. T. Bernhard, "Experimental investigation of microstrip antenna design beside lossy dielectric materials," in *Proc. IEEE/URSI Antennas and Propagation Soc. International Symp.*, vol. 4, 2001, p. 470-473.
131. J. T. Bernhard, R. Wang, R. Clark, and P. Mayes, "Stacked reconfigurable antenna elements for space based radar applications," in *Proc. IEEE/URSI Antennas and Propagation Soc. International Symp.*, vol. 1, 2001, p. 158-161.
132. (Invited paper) J. T. Bernhard, N. Chen, R. Clark, M. Feng, C. Liu, P. Mayes, E. Michielssen, R. Wang, and L. G. Chorosinski, "Electronically reconfigurable and mechanically conformal apertures using low-voltage MEMS and flexible membranes for space-based radar applications," *Proc. of SPIE on Smart Electronics and MEMS*, March 2001, pp. 129-136.
133. K. H. Pan, J. T. Bernhard, and T. Moore, "Effects of lossy dielectric materials on microstrip antennas," *Proc. IEEE AP-S Conference on Antennas and Propagation for Wireless Communications*, November 2000, pp. 39-42.
134. J. T. Bernhard, N.-W. Chen, R. Clark, P. Mayes, and E. Michielssen, "A canted sector antenna with broad impedance bandwidth for high performance arrays," *Proc. 2000 Antenna Applications Symposium*, Allerton Park, Monticello, Illinois, 2000, pp. 311-322.
135. J. T. Bernhard, N.-W. Chen, R. Clark, M. Feng, C. Liu, P. Mayes, E. Michielssen, and J. Mondal, "Mechanically conformal and electronically reconfigurable apertures using low voltage MEMS and flexible membranes for space based radar applications," *Proc. IEEE Antennas and Propagation Soc. International Symp.*, vol. URSI, 2000, p. 99.
136. R. Romanofsky, J. Bernhard, G. Washington, F. Van Keuls, F. Miranda, G. Washington, and C. Canedy, "A K-Band Linear Phased Array Antenna Based on $\text{Ba}_{0.60}\text{Sr}_{0.40}\text{TiO}_3$ Thin Film Phase Shifters," *IEEE Microwave Symp. Dig.*, vol. 3, 2000, pp.1351 -1354.
137. R. Clark, H. Pan, and J. T. Bernhard, "Microstrip antenna elements with internal amplifier slots for spatial power combining reflectarray applications," *Proc. IEEE Antennas and Propagation Soc. International Symp.*, vol. 3, 2000, pp. 1248-1251.

138. J. T. Bernhard and P. Irazoqui-Pastor, "Examining the performance benefits of antenna diversity systems in portable wireless environments," *Proc. 1999 Antenna Applications Symposium*, Allerton Park, Monticello, Illinois, 1999, pp. 30-40.
139. P. Irazoqui-Pastor, E. Swanson, C. Short, and J. T. Bernhard, "An analysis and design tool for evaluation of integrated antenna diversity systems in portable wireless devices," *Proc. IEEE AP-S International Symp.*, vol. 3, 1999, pp. 2062-2065.
140. J. T. Bernhard, "Undergraduate and graduate students in a research/design team: strategies for success," *Proc. IEEE/ASEE Frontiers in Education Conference*, vol. 3, November 1999, 13B9/1.
141. D. A. Stroschein and J. T. Bernhard, "Evaluation of a novel integrated antenna assembly for mobile data networks using laptop computers," *Proc. IEEE AP-S International Symp.*, 1998, pp. 1962-1965.
142. E. Kiely, G. Washington, and J. T. Bernhard, "Design, actuation, and control of active patch antennas," *Proc. SPIE Symp. on Smart Structures and Materials*, March 1998, pp. 147-155.
143. J. T. Bernhard, "Awakening the tinkerer within: re-introducing first year students to hardware for motivation," *Proc. IEEE/ASEE Frontiers in Education Conference*, vol. 2, November 1997, p. 706.
144. J. T. Bernhard, "Challenges and strategies for electrical engineering education," Sloan New Faculty Fellow Panel, *Proc. IEEE/ASEE Frontiers in Education Conference*, vol. 3, November 1997, pp. 1459-1462.
145. J. T. Bernhard, "Analysis of integrated antenna positions on portable equipment for mobile communications," *Proceedings of the Wireless and Portable Design Conference*, Burlington, MA, September 1997, pp. 1-4.
146. J. T. Bernhard, "Analysis of integrated antenna positions on a laptop computer for mobile data communication," *Proc. IEEE AP-S International Symp.*, 1997, pp. 2210-2213.
147. J. T. Bernhard, E. A. Jones, T. V. Samulski, S. T. Clegg, and W. T. Joines, "Design guide for the spiral microstrip antenna in hyperthermia applications," Presented at the 15th Annual Meeting of the North American Hyperthermia Society, April 1995.
148. E. A. Jones, J. T. Bernhard, T. V. Samulski, S. T. Clegg, and W. T. Joines, "FDTD simulation of current distributions and radiation patterns for spiral microstrip antenna applicators," Presented at the 15th Annual Meeting of the North American Hyperthermia Society, April 1995.

INVITED PRESENTATIONS AND SEMINARS

- Invited Seminar: "The Next Steps for Reconfigurable Antennas: Compound Reconfigurability and System Integration," Intel Research Forum and Seminar Series, Intel Corporation, Hillsboro, Oregon, March 2008.
- Plenary Talk: "Reconfigurable Multifunction Antennas: Next Steps for the Future," IEEE International Symposium on Microwave, Antenna, Propagation, and EMC Technologies for Wireless Communication, Hangzhou, China, August 2007.
- Invited Presentation: "MEMS-Based Reconfigurable Antennas: State of the Art and Future Directions," Workshop on Reconfigurable and Smart Antennas, 2007 International Microwave Symposium, Honolulu, HI, June 2007.
- Invited Seminars: (1) "Reconfigurable Antennas and Packaging Strategies for Multi-Radio Platforms," (2) "Grand Challenges in Antennas: Enabling the Future of Wireless Communication and Sensing," Antenna Group Seminar and Departmental Graduate Seminar, Department of Electrical and Computer Engineering, University of Massachusetts, Amherst, April 2007.
- Invited Seminar: "Grand Challenges in Antennas: Enabling the Future of Wireless Communication and Sensing," Departmental Seminar, Department of Electrical and Computer Engineering, Duke University, March 2007.
- Invited Presentation: "Reconfigurable Antennas and Packaging Strategies for Multi-Radio Platforms," Workshop on Integrated RF Solutions in Multi-Radio Platforms, Intel Corporation, Hillsboro, Oregon, March 2007.

- Invited Presentation: "Reconfigurable Antennas: State of the Art and Future Directions," UCLA Electrical Engineering Workshop on Emerging Antenna Research for Wireless Communications, Department of Electrical Engineering, University of California, Los Angeles, February 2007.
- Invited Presentation: "Enabling Technology for MIMO Systems on Mobile Military Platforms: Antennas, Switches, and Packaging," Capabilities Briefing/Kickoff Meeting, Army Research Laboratory, February 2007.
- Invited Featured Speaker for the 2005-2006 Intel Lockheed Martin Undergraduate Research Scholars Program Poster Session, UIUC College of Engineering, April 2006.
- Invited Presentation: "Antenna and Wireless Research in the Electromagnetics Laboratory at the University of Illinois," ATACT Workshop, Tysons Corner, VA, February 2006.
- Invited Seminar: "Multifunction Antennas and Antennas for Sensor Applications," University of Colorado, Department of Electrical and Computer Engineering, April 2005.
- Invited Seminar: "Multifunction Antennas and Antennas for Sensor Applications," University of Wisconsin, Department of Electrical and Computer Engineering, March 2005.
- Invited Seminar: "Multifunction Antennas and Antennas for Sensor Applications," Cornell University, School of Electrical and Computer Engineering, March 2005.
- Invited Seminar: "Multifunction Antennas: Reconfigurability and Bandwidth for New Applications," Washington University in St. Louis, Department of Mechanical Engineering, March 2005.
- Invited Seminar: "Development of Wireless Embeddable Sensors for Structural and Geotechnical Applications," Turner-Fairbank Highway Research Center, Federal Highway Administration, November 2004.
- Invited Seminar: "Antennas for the 21st Century: Reconfigurable Radiating Systems," Given to the Columbus Chapters of the IEEE Microwave Theory and Techniques Society and IEEE Antennas and Propagation Society and the Electroscience Laboratory in the Department of Electrical and Computer Engineering, Ohio State University, July 2004.
- Northrop Grumman Corporation, Baltimore, MD. May 2004.
- Invited Colloquium Speaker, Cornell University, School of Electrical and Computer Engineering, "Antennas for the 21st Century: Reconfigurable Radiating Systems," April 2004.
- Invited Guest Speaker at the Opening of the University of Illinois College of Engineering G.A.M.E.S. camp (Girls' Adventures in Mathematics, Engineering, and Science Camp for junior-high young women), August 2003.
- Zenith Electronics Corporation, Lincolnshire, IL. June 2003.
- Andrew Corporation, Orland Park, IL. June 2003.
- ECE Undergraduate Explorations Seminar, "Reconfigurable Antennas: The Next Frontier for Reliable, High-Speed Wireless Communication Systems," UIUC, March 2003.
- Keynote Address, "Reconfigurable Antennas and Apertures: State-of-the-Art and Future Outlook," Proc. SPIE Conf. on Smart Electronics, MEMS, BioMEMS, and Nanotechnology, March 2003.
- Invited Seminar: "Antennas for the 21st Century: Reconfigurable Radiating Systems," Given to the Atlanta Chapters of the IEEE Microwave Theory and Techniques Society and IEEE Antennas and Propagation Society and the Department of Electrical and Computer Engineering, Georgia Institute of Technology, November 2002.
- Delphi Automotive Systems, Kokomo, IN. November 2001.
- ECE 490 Electromagnetics Seminar, UIUC, November 2001.
- Amphenol T&M Antennas, Vernon Hills, IL. October 2001.
- Kimberly-Clark on ECE 371JB: Sensors and Instrumentation, April 2001.
- National Teaching College Workshop, UIUC, March 2001.
- CSL Communications/Signal Processing Seminar, UIUC, February 2001.
- ECE Undergraduate Explorations Seminar, UIUC, February 2001.
- ICM Bluetooth Conference, Washington, D.C., July 2000.
- ECE 490 Microelectronics Seminar, UIUC, October 1999.
- Amphenol T&M Antennas, September 1999.

ECE 490 Electromagnetics Seminar, UIUC, January 1999.
ECE 490 Electromagnetics Seminar, UIUC, December 1998.
Teradyne, Inc., Nashua, NH, December 1997.
Southern Methodist University (SMU), Department of Electrical and Computer Engineering, September 1997.
Electromagnetics Special Seminar, UIUC Department of Electrical and Computer Engineering, March 1997.
Case Western Reserve University, Department of Electrical and Computer Engineering, May 1996.
Raytheon, Bedford, MA, January 1996.

DISSERTATIONS AND THESES SUPERVISED AND JOB PLACEMENTS

M.S. Thesis: *A Directional Modulation Technique for Phased Arrays*. Michael P. Daly, December 2008. Continuing for a Ph.D.

M.S. Thesis: *A Compound Reconfigurable Antenna*. Matthew J. Slater, December 2008. Continuing for a Ph.D.

M.S. Thesis: *Reconfigurable Beam-Steering Microstrip Patch Antenna*. Jessica Ruyle, August 2008. Continuing for a Ph.D.

M.S. Thesis: *Investigation into the Effects of Solid State Switches on Reconfigurable Antenna Performance*. William Bornhoff, May 2008. Northrop Grumman Corporation.

M.S. Thesis: *Improved Antenna Designs For Next Generation RFID Systems: People And Object Tracking For Homeland Security Applications*. Morgan Reeder, May 2008. Somat Corporation.

M.S. Thesis: *Investigation into the Relationship between Width and Efficiency of Patch Antennas*. Siwen Yong, May 2008. Continuing for a Ph.D.

M.S. Thesis: *Investigation of Methods to Create Prescribed Frequency Shifts in Transmitted Signals Using a High Impedance Surface*. Rasa K. Dovilas, May 2008. Toyon Research Corporation.

Ph.D. Dissertation: *Analysis and Design of a Broadband Antenna for Software Defined Radio*. Zhuohui Zhang, December 2007. Impinj RFID.

M.S. Thesis: *Investigation of Techniques to Achieve Compatibility between Multiband Cellular Phone Antennas and Hearing Aids*. Priyanka Bhandari, August 2007. Singapore.

M. S. Thesis: *Performance Study of Pattern Reconfigurable Antennas in Multiple-Input Multiple-Output Communications Systems*. Joshua D. Boerman, May 2007. Motorola.

M.S. Thesis: *Investigation of Frequency Selective Surfaces for Remote Sensing*. Joseph Banasiak, December 2006. Motorola.

Ph.D. Dissertation: *A Radiation Reconfigurable Magnetic Line Source Antenna: Modeling, Integration with RF MEMS, and Applications*. Gregory H. Huff, October 2006. Assistant Professor, Texas A&M University.

M. S. Thesis: *Investigation and Analysis of Sectioned Substrate Microstrip Patch Antenna*, Joshua Fladie, August 2006. Northrop Grumman Corporation. Now in Graduate School at the University of Arkansas.

M.S. Thesis: *Design and Analysis of Electrically-Small Inductively Loaded Dual Sector Antennas for Surface Sensing Applications*. Nicholas C. Soldner, May 2006. Ultitech Corporation, Shanghai.

M.S. Thesis: *Investigations of Methods for Isolating Two Co-located Microstrip Antennas*. Graham R. Alvey, May 2006. Motorola.

M. S. Thesis: *Efficiency of an Electrically Small Monopole for Animal Tracking*, Jacqueline M. Martin, December 2005. SAIC.

Ph.D. Dissertation: *A Pattern Reconfigurable Microstrip Parasitic Array: Theory, Design, and Applications*, Shenghui Zhang, August 2005. Chinese Heng-Xing Inc., Beijing, China.

M. S. Thesis: *Design and Analysis of Wideband Canted Sector Antennas for Use in Aperiodic Arrays*, Garvin Cung, August 2005. Northrop Grumman Corporation.

- M.S. Thesis: *Sidelobe Level and Wideband Behavior of Arrays of Random Subarrays*, Kiersten Kirby, May 2005. Continuing for Ph.D.
- M.S. Thesis: *A Comparative Study of Diversity Gain and Spatial Coverage: Fixed Versus Reconfigurable Antennas for Portable Devices*, Tyrone L. Roach, May 2005. Continuing for Ph.D.
- M.S. Thesis: *Beam Steering in Phased Arrays Using a Pattern Reconfigurable Antenna*, Kevin N. Hietpas, December 2004. Amphenol Antel Inc.
- M.S. Thesis: *A Pattern and Frequency Reconfigurable Microstrip Spiral Antenna*, Gregory H. Huff, December 2003. Continued at UIUC for Ph.D.
- M.S. Thesis: *Millimeter Wave Frequency Tunable Oscillators*, Judy Feng, UIUC, October 2003. BAE Systems.
- M.S. Thesis: *An Analysis and Design Tool for Evaluation of Integrated Antenna Diversity Systems in Portable Wireless Devices*, Daniel Chen, UIUC, August 2003. Rockwell Collins.
- M.S. Thesis: *Analysis and Design of U-slot Microstrip Antennas*, Eric C. George, UIUC, August 2003. IBM.
- M.S. Thesis: *A Stacked Reconfigurable Bowtie Antenna for Dual Polarization and Wide Switchable Bandwidth*, Jeffrey E. Hazen, UIUC, August 2003. SAIC.
- M.S. Thesis: *Design and Optimization of a Dual-Band Two-Slot Planar Inverted-F Antenna*, Brian J. Herting, UIUC, May 2003. Rockwell Collins.
- M.S. Thesis: *Microstrip Diplexer Design and Implementation for Wireless LAN*, Kanhua S. Liang, UIUC, May 2003.
- M.S. Thesis: *Electromagnetic Study of Integrated Hearing Aid Antennas*, Mitesh Parikh, UIUC. September 2002. Northrop Grumman Corporation.
- M.S. Thesis: *Frequency Reconfigurable Microstrip Antenna using Plastic Deformation Magnetic Actuation*, Jean-Christophe Jacques Paul Langer, UIUC. May 2002. Amphenol T&M Antennas. Now with Nokia.
- Ph.D. Thesis: *Development and Validation of a Comprehensive Packaging Strategy for Integrated Antennas in Mobile Communication Equipment*, David Strohschein, UNH. May 2002. EMWave Wireless/MIT Lincoln Laboratory.
- M.S. Thesis: *Analysis and Design of Broadband Single-layer Rectangular U-slot Microstrip Patch Antennas*, Steven Weigand (through exchange with University of Darmstadt, Germany), June 2001. WJ Communications.
- M.S. Thesis: *Novel Active Antenna Elements for High Performance Phased Reflectarrays*, Randall Clark, UIUC. May 2001. Northrop Grumman Corporation.
- M.S. Thesis: *Experimental Study of Reconfigurable Cavity-Backed Slot Antennas*, Patrick Codd, UIUC. December 2000. Silicon Bandwidth.
- M.S. Thesis: *Antenna Efficiency Measurement and the Effects of a Nearby Object on Radiation Efficiency*, Rong Hua Wang, UIUC. December 2000. Private consultant.
- M.S. Thesis: *A Design Model for Rectangular Microstrip Antennas with Lossy Dielectric Materials*, Helen (Kankan Wang) Pan, UIUC. December 2000. Intel.
- M.S. Thesis: *Evaluation of Integrated Antenna Diversity Systems*, Pedro Irazoqui, UNH. May 1999. UCLA Graduate School; Triangle Biosystems, RTP, NC; now faculty at Purdue University, Department of Biomedical Engineering.

CURRENT GRADUATE STUDENTS

Tyrone Roach (M.S./Ph.D.), Kiersten Kirby (M.S./Ph.D.), Matthew Slater (M.S./Ph.D.), Suhail Barot (M.S./Ph.D.), Jessica Ruyle (M.S./Ph.D.), Brian Herting (Ph.D.), Siwen Yong (M.S./Ph.D.), Michael Daly (M.S./Ph.D.), Jacob Adams (Ph.D.), Carlo Van Niekerk (M.S./Ph.D.), Michael Anderson (M.S.), Tomasz Wojtaszek (M.S.), Leon Ting (M.S.), Stephen Yan (Ph.D.)

GRADUATE COMMITTEES

Ph.D. Committee: Yujia Li (J. Jin, Chair) UIUC, 2009.
Preliminary and Ph.D. Committee: Vasileios Kourkoulos (A. Cangellaris, Chair) UIUC, 2008.
Preliminary and Ph.D. Committee: Aravind Ramachandran (A. Cangellaris, Chair) UIUC, 2008/2009.
Preliminary and Ph.D. Committee: Karan Bhatia (E. Rosenbaum, Chair) UIUC 2007/2008.
Preliminary and Ph.D. Committee: Anne Woo (A. Cangellaris, Chair) UIUC 2007/2008.
Ph.D. Committee: Jiafeng Zhang (K. Hill, Chair, Mechanical Science and Engineering) UIUC 2008.
Preliminary and Ph.D. Committee: Benjamin Chu-Kung, (M. Feng, Chair) UIUC, 2007.
Preliminary and Ph.D. Committee: Ann Lehman, (K. Choquette, Chair) UIUC, 2006/2007.
Preliminary and Ph.D. Committee: Benjamin Ervin, (H. Reis, Chair, Industrial and Enterprise Systems Engineering), UIUC, 2006/2007.
Preliminary and Ph.D. Committee: Matthew Fisher, (S.L. Chuang, Chair) UIUC, 2005/2006.
Preliminary Committee: Zaher Hashisho (M. Rood, Chair, Civil and Environmental Engineering), UIUC, 2005.
Preliminary and Ph.D. Committee: Nan-Wei Chen, (E. Michielssen, Chair) UIUC, 2003.
Preliminary and Ph.D. Committee: Myoung Joon Choi, (A. Cangellaris, Chair) UIUC, 2003.
Ph.D. Committee: Zhaomei Feng, (E. Kudeki, Chair) UIUC, 2002.
Ph.D. Committee: Hsyeh-Yung Robert Chao, (J. Jin, Chair) UIUC, 2002.
Preliminary and Ph.D. Committee: David Becher, (M. Feng, Chair) UIUC, 2002.
Preliminary and Ph.D. Committee: Han Seok Kim, (S. Franke, Chair) UIUC, 2002/2004.
Preliminary and Ph.D. Committee: Jun Zou, (C. Liu, Chair) UIUC, 2001.
M.S. Thesis Committee: Adam Healey, UNH 2000.
M.S. Thesis Committee: Timothy Chevalier, UNH, 1998.
M.S. Project Committee: Christopher Williamson, UNH, 1998.
M.S. Thesis Committee: Jacob Freeman, UNH, 1996.

PROFESSIONAL SERVICE

Advisory Boards

Duke ECE Advisory Board, 2007 – 2008.

Associate Editorships and Editorial Board Positions

Associate Editor, *IEEE Transactions on Antennas and Propagation*, 2001 – 2007.

Associate Editor, *IEEE Antennas and Wireless Propagation Letters*, 2001 – 2005.

Editorial Board, *Smart Structures and Systems*, 2004 – Present.

Guest Editorships

Guest Editor for Special Issue on Multifunction Antennas and Systems, *IEEE Transactions on Antennas and Propagation*, February 2006.

IEEE Offices and Positions Held

IEEE Antennas and Propagation Society Immediate Past President, 2009.

IEEE Technical Activities Board Strategic Planning Committee, 2009-2011.

IEEE Antennas and Propagation Society President, 2008.

IEEE Antennas and Propagation Society President Elect (Elected), 2007.

IEEE Antennas and Propagation Society Administrative Committee (Elected), 2004-2006.

IEEE Antenna and Propagation Society, Chair of Constitution and Bylaws Committee, 2003-Present.

UNH IEEE Student Branch Faculty Advisor, 1996 – 1998.

New Hampshire IEEE State Executive Committee, 1996-1998.

URSI Offices and Positions Held

URSI USNC Commission D Vice Chair, 2009-2011.

URSI USNC Commission D Secretary, 2006-2008.

URSI USNC Member-at-Large (Elected), 2005-2007.

URSI Commission B USNC Member-at-Large (Elected), 2004-2005.

Symposium/Conference/Workshop Chair

- Co-Chair and US Delegation Leader, US-Japan Workshop on Bio-Inspired Sensor Networks: Learning from Life, Yokohama, Japan, December 6-8, 2006.
- Technical Program Chair, IEEE International Workshop on Antenna Technology: Small Antennas and Novel Metamaterials, White Plains, NY, March 6-8, 2006.
- Co-Chair, Antenna Applications Symposium, Allerton Park, Monticello, IL (Sponsored by AFRL, UMASS, and UIUC), 2001 – Present.
- Technical Program Chair, IEEE AP-S Conference on Antennas and Propagation for Wireless Communications, 2000.

International Symposia/Conference Advisory Boards

- 2009 International Advisory Committee, IEEE International Symposium on Microwave, Antenna, Propagation, and EMC Technologies for Wireless Communications (MAPE 2009), Beijing, China, October 2009.
- 2008 International Advisory Board, 3rd International Conference on Smart Material, Structures, and Systems, Symposium C, Acireale, Sicily, Italy, June 2008.
- 2007 International Advisory Committee, IEEE International Symposium on Microwave, Antenna, Propagation, and EMC Technologies for Wireless Communications (MAPE 2007), Hangzhou, China, August 2007.

Technical Program Committees

- 2009 IEEE AP-S URSI Technical Program Committee.
- 2008 IEEE AP-S URSI Technical Program Committee.
- 2007 IEEE AP-S Technical Program Committee.
- 2007 Technical Program Committee, IEEE International Workshop on Antenna Technology: Small and Smart Antennas, Metamaterials, and Applications.
- 2006 IEEE AP-S URSI Technical Program Committee.
- 2005 International Program Committee for the IASTED International Conference on Antennas, Radar and Wave Propagation.
- 2005 IEEE AP-S URSI Technical Program Committee.
- 2004 International Program Committee for the IASTED International Conference on Antennas, Radar and Wave Propagation.
- 2004 IEEE AP-S URSI Technical Program Committee.
- 2003 IEEE AP-S URSI Technical Program Committee.
- 2002 IEEE AP-S URSI Technical Program Committee.
- 2000 IEEE AP-S URSI Technical Program Committee.
- 1999 IEEE AP-S URSI Technical Program Committee.

Symposium/Conference Session Chair

- 2008 IEEE AP-S Special Session Organizer and Co-Chair: “Enabling Technology for Antennas and RF Front Ends for Multifunction Communications Systems.”
- 2007 IEEE AP-S Special Session Organizer and Co-Chair: “Software Reconfigurable Antennas and RF Front Ends for Cognitive Radio.”
- 2007 IEEE AP-S Session Chair: “Photonic and Terahertz Guided-Wave Systems.”
- 2005 IEEE AP-S URSI Session Co-Chair: “Integration of Antennas in RF/Wireless Packages.”
- 2005 IEEE AP-S URSI Session Co-Chair: “High Frequency Devices and Components.”
- 2005 IEEE AP-S URSI Session Co-Chair: “Reconfigurable Antennas.”
- 2004 URSI Special Session Organizer and Chair, “Reconfigurable Antennas and Apertures.”
- 2004 IEEE AP-S URSI Session Co-Chair, “Integration of Antennas on RF/Wireless Packages.”
- 2003 IEEE Topical Conference on Wireless Communication Technology Session Co-Chair, “Technologies for Adaptive Array Antennas.”
- 2003 IEEE AP-S URSI Session Co-Chair, “Integration of Antennas on RF/Wireless Packages.”
- 2003 IEEE AP-S URSI Session Co-Chair, “Reconfigurable Antennas and Circuits Using RF-MEMS.”

2002 IEEE AP-S URSI Session Co-Chair, "Integration of Antennas in RF/Wireless Packages."
2001 Antenna Applications Symposium Session Chair, "Reconfigurable Antennas."
2001 IEEE AP-S URSI Session Chair, "Wireless Antennas and Base Station Design."
2000 IEEE AP-S URSI Session Chair, "Novel Microstrip Antennas and Arrays."
2000 IEEE AP-S URSI Session Chair, "Novel and Active Antennas and Arrays."
1999 IEEE AP-S URSI Session Chair, "Diversity Reception and Mobile Antennas."
1998 IEEE AP-S URSI Session Chair, "Compact Personal Communication Antennas."
1997 IEEE Northeast Bioengineering Conference Session Chair, "Modeling."

Reviewer/Judge for Journals and Conferences

IEEE Transactions on Antennas and Propagation.
IEEE Antennas and Wireless Propagation Letters.
IEEE Microwave and Wireless Components Letters.
IEEE Transactions on Electromagnetic Compatibility.
Radio Science.
IEE Proceedings on Microwaves, Antennas and Propagation.
Journal of Engineering Education.
International Journal of Electronics
Smart Structures and Systems
ASEE Frontiers in Education Conference.
2002 IEEE AP-S Student Paper Competition Judge.
7th International Symposium on Communications and Information Technologies, 2007.

Federal and State Research Proposal Review

National Science Foundation Panel Review.
Cooperative Grants Program of the U.S. Civilian Research and Development Foundation.
South Carolina EPSCOR Pre-proposal Review.
U.S. Army Research Office Proposal Review.
American Association for the Advancement of Science Proposal Review.

UNIVERSITY AND COLLEGE SERVICE

UIUC Working Group on Undergraduate Research (Co-Chair), 2008-2009.
UIUC Graduate College Fellowship Board (Chair, Engineering and Physical Sciences), 2008-2009.
UIUC Gender Equity Council, 2008-2009.
UIUC Graduate College Fellowship Board, 2004-2006, 2007-2008.
UIUC Provost's Planning Committee on Gender Equity, 2006-2007.
UIUC College of Engineering, Vodafone Committee (Chair), 2004-2006.
UIUC College of Engineering, Vodafone Committee, 2003-2004.
UIUC College of Engineering, Advisory Committee for Climate Study for Women in the College of Engineering, 2003-2004.
UIUC Faculty Senate (Elected), 2003-2005.
UIUC Faculty Senate (Elected), 2000-2002.

DEPARTMENT SERVICE

UIUC ECE Department, Electromagnetics, Optics, and Remote Sensing Area Chair, 2008-2009.
UIUC Eta Kappa Nu Awards Selection Committee, 2008.
UIUC ECE Department, Electromagnetics, Optics, and Remote Sensing Area Chair, 2007-2008.
UIUC ECE Department Faculty Search Committee, 2007-2009.
UIUC ECE Department, Electromagnetics, Optics, and Remote Sensing Area Chair, 2005-2006.
UIUC ECE Department, ABET Committee, 2005-2006.
UIUC ECE Department, Advisory Committee (Elected), 2004 – 2006.

UIUC ECE Department, Advisory Committee (Elected), 2003 – 2004.
UIUC ECE Department, Curriculum Committee, 2003-2004.
UIUC ECE Department Advisory Committee (Elected), 2002 – 2003.
UIUC ECE Department Long Range Planning Committee, 2001 – 2002.
UIUC ECE Co-Chair and Chair of Qualifying Exam Committee, Spring and Fall 2001.
UIUC ECE Department Fellowship Committee, 2000 – 2002.
UIUC ECE Undergraduate Research Symposium Judge, April 2000.
UIUC ECE Research Laboratory Open House, 2000 – Present.
UIUC ECE Department Laboratory Safety Committee, 1999 – Present.
UIUC ECE Department Graduate Seminar Committee, 1999 – 2001.
UIUC ECE Senior Design Project Advisor, 1999 – Present.
UNH ECE Department Undergraduate Committee, 1997 – 1998.
UNH College of Eng. and Physical Sciences Committee on Distance Learning, 1996 – 1998.

NEW COURSE DEVELOPMENT

Senior/Graduate level sensors and instrumentation laboratory course, UIUC, 2000-2003.
Graduate-level antenna course, UNH, 1997.
Freshman-level ECE introductory course, UNH, 1996.
Graduate-level wireless communications course, UNH, 1996.

COURSES TAUGHT (Average instructor evaluation scores in brackets out of a maximum of 5 points)

Graduate level

Advanced antenna theory
UIUC, Fall 2007 [4.40]
UIUC, Fall 2005 [4.60]
UIUC, Fall 2002 [4.10]
Seminar in antennas, electromagnetics and coherent optics
UIUC, Fall 2001 and Spring 2002
Antennas (New Course Development),
UNH, Fall 1997 [4.78]
Wireless communications (New Course Development)
UNH, Spring 1996 [4.54]

Senior/Graduate level

Microwave circuit design (Course Director)
UIUC, Spring 2008 [4.20]
UIUC, Spring 2006 [4.30]
UIUC, Spring 2005 [4.70]
UIUC, Spring 2004 [4.30]
UIUC, Spring 2003 [4.50]
UIUC, Spring 2002 [4.60]
UIUC, Spring 2000 [4.70]
Antennas (Course Director)
UIUC, Spring 2008 [4.60]
UIUC, Spring 2006 [4.50]
Sensors and instrumentation laboratory course (New Course Development)
UIUC, Spring 2005 [4.30]
UIUC, Spring 2004 [4.30]
UIUC, Spring 2003 [3.90]
UIUC, Fall 2001 [4.20]

UIUC, Fall 2000 [4.50]

Junior-level

Electromagnetic fields and waves

UIUC, Fall 2004

UIUC, Fall 2001 [4.10]

UIUC, Fall 1999 [4.10]

UIUC, Spring 1999 [4.40]

UIUC, Fall 1998 [4.50]

UNH, Spring 1998 [4.70]

UNH, Spring 1997 [4.69]

Amplifier design laboratory

UNH, Fall 1996 [4.20]

Signals and systems

UNH, Fall 1995 [4.33]

Freshman-level

ECE introductory course (New Course Development)

UNH, Fall 1997 [4.44]

UNH, Fall 1996 [4.50]

SENIOR DESIGN PROJECTS SUPERVISED

1. *GPS Antenna using New L5 Frequency*, E. Latifzai and T. Horan, Spring 2007.
2. *Radio Jamming on Multiple Channels and Shielding*, J. Fuson, R. Merz, and E. Eddington, Spring 2006.
3. *Selective RF Radio Jammer with Enemy Detection*, M. Anderson, L. Peng, and W. Bornhoff, Spring 2006.
4. *Children Tracker*, M. Ho and W. Fong, Spring 2006.
5. *Radio Jammer*, A. Rhee, B. Niemoeller, and L. Dietrick, Fall 2005. [Winner: Best Engineered Award]. Sponsored and supported by grant from Northrop Grumman Corporation.
6. *Smart Car Seat*, P. Dhalgara, S. Yu, and S. Patel, Fall 2004.
7. *Car Rooftop Antenna*, J. Banasiak and J. Seuring, Fall 2004. [Winner: Electromagnetics Area Award].
8. *Child Safety Seat*, C. Fella, S. Anumolu, and D. Manjarres, Summer 2004.
9. *RFID Sensor Platform*, V. Grinberg, M. Fragoso, and R. Shah, Spring 2004.
10. *Active Car Seat Baby Protection*, R. Schoonover, R. Simpson, and H. Voigt, Spring 2004. [Winner: Most Marketable Award in Senior Project Competition].
11. *Self-contained Safety System for Children's Car Seat*, J. Fladie and S. Stieber, Spring 2004.
12. *Smart Car Seat*, J. Carter, J. Johnson and S. Kopchik, Spring 2004.
13. *Skier Recovery Device*, S. Gupta, P. Lachman, and S. Gupta, Spring 2004.
14. *Bird Accelerometer*, Robert McKenzie, Gregory Sorenson, and John Flink, Fall 2003.
15. *CUBE SAT Project*, Charles Bank, Fall 2002 and Spring 2003.
16. *Computer Media Transmitter*, J. Hill, S. Bhowmik, and B. Shein, Spring 2003.
17. *Yagi Antenna Design for Animal Tracking*, A. Price, M. Phan, and D. Tu, Spring 2003.
18. *RF/Microwave Circuit for Phase Shifting in Phased Antenna Arrays*, P. Lee and G. Cung, Spring 2003. [Winner: Area Award in RF in Senior Project Competition].
19. *Stealth Charger*, B. Raczkowski, K. Hietpas, and M. Lilien, Spring 2003.
20. *Robotic Tracker*, Z. Zhao, P. Chen, and J. Wang, UIUC, Spring 2003. [Winner: Area Award in Electromagnetics in Senior Project Competition].
21. *Digital Appliance Timer*, N. Klezek, J. Elkow, and B. Westendorf, UIUC, Spring 2003.
22. *Estimated Time of Arrival System for Campus Buses*, J. Mariquina, S. Ear, and R. Sayre, UIUC, Fall 2002. [Winner: Area Award in Communications in Senior Project Competition].

23. *Wireless Interface for Biomedical Application*, B. Benjamin, K. Sagi, and S. Wisted, UIUC, Fall 2002.
24. *Wireless Guitar Unit with Onboard Effects Control*, J. Smith, J. Miller, and E. Bellas, Fall 2002.
25. *CUBE SAT Project*, Daniel Chen, UIUC, Spring 2002.
26. *Ground Penetrating Radar System*, Shawna Jones, Meghan McGinn, and Nicholas Riordan, UIUC, Spring 2002.
27. *CUBE SAT Project*, Patrick Cox, UIUC, Fall 2001.
28. *Wireless Localization 911*, Jessica Hoi Liu and Jerry Cheng, UIUC, Fall 2001.
29. *ISM Spread Spectrum Transmitter/Receiver*, Christopher Lettow, Justin Quek, and Robert Sosack, UIUC, Summer 2001.
30. *Baby Cushion Breathing Monitor*, Mitesh Parikh, Julie Cherian, and Adnan Bajowala, UIUC, Spring 2001.
31. *Electronic Muscle Assist for Paraplegic Biking*, Jiten Patel and Nirav Thakker, UIUC, Spring 2001.
32. *Wireless Handshaker*, Brian Kominiarek and Dima Moussa, UIUC, Spring 2001. [Winner: "Most Innovative" Award in Senior Project Competition].
33. *Economical Wireless Headphones*, Melvin Stevens, UIUC, Fall 2000.
34. *Cordless Phone Receiver Sensing Device*, Charlinda Catchings and Chrissy Hart, UIUC, Spring 2000.
35. *Satellite Tracking System*, Randy Bruce and Daniel Whitted, UIUC, Spring 2000.
36. *GPS Receiver for Handspring PDA*, Paul Niemczyk, David Marshall, and Tim Wilson, UIUC, Spring 2000.
37. *Micropatch Antenna Array*, Joey Guerra, Juan Herrera and George Valdovinos, UIUC, Fall 1999. [Winner: "Best Engineered Project" Award in Senior Project Competition].
38. *Motorcyclist Safety Helmet*, Chanda Allen, Seung Han, and Daniel Moges, UIUC, Fall 1999. [Winner: "Teamwork" Award in Senior Project Competition].
39. *Cellular Repeater*, Mark Nowak and Kevin Swanson, UIUC, Fall 1999.
40. *Microstrip Antennas in Diversity Schemes for Wireless Local Area Networks*, Christina Short and Eric Swanson, in cooperation with P. Irazoqui-Pastor, supported through NSF POWRE Grant, UNH, Summer 1998 – Spring 1999 [Winner: "Most Original and Innovative Design" in Senior Project competition].
41. *Electromagnetic Characterization of Wireless Board-to-Board Interconnects*, Andrea Dozet, Honors project supported through Teradyne, UNH, Summer 1998 – Spring 1999.
42. *Split Ground Plane Characteristics of Printed Circuit Boards*, Marc Cartier, supported through Cabletron, UNH, Summer 1997 – Spring 1998.
43. *Ethernet Line Monitor*, Michael Nyahe, supported through UNH InterOperability Lab, UNH, Summer 1997-Spring 1998.
44. *Microstrip Frequency Diplexer for Cellular and Local Area Networks*, Scott Pfeiffer, UNH, Fall 1996 - Spring 1997.
45. *Design Methodology for Square Spiral Microstrip Antennas*, Shawn Staker, supported through NSF Research Experiences for Undergraduates grant, UNH, Summer 1996 - Spring 1997 [Winner: "Best Presentation" in Senior Project competition].
46. *A Circularly Polarized Microstrip Antenna for Local Area Networks*, Carolyn Tousignant, supported through NSF Research Experiences for Undergraduates grant, UNH, Summer 1996 - Spring 1997.
47. *Impedance Models for Printed Circuit Boards*, Katie Rothstein, Honors project supported through HADCO, UNH, Summer 1996 - Spring 1997.

UNDERGRADUATE RESEARCH PROJECTS SUPERVISED

1. ECE 497/499, Fall 2008/Spring 2009: Man Ling Lo. "Ultra-wide band antennas on Textiles." [Senior Honors Thesis]
2. ECE 497/499, Spring 2008/Fall 2008: Omar El Bassiouny. "Producing Prescribed Frequency Shifts Using Piezoelectric Actuators." Co-advised with V. V. Veeravalli. [Senior Honors Thesis]

3. ECE 497/499, Fall 2007/Spring 2008: Thomas Comberiate. "A Reconfigurable Microstrip Antenna with Switchable Circular Polarization Controlled by Piezoelectric Transducers." [Senior Honors Thesis]
4. Paid Project Work, with support from the UIUC-Intel Undergraduate Research Fund for Women and Minorities, Katherine Coles. "Isolation Improvement of Cosited Microstrip Antennas using Ground Plane Techniques."
5. ECE 497/499, Fall 2006/Spring 2007: Michael Daly. "Design of a Reconfigurable Antenna for WiFi and WiMax Bands." [Senior Honors Thesis]
6. ECE 497/499, Summer 2006/Fall 2006: Rasa Dovilas. "Design of a Matching Network for an Inductively Coupled Plasma." [Senior Honors Thesis]
7. ECE 397, Summer 2006/Fall 2006/Spring 2007: Shanil Merchant. "Series-fed Phased Arrays with Electrically Small Antennas."
8. ECE 397, Summer 2006/Fall 2006: John VanderVennet. "Broadband Antenna Design."
9. ECE 497/499, Fall 2005/Spring 2006: Priyanka Bhandari. "Design and Synthesis of a Wideband Balun." [Senior Honors Thesis]
10. ECE 397, Independent Study, Fall 2005: Orbay Tuncay. "Investigation of Frequency Tunable Antennas."
11. Paid Project Work, 2005, with support from the UIUC-Intel Undergraduate Research Fund for Women and Minorities, Debi Misra and Rasa Dovilas. "Studies of Electromagnetic Properties of Activated Carbon Cloth for Microwave Regeneration of Volatile Compounds."
12. ECE 397, Fall 2004: Farooq Mugeem. "Acoustic Control of Antennas."
13. Paid Project Work, Summer 2004, with support from the UIUC-Intel Undergraduate Research Fund for Women and Minorities, Debi Misra and Rasa Dovilas. "Evaluation of Probe Feed Models for Microstrip Patch Antennas."
14. Paid Project Work, Spring 2004: Joseph Banasiak. "Conformal Multiband Antennas."
15. ECE 272, Independent Study, Spring 2004: Marla Cox. "Investigation of Radar Behavior of Small Retroreflectors for Sensing Systems."
16. ECE 272, Spring 2004: Phillip Lachman. "Investigation of Loss Mechanisms in Reconfigurable Patch Antennas."
17. ECE 272, Fall 2003: Sarah Stieber. "Investigation of Microstrip Probe Feed Models."
18. ECE 272, Fall 2003: Supriya Gupta. "Investigation of the Effects of Magnetic Materials on Microstrip Patch Antennas."
19. ECE 272, Fall 2003: Joshua Fladie. "Study of Wideband Canted Antennas."
20. Paid Project Work, Summer 2003: Joshua Fladie. "Study of Wideband Canted Antennas." Sponsored by U.S. Army Research Office.
21. Paid Project Work, Summer 2003: Morgan Reeder. "Development of Microstrip Antenna Tutorials." Sponsored by NSF Research Experiences for Undergraduates.
22. Paid Project Work, Summer 2003: Kevin Hietpas. "Radio Designs for Embedded Sensors." Sponsored by NSF.
23. Paid Project Work, Summer 2003: Supriya Gupta. "Double Negative Metamaterials."
24. Paid Project Work, Summer 2003: Sandeep Gupta. "Small Antennas for Hearing Aids."
25. Paid Project Work, Spring 2003: Sarah Stieber. "Electrically Small Antennas for Sensors."
26. Paid Project Work, Spring 2003: Peipei Wang. "Electrically Small Antennas for Sensors."
27. ECE 272, Fall 2002: Andrew Pursell. "Wireless Systems in Automobiles."
28. ECE 272, Fall 2002: Peipei Wang. "Feasibility Study of Smart Pebbles."
29. Paid Project Work, Fall 2002: Sarah Stieber. "Feasibility Study of Smart Pebbles."
30. ECE 299, Fall 2002 and Spring 2003: Kiersten Kerby. "Series Resonant Filters in Waveguide."
31. ECE 272, Summer 2002: Wojciech Indyk. "Electrical Properties of Concrete between 1 and 10 GHz."
32. Paid Project Work, Summer 2002, Fall 2002, Spring 2003: Paul Lee, Tony Zoeteman, Kevin Hietpas and Joshua Hill. "Embedded Sensor System Radio Team."
33. Paid Project Work, Summer 2002: Garvin Cung. "Antenna Packaging Effects Continued."

34. Paid Project Work, Spring 2002: Jason Mariquina. "K-band Antenna Measurement System."
35. Paid Project Work, Spring 2002: Garvin Cung. "Investigation of Antenna Packaging Effects."
36. Paid Project Work, Spring 2002: Sarah Stieber. "Self-Energy Devices for Sensors."
37. Paid Project Work, Fall 2001: Judy Feng. "Reconfigurable Spiral Microstrip Antennas."
38. Unpaid Project Work, Spring 2001: Nisarg Shah. "Investigation of Common Portable Wireless Devices."
39. ECE 272, Fall 2000: Gregory Huff. "Ferroelectric-Tuned Antennas."
40. Paid Project Work, Summer 2000: Gregory Huff. "Investigation of Ground Plane Serration on Microstrip Antennas."
41. Paid Project Work, Summer 2000: Judy Feng. "Spiral Microstrip Antennas with Tuning Arms."
42. ECE 272, Spring 2000: David Urbasic. "Multiband Planar Antennas based on Triangular Elements."
43. ECE 272, Spring 2000: Mitesh Parikh. "Lumped Element Model of Cellphone-Head Interactions."
44. ECE 272, Spring 2000: Greg Muthler. "Investigation of Reconfigurable Slot Antennas."
45. ECE 272, Spring 2000: Eric George. "Electrical Properties of Concrete at High Frequencies."
46. Paid Project Work, Fall 1999 - Spring 2000: Brian Huang. "Planar Antennas with Integrated Phase Shifting."