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EDUCATION: Specialty in Electromagnetics

Ph.D., Electrical Engineering University of Utah, 1994
Master of Science, Electrical Engineering, University of Utah, 1988
***Bachelor of Science, Electrical Engineering*,** University of Utah, 1986
Minor: Mathematics (Magna Cum Laude/UofU Salutorian 1986)

WORK EXPERIENCE:

PROFESSOR 7/06 to present and **ASSOCIATE PROFESSOR** 9/02 to 7/06
Courses Taught: Electromagnetics, Microwave Engineering, Computational Electromagnetics, Wireless Communication, Intro.to ECE
ASSOCIATE VICE PRESIDENT FOR RESEARCH 7/09 to 6/19
University of Utah
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Dept. of Electrical and Computer Engineering, University of Utah
CHIEF TECHNICAL ADVISOR & C0-FOUNDER *LiveWireInnovation.com* 3/04 to present
LiveWire Innovation, LLC (spin off company from the Center of Exc. for Smart Sensors)
ASSISTANT PROFESSOR 9/97 to 8/01 and **ASSOCIATE PROFESSOR** 9/01to 9/02
Dept. of Electrical and Computer Engineering, Utah State University
Courses Taught: Electromagnetics, Microwave Engineering, High Frequency (Digital) Engineering, Antennas and Radiation, Computational Electromagnetics, Wireless Communication
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RESEARCH ASSISTANT PROFESSOR 9/95 to 9/97
Dept. of Electrical Engineering, University of Utah
National Science Foundation Computational Sciences and Engineering Postdoctoral Research Fellow
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Dept. of Electrical Engineering, University of Utah
EE553: Numerical Methods in Electromagnetics (1994, 1995, 1996, 1997) *EE108/109: Electrical Engineering for Non-Majors* (1997)

BOOKS

James Nagel, Cynthia Furse, Douglas Christiansen, Carl Durney, Introduction to Bioelectromagnetics, 2nd and 3rd Editions, CRC Press, 2008, 2018 (also translated into Korean)

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1. Cynthia Furse, Moussa Kafal, Reza Rezzaghi, Yong-June Shin, *IEEE Sensors Journal* Special Issue on Embedded Sensors for Fault Diagnosis in Electrical Wiring Interconnection Systems, Power Grids, Structural Cables, Pipelines, and Electrical Machines, 20(2), Jan. 2021

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SHORT COURSES:

Cynthia Furse, "Application of the Finite-Difference Time-Domain Method to Simulation of Electromagnetic Coupling to the Human Body," The *14th Annual Review of Progress in Applied Computational Electromagnetics, ACES Symposium*, Monterey, CA, March 16-20, 1998

CONFERENCE & INVITED PRESENTATIONS:

1. Kenneth Connor, Cynthia Furse, "Project RECET - Remote ECE Teaching", submitted to *ASEE Annual Conference and Exposition*, 2021
2. Shaun McKellar, Kaitlin Hall, Cynthia Furse, "Implantable Antennas via Biopolymer Thermal Crosslinking," *Utah Bioengineering Conference*, Feb. 5, 2021, https://www.youtube.com/watch?v=wTnlL9BNtyM
3. Cynthia Furse, “Arcs and Sparks: Finding Faults on Aging Electrical Wiring,” Mediterranean Microwave Symposium, Dec. 9,2020 (Morocco, moved online, invited presentation)
4. Hunter Ellis, Cody Laflamme Cynthia Furse, James Nagel, “Describing Asymmetric Faults with Multiconductor Transmission Lines for SSTDR,” *National Radio Science Meeting (NRSM),* Jan. 4-9, 2021 (online)
5. Cynthia Furse, “Antennas for Next-Generation Medical Implants”, Antenna and Propagation Conference (APC) 2020, London, UK (online), Nov. 10, 2020
6. Cynthia Furse, “Opportunities in Electromagnetics and Microwave Engineering,” invited talk (online) for Dept. of Electrical and Communications Engineering, RV College of Engineering, Bangalore, India, Sept. 17, 2020
7. Cynthia Furse, “Implantable Antennas for Medical Applications,”, invited talk (online) for *IOT Technology Research Center of Tohoku Institute of Technology, IEEE AP-S Tokyo Chapter, IEEE Sendai Section, IEEE Sendai Women in Engineering*, Sept. 9, 2020

8. Cynthia Furse, “Finding Faults on Live Wires: Planes to Trains and Everything in Between,” plenary invited talk (online) in *5th International Conference on UK - China Emerging Technologies (UCET)*, Aug. 21, 2020

9. Joel B. Harley, Ayobami Edun, Cody LaFlamme, Samuel Kingston, Evan Benoit, Michael Scarpulla, Cynthia Furse, "Spread Spectrum Time Domain Reflectometry for Health Monitoring of Solar Arrays," 47th Annual Review of Progress in Quantitative Nondestructive Evaluation, Minneapolis, MN, July 25-26, 2020

10. Cynthia Furse, “The Power of Change,” Keynote for Women in Electromagnetics and Radio Science, *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Montreal (moved online), July 5-10, 2020

11. Evan Benoit, Cynthia Furse, “Inversion Theory and SSTDR Analysis,” *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Montreal (moved online), July 5-10, 2020

12. Kaitlin Hall, Tasmia Tasnim, Cynthia Furse, Huanan Zhang, Audrey Evans and Susan C. Hagness, “Adaptation of a Microwave Ablation System for Wireless Medical Applications,” *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Montreal (moved online), July 5-10, 2020

13. Khadijeh Masumnia-Bisheh, Cynthia Furse, “Estimating the Variance of SAR in a 3D Human Head Model Using Stochastic FDTD,” *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Montreal (moved online), July 5-10, 2020

14. Ayobami Edun, Cody LaFlamme, Mashad U. Saleh, Samuel Kingston, Evan Benoit, Hunter Ellis, Jack Mismash, Michael A. Scarpulla, Cynthia M. Furse, Joel B. Harley, “Spread Spectrum Time Domain Reflectivity to Detect and Locate Disconnects in Large-Scale PV Arrays”, *PV Reliability Workshop, Denver, CO, February 25-29, 2020*

15. Kingston, Samuel, Evan Benoit, Naveen KT Jayakumar, Mashad U. Saleh, Josiah LaCombe, Cynthia M. Furse, Michael A. Scarpulla, and Joel B. Harley. "Spread spectrum time-domain reflectometry for detecting and locating capacitive impedances," In *AIP Conference Proceedings*, vol. 2102, no. 1, p. 090009. AIP Publishing, 2019.

16. Khadijeh Masumnia-Bisheh, Cynthia Furse, "Geometrically Stochastic Finite Difference Time Domain Method," *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Atlanta, GA July 7-12, 2019

17. Kaitlin Hall, Cynthia Furse, “Design of an Interstitial Microwave Applicator for 3D Printing Antennas in the Body,” *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Atlanta, GA, July 7-12, 2019

18. Evan Benoit, Naveen Kumar Tumkur Jayakumar, Samuel Kingston, Mashad Uddin Saleh, Michael Scarpulla, Joel Harley, Cynthia Furse, "Applicability of SSTDR Analysis of Complex Loads," *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Atlanta, GA, July 7-12, 2019

19. Mashad Uddin Saleh, Chris Deline, Kent Terwilliger, Joel Harley, Cynthia Furse, Michael

Scarpulla, "Spread Spectrum Time Domain Reflectometry for Detecting Accelerated Degradation in Photovoltaic Cells," *IEEE Photovoltaic Specialists' Conference (PVSC),* Chicago, IL, June 16-21, 2019

20. Samuel Kingston, Ayobami Edun, Evan Beniot, Naveen K. T. Jayakumar, Mashad U. Saleh, Cynthia M. Furse, Michael A. Scarpulla, Joel B. Harley, "Simulating the Spread Spectrum Time Domain Reflectometry Responses of Photovoltaic Cells to Detect and Locate Faults," *PV Reliability Workshop, Denver, CO, February 26-31, 2019*

21. Evan Benoit, Naveen Kumar Tumkur Jayakumar, Samuel Kingston, Mashad U. Saleh, Michael Scarpulla, Joel B. Harley, Cynthia Furse, "Spread Spectrum Time Domain Reflectometry for Complex Impedance Fault Detection," *PV Reliability Workshop, Denver, CO, February 26-31, 2019*

22. Samuel Kingston, Evan Benoit, Naveen Kumar Tumkur Jayakumar, Josiah LaCombe, Mashad Saleh, Michael A. Scarpulla, Cynthia M. Furse, Joel B. Harley, "Spread Spectrum Time Domain Reflectometry used for Detecting and Locating Electrical Faults in Solar Panels and Connecting Cables with Arbitrary Impedances," *Qualitative Non-Destructive Evaluation (QNDE) Conference,* July 16-19, 2018, Burlington, VT

23. Arabella Bhutto, Cynthia Furse, "Bridging Academic Inventor-TTO Manager Schism: A Tool - the Lean Canvas for Invention", First International Triple Helix Summit on "The Role of Government / Academia / Industry in building Innovation-based Cities and Nations" Nov. 10-13, 2018, Dubai, United Arab Emirates

24. (Invited Paper) Cynthia Furse, Naveen Kumar Tumkur Jayakumar, Evan Benoit, Mashad Saleh, Josiah LaCombe, Michael Scarpulla, Joel Harley, Samuel Kingston, Brent Waddoups, Chris Levine, "Spread Spectrum Time Domain Reflectometry for Complex Impedances: Application to PV Arrays," *IEEE AutoTestCon 2018*, Sept 17-20, National Harbor, MD

25. Cynthia Furse, Neil Cotter, Angela Rasmussen, "Bottlenecks and Muddiest Points in a Freshman Circuits Course," *2018 Annual Amercan Society for Engineering Education Conference and Exposition,* June 24-27,2018, Salt Lake City, Utah

26. Donna Ziegenfuss and Cynthia Furse, "Evidence-Based Practice: Student-Centered and Teacher-Friendly Formative Assessment in Engineering," *2018 Annual Amercan Society for Engineering Education Conference and Exposition,* June 24-27,2018, Salt Lake City, Utah

27. Donna Ziegenfuss, Cynthia Furse, Alyson Froehlich "Teach-Flipped: A Faculty Development MOOC on How to Teach Flipped," *2018 Annual Amercan Society for Engineering Education Conference and Exposition,* June 24-27,2018, Salt Lake City, Utah

28. Zachary Deneris, Cynthia Furse, "A Biological Testbed for Implanted Antennas Using Layered Porcine Tissue," IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Boston, MA, 2018.

29. Naveen Kumar Tumkur Jayakumar, Mashad Uddin Saleh, Evan Benoit, Josiah Lacombe, Michael Scarpulla, Cynthia Furse, "Fault Detection In PV Strings Using SSTDR," IEEE International

Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Boston, MA, 2018.

30. Mashad Uddin Saleh, Naveen Kumar Tumkur Jayakumar, Josiah Lacombe, Evan Benoit, Cynthia Furse, Mike Scarpulla, 'Modeling SSTDR Localization of Faults in PV Strings: Constructing a Frequency-Dependent Model of Signal Propagation', 2018 NREL Photovoltaic Reliability Workshop (PVRW). 3rd place student paper prize.

31. Hossein Mehrpour Bernety, David Schurig, and Cynthia Furse, "Field Focusing with Novel Implantable Lens Designs using 3D Printing," IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Boston, MA, 2018.

32. Andrew Chrysler, Kaitlin Hall, Huanan Zhang, Cynthia Furse, "Towards a Tattooed Antenna," IEEE Microwave Theory and Techniques Symposium, Honolulu, Hawaii, 2017.

33. Frank Curry Jr., Andrew Chrysler, Cynthia Furse, Huanan Zhang, "Gold Nanocomposite for Subdermal Antenna," AIChE Annual Meeting, Oct 29-Nov 3, 2017, Minneapolis, MN

34. Kaitlin Hall, Andrew Chrysler, Cynthia Furse, "A Comparison of Solid, Mesh, and Segmented Broad Dipoles in Biological Environments," 2017 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting in San Diego, CA, July 9-14, 2017

35. Andrew Chrysler, Cynthia Furse, Rainee Simons, Felix Miranda, "A Ka-Band (26 GHz) Circularly Polarized 2x2 Microstrip Patch Sub-Array with Compact Feed," 2017 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting in San Diego, CA, July 9-14, 2017

36. Cynthia Furse, Donna Ziegenfuss, "Training Teachers to Teach Flipped," American Academy of Arts and Sciences: *Envisioning the Future of Undergraduate STEM Education: Research and Practice,* April 27-29, 2016 in Washington, DC.

37. Andrew Chrysler, Cynthia Furse, Youchung Chung, "Biocompatible, Implantable UHF RFID Antenna Made from Conductive Ink, 2016 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting in Fajardo, Puerto Rico, June 26 - July 1, 2016.

38. Richard Allred, Barry Katz, Cynthia Furse, "Ripple analysis: Identify and quantify reflective interference through ISI decomposition," 2016 IEEE 20th Workshop on Signal and Power Integrity (SPI)

39. (invited keynote) C. Furse, 'A Busy Professor's Guide to Sanely Flipping Your Classroom,' Utah State University Empowering Teaching Excellence Conference, Aug. 19, 2015

40. (invited keynote Donna Ziegenfuss, Cynthia Furse, 'Transforming Teaching Practice: A MOOC Experience ,' InstructureCon 2015, Park City, Utah, June 16-19, 2015

41.) C. Furse, 'What My Students Have Taught Me,' University of Utah Annual Teaching Workshop, Aug. 17, 2015

42. Panelist, Blended Learning: What Works & What Doesn't, ECE Department Heads Association, March 16, 2015, Charleston, SC

43. Cynthia Furse, (invited keynote), Flipping Teaching & Learning, Symposium on Emerging Technology Trends in Higher Education, Feb. 27, 2015, Salt Lake City http://stream.lib.utah.edu/index.php?c=details&id=10301

44. Donna Ziegenfuss, Cynthia Furse, ‘Co-Flipped Teaching: Experiences Sharing the Flipped Classroom,’ 2015 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting in Vancouver, BC, July 19-25, 2015

45. Cynthia Furse, (invited keynote) 'A Busy Professors Guide to Sanely Flipping Your Classroom', IEEE AP-S Workshop on EM Education, Dec. 5, 2014, Taiwan

46. Panelist: New Teaching Methods, 2014 Engineering Dean's Institute (EDI) Annual Conference, Scottsdale, AZ, April 7,2014

47. Panelist: New Teaching Methods, NI Week 2014 , August 4, 2014 Austin, TX

48. Miguel Rodriguez, Cynthia Furse, Steve Blair, Jennifer Shumaker-Parry, ’Scaling the Response of Nanocrescent Antennas into the Ultraviolet,’ 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting in Memphis, Tennessee, USA, July 6-12, 2014

49. Bach Nguyen, Cynthia Furse, Jamesina Simpson, ‘Analysis of Electromagnetic Field Variability in Magnetized Ionosphere Plasma using the Stochastic FDTD Method," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting in Memphis, Tennessee, USA, July 6-12, 2014

50. (Invited Keynote) Cynthia Furse, ‘A Busy Professor’s Guide to Sanely Flipping Your Classroom,’ Rensselaer Polytechnic University, *14th Annual RPI Colloquium on Teaching and Learning, April 9, 2014.*

51. (Invited Keynote) Cynthia Furse, ‘A Busy Professor’s Guide to Sanely Flipping Your Classroom,’ University of Hawaii, Manoa, Oct 16, 2013

52. (Invited Keynote) Cynthia Furse, ‘A Busy Professor’s Guide to Sanely Flipping Your Classroom,’ University of Utah Faculty Showcase, Sept. 23, 2013

53. (Invited Keynote) Cynthia Furse, ‘A Busy Professor’s Guide to Sanely Flipping Your Classroom,’ Salt Lake Community College, Sept. 2013

54. (Invited Keynote) Cynthia Furse, ‘A Busy Professor’s Guide to Sanely Flipping Your Classroom,’ University of Wisconsin, Platteville, June 26, 2014

55. Cynthia Furse, Donna Ziegenfuss, Stacy Bamberg, ‘Learning to Teach in the Flipped Classroom,’ 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting in Memphis, Tennessee, USA, July 6-12, 2014

56. Donna Ziegenfuss, Cynthia Furse, Stacy Bamberg,’ Using a MOOC as a Faculty Development Tool and/or Learning Community for STEM Faculty Teaching Flipped Classes,’ MOOCs in STEM: Exploring New Educational Technologies, San Jose State University, June 6, 2014

57. Steve Smith, Cynthia Furse, ‘A Tutorial on Stochastic FDTD,’ 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting in Memphis, Tennessee, USA, July 6-12, 2014

58. Cynthia Furse, Andrew Chrysler, ‘A History & Future of Implantable Antennas, 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting in Memphis, Tennessee, USA, July 6-12, 2014

59. Karen Krapcho, C.Furse, 'Lessons Learned Developing an Engaging Engineering Summer Camp,' 2014 ASEE Annual Conference

60. Cynthia Furse, 'A Busy Professor's Guide to Sanely Flipping Your Classroom,' 2013 IEEE AP-S International Symposium on Antennas and Propagation and 2012 USNC/CNC/URSI Meeting in Lake Buena Vista, FLA, July 7-12, 2013

61. Miguel Rodriguez, Robert Franklin, Cynthia Furse, ''Manufacturing Considerations for Implantable Antennas,' to 2013 IEEE AP-S International Symposium on Antennas and Propagation and 2012 USNC/CNC/URSI Meeting in Lake Buena Vista, FLA, July 7-12, 2013

62. Elene T. Iskander, Paul Gore, Amy Bergerson, Cynthia Furse, ''Gender Disparity in Engineering: Results and Analysis from School Counselors Survey and National Vignette,' 2013 IEEE AP-S International Symposium on Antennas and Propagation Lake Buena Vista, FLA, July 7-12, 2013

63. Lucas Thomson, Brian Jones, James Stephenson, Cynthia Furse, 'Non-Contact Connections for Reflectometry and Location of Faults in Cable Shields,' 2012 Aircraft Airworthiness and Sustainability Conference, April 2-5, 2012, Baltimore, MD

64. Bryan Willis, Cynthia Furse, 'A Look at the Future of Printed Antennas, 2012 IEEE AP-S International Symposium on Antennas and Propagation and 2012 USNC/CNC/URSI Meeting in Chicago, Illinois, July 8-14, 2012

65. Lucas Thomson, Brian Jones, Cynthia Furse, 'Locating Small Apertures in Cable Shielding,' 2012 IEEE AP-S International Symposium on Antennas and Propagation and 2012 USNC/CNC/URSI Meeting in Chicago, Illinois, July 8-14, 2012

66. Elene T. Iskander, Paul Gore, Amy Bergerson, Cynthia Furse, 'Gender Disparity in Engineering: Results and Analysis from School Counselors Survey and National Vignette,' 2012 IEEE AP-S International Symposium on Antennas and Propagation and 2012 USNC/CNC/URSI Meeting in Chicago, Illinois, July 8-14, 2012

67. Amy Bergerson, Brian K. Hodgkins, Cynthia Furse, 'Outreach and Identity Development: New Perspectives on College Student Persistence, Association for the Study of Higher Education, November 2011, Charlotte, North Carolina

68. David Richerson, Amy Bergerson, Cynthia Furse, "University Partnership with High School Teachers to Increase Student Awareness of Engineering," ASEE Annual Conference, 2011

69. Tursunjan Yasin, Reyhan Baktur, Cynthia Furse, 'A Comparative Study on Two Types of Transparent Antenna,' 30th URSI General Assembly, Aug 13-20, 2011, Istanbul, Turkey

70. Sai Ananthanarayanan P.R., Cynthia Furse, 'Antenna Optimization for Vehicular Environments,' 2011 IEEE AP-S International Symposium on Antennas and Propagation and 2010 USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

71. Tursunjan Yasin, Reyhan. Baktur, Cynthia Furse,'A Study on the Efficiency of Transparent Antennas Designed from Conductive Oxide Films,' 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

72. Alyssa Magleby Richards, Sai Ananthanarayanan P.R., Cynthia Furse, 'Vehicular Channel Measurement and Modeling for Multi--Antenna Communication,' 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-

8, 2011

73. Brian Jones, Cynthia Furse, 'Leaky Fields from Damaged Shields,' 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

74. Bryan Willis, S. Ananathanarayanan P.R., Cynthia Furse, 'Small Antenna Design Using 3D Rapid Prototyping,' 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

75. David J. Lubbers, Kenneth Golden, Joyce Lin, Cynthia Furse, 'Electrical Measurements of Sea-Ice Cores,' 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

76. Eric Lundquist, Cynthia Furse, 'Novel Inverse Methods for Wire Fault Detection and Diagnosis,' 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

77. Jason Carter, Nate Thronton, Sai Ananthanarayanan P.R., Cynthia Furse, 'Development of Tri-Band Antennas for Use in Body Centric Networks, 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

78. Steven M. Smith Cynthia Furse, 'A Stochastic FDTD Method for Statistically Varying Biological Tissues,' 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

79. Elene T. Iskander, Cynthia Furse, 'Women in Engineering: Statistical Analysis of ACT Data and Proposed Procedure to Reverse Trend, 2011 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Spokane, WA July 4-8, 2011

80. Eric Lundquist, Shang Wu, Brian Jones, Cynthia Furse, C. Lo, 'Aging Wire Fault Diagnosis Using Faster, Higher-Precision Methods, 2011 Aircraft Airworthiness and Sustainability Conference, April 18-21, 2011, SanDiego, CA

81. Jason Saberin, Cynthia Furse, "Passive Feed Methods for Meshed Antennas," 2010 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Toronto, ON, Canada, July 11-17, 2010

82. Jason Saberin, Cynthia Furse, Tursunjan Yasin, Reyhan Baktur, "Challenges with Optically Transparent Patch Antennas for Small Satellites," 2010 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Toronto, ON, Canada, July 11-17, 2010

83. Sai Ananthanarayanan, D. Ferguson, Cynthia Furse, "2.5 GHz Microwave Thermal Ablation for Performing Thermosensitive Polymer-Chemotherapy for Cancer," 2010 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Toronto, ON, Canada, July 11-17, 2010

84. Sai Ananthanarayanan, Alyssa Magleby, Cynthia Furse, "Measurement and Modeling of Noise and Interference in Aircraft System," 2010 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Toronto, ON, Canada, July 11-17, 2010

85. Jason Carter, Jason Saberin, Tejal Shah, Sai Ananthanarayanan, Cynthia Furse, "Inexpensive Fabric Antenna for off-Body Wireless Sensor Communication," 2010 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI Meeting in Toronto,

ON, Canada, July 11-17, 2010

86. Tursunjan Yasin, Reyhan Baktur, Jason Saberin, Cynthia Furse, "Inkjet-Printed Transparent Antennas Integrated on Solar Cells," 24th Annual AIAA/USU Conference on Small Satellites, August 2010

87. Peruvemba R. Sai A, James Nagel, Alyssa Magleby, Cynthia Furse, "Wireless and Surface Wave Communication for Aircraft Sensor Networks," 2010 Aircraft Airworthiness and Sustainment (AA&S) Conference, May 10-13, 2010, Austin, TX

88. Cynthia Furse, Chet Lo, Kevin Wheeler, "Fast, Modular Wire Simulation Tools to Better Understand Small Wire Faults," 2010 Aircraft Airworthiness and Sustainment (AA&S) Conference, May 10-13, 2010, Austin, TX

89. James Nagel, Alyssa Magleby, Sai Ananthanarayanan, Cynthia Furse, "Measured Multi-User MIMO Capacity in Aircraft," AMTA Symposium, Salt Lake City, Utah 2010

90. T. Turpin, M. Mahmoud, R. Baktur, C. Furse, "Integrated After-Market Solar Panel Antennas for Small Satellites," 23rd Annual AIAA/USU Conference on Small Satellites, August 2009

91. Elene Tiffany Iskander, Paul A. Gore, Cynthia Furse, "Gender differences in expressed interests in engineering-related fields over a 30-year span," 2009 ASEE Annual Conference and Exposition, June 14-17, 2009 Austin, TX

92. Amy Aldous Bergerson, Cynthia Furse, "Work on Progress: Outreach and Retention in the University of Utah's Engineering Programs," Frontiers in Education, San Antonio, TX, Oct 18-21, 2009

93. Alyssa Magleby, Cynthia Furse, Z. Q. Yun, "3D Ray Tracing for Intravehicle MIMO," IEEE /URSI Antennas and Propagation Symposium, Charleston, SC, June 1-5, 2009

94. Peruvemba R. Sai A, Cynthia Furse, "Enabling Wireless Communication in Aircraft Using Multiple Antenna Systems," IEEE /URSI Antennas and Propagation Symposium, Charleston, SC, June 1-5, 2009

95. Timothy W. Turpin, Reyhan Baktur, Mike Scarpulla, Gene Siegel, Jason Saberin, and Cynthia Furse, "Surface Mounted Antennas for Commercial Solar Cells," IEEE /URSI Antennas and Propagation Symposium, Charleston, SC, June 1-5, 2009

96. Peruvemba R. Sai A, Alyssa Magleby, James R. Nagel, Cynthia Furse, "MIMO Wireless Communication for Aircraft Sensors," 12th Joint FAA/DOD/NASA Conference on Aging Aircraft, Kansas City Convention Center, May 04 - May 07, 2009

97. (invited keynote presentation) Cynthia Furse, "Biomedical telemetry: today's opportunities and challenges," 2009 IEEE Workshop on Antenna Technology – Small Antennas and Novel Metamaterials, March 2-6, 2009, Santa Monica, California

98. James Stephenson, Cynthia Furse, "Table Top Micro Fluidic Nuclear Magnetic Resonance Spectrometer," XXIX General Assembly of URSI, Chicago, Ill, August 11-15, 2008

99. (Invited Presentation) C. Furse, "Utah's Engineers – A Statewide Initiative for Growth," ECEDHA meeting, March 2008, San Diego, CA

100. E. Tiffany Iskander, Paul A. Gore, Jr, Cynthia Furse, "Historical trends in the expressed and measured engineering-related interests of college bound youth: Comparison across Genders, "2009 ASEE Annual Conference & Exposition, Austin, TX, June 14-17, 2009

101. (Keynote Presentation) Cynthia Furse, "Aging Aircraft Wiring – Locating Hidden Hazards," International Conference on Computers and Communication Systems, Daegu University, Korea, Nov. 7, 2008

102. Amy Bergerson, "Work in Progress: Utah's Engineers – a Statewide Initiative for Growth," Frontiers in Education Conference, Saratoga Springs, NY, Oct 22-25, 2008

103. C. Furse, et al., "How Many Engineers Does It Take?", 2008 ASEE Annual Conference & Exposition in Pittsburgh, Pennsylvania, June 22-25, 2008.

104. Chet Lo, Cynthia Furse, "Use of InSitu Sensors for Wire Fault Prognostics," Joint FAA/DOD/NASA Conference on Aging Aircraft, www.agingaircraft2008.com, April 21-24, 2008, Phoenix, Arizona

105. Paul Smith, Paul Kuhn, Michael Diamond, Cynthia Furse, Srini C. Sekar, Lynn Edmunds, Tom Kukowski, "ASIC Implementation of Live Arc Fault SSTDR Tester," Joint FAA/DOD/NASA Conference on Aging Aircraft, www.agingaircraft2008.com, April 21-24, 2008, Phoenix, Arizona

106. Cynthia Furse, Paul Smith, Paul Kuhn, "Intermittent Fault Location on Live Electrical Wiring Systems," SAE Conference 2008

107. Alyssa Magleby, Cynthia Furse, "Predicted MIMO Performance in Intra-Vehicle Channels," *IEEE Antennas and Propagation Symposium (APS),* SanDiego, CA, July 7-11,2008

108. David Landon, Cynthia Furse, "The MIMO Transmission Equation," *IEEE Antennas and Propagation Symposium (APS),* SanDiego, CA, July 7-11,2008 (Honorable Mention, student paper contest)

109. Peruvemba R. Sai A, C. Furse, "System Level Analysis of Noise and Interference Analysis for a MIMO System," *IEEE Antennas and Propagation Symposium (APS),* SanDiego, CA, July 7-11,2008

110. Alex L. Robinson, Cynthia Furse, Paul Kuhn, Michael Diamond, "Update on LiveWire Fault Detection, "SAND Number: 2008-1695A, Sensors Workshop 2008, LLNL, Livermore, CA, April 1-2, 2008

111. Peruvemba R. Sai A, C. Furse, "Iterative Array Level Optimization of MIMO Antennas," XXIX General Assembly of URSI, Chicago, Ill, August 11-15, 2008

112. Alyssa Magleby, Cynthia Furse, "LAB REPORT WRITING (AND TEACHING!) MADE EASY," 2008 ASEE Annual Conference & Exposition in Pittsburgh, Pennsylvania, June 22-25, 2008.

113. (Invited paper) Jeff Johnson, Cynthia Furse, "Statistical Analysis of Detuning Effects for Implantable Microstrip Antennas," North American Radio Science Conference URSI-CNC/USNC organizers. July 22-26, 2007, Ottawa, Canada

114. (Invited Paper) Cynthia Furse, Reid Harrison, Florian Solzbacher, "Recent Advances in BioMedical Telemetry," International Conference on Electromagnetics in Advanced Applications (ICEAA '07), Torino, Italy, September 17-21, 2007

115. Paul Smith, Cynthia Furse, Paul Kuhn, "Locating Intermittent and Static Faults in Complex Wiring Systems," (SAE Conference) AE-8 Aerospace Electrical/Electronic Distribution Systems and the AEISS Aerospace Electrical Interconnect Systems Symposium, October 22-26, 2007, Savannah, Georgia.

116. David G. Landon, Cynthia M. Furse, “Recovering handset MIMO capacity with polarization-agile antennas*,” IEEE Antennas and Propagation Symposium (APS),* Honolulu, HI June 9-16, 2007

117. Alyssa Magleby, Cynthia Furse, “Improving Communication Skills Through Project-Based Learning, *IEEE Antennas and Propagation Symposium (APS),* Honolulu, HI June 9-16, 2007

118. Paul Smith, Michael Walz, Cynthia Furse, “Locating Electrical Faults Using a Walk-to-Fault Probe,” Joint FAA/DoD/NASA Conference on Aging Aircraft, Palm Springs, CA, April 16-19, 2007

119. Cynthia Furse, Shang Wu, Michael Diamond, David Mih, Chet Lo, Paul Smith, “Potential Prognostics for Preventative Maintenance of Electrical Wiring,” Joint FAA/DoD/NASA Conference on Aging Aircraft, Palm Springs, CA, April 16-19, 2007

120. David G. Landon, Cynthia M. Furse, “Statistical Comparison of Capacity Predictions for Realistic MIMO Channels*,” IEEE Antennas and Propagation Symposium (APS),* Albuquerque, NM, July 9-14, 2006

121. Paul Kuhn, Cynthia Furse, Paul Smith, “Locating Hidden Hazards on Electrical Wiring,” Aged Electrical Systems Research Application Symposium, October 18-19, 2006, Chicago, Illinois

122. Cynthia Furse, Brian Stenquist, Behrouz Farhang-Boroujeny, April Kedrowitz, Stephanie Richardson, “Integrated System-Level Design in Electrical Engineering,” 2006 ASEE Annual Conference & Exposition in Chicago, Illinois, June 18-22, 2006, Nominated for Best Paper Award

123. Chet Lo, Cynthia Furse, "Modeling and Simulation of Branched Wiring Network," *17th Symposium EMC-Zurich,* Singapore, March 2006

124. Roland Kempter, Cynthia Furse, Neil E. Cotter, Nick M. Safai, Lee Brinton, “On Undergraduate Education in Electrical Engineering across Colleges: Transfer Students and Challenges in Curriculum Adaptation,” Best Paper Award (International Division) 2006 ASEE Annual Conference & Exposition in Chicago, Illinois, June 18-22, 2006,

125. Rohit Verma, Cynthia Furse, “A Multidisciplinary Approach to Teaching Technology Entrepreneurship and Product Innovation to Engineering and Business Administration Students,” 2006 ASEE Annual Conference & Exposition in Chicago, Illinois, June 18-22, 2006

126. Paul Smith, Cynthia Furse, “State of the Art in LiveWire Testing,” Joint FAA/DoD/NASA Conference on Aging Aircraft, Jan 31-Feb 3, 2005, Palm Springs, CA

127. Makoto Ando, Ari Sihvola, Lotfollah Shafai and Cynthia Furse, “Commission B (Fields and Waves) International Survey about EM Education,” URSI General Assembly, New Delhi, India, Oct. 2005.

128. Sembiam Rengarajan, Lotfollah Shafai, Cynthia Furse, David Kelley, “Electromagnetics Education in North America,” URSI General Assembly, New Delhi, India, Oct. 2005.

129. Chet Lo, Kedarnath Nagoti, Arthur Mahoney, You Chung Chung, Cynthia Furse, “Detection and Mapping of Branched Wiring Networks from Reflectometry Responses,” Joint FAA/DoD/NASA Conference on Aging Aircraft, Palm Springs, CA, Jan 31-Feb 4, 2005

130. (INVITED PAPER) James Stephenson, Cynthia Furse,” Table Top Micro Fluidic Nuclear

Magnetic Resonance Spectrometer," 2006 URSI National Radio Science Meeting, Boulder, CO, Jan 4-10, 2006

131. (INVITED PAPER) Cynthia Furse, "Emerging Technologies for Live Wire Fault Location," NAVWAG Conference, San Diego, CA, Nov. 4, 2003

132. (INVITED PAPER) Cynthia Furse, 'Microsystems for Medicine', 17th annual biological basis of Pediatric Practice Symposium, Sept 12-14, 2003, Deer Valley, Utah

133. (INVITED PAPER) Cynthia Furse, Sensors for Critical Fault Location on Live Aging Wiring Networks, *International Workshop on Advanced Sensors, Structural Health Monitoring, and Smart Structures*, November 10-11, 2003 at Keio University, Yokohama, Japan

134. (INVITED PAPER) Cynthia Furse, Paul Smith, Rohit Parakh, "Sensors for Wiring and Structural Cable Fault Location," Joint US-India Workshop on Advanced Sensing Systems and Smart Structures Technologies, in cooperation with IIT Bombay, on December 20-22, 2004

135. Lance Griffiths, Youchung Chung, Cynthia Furse, "Integrated Dual Band GSM Microstrip Monopole using GA and FDTD", IEEE APS, Wash, D.C., July 2005

136. Lance Griffiths, You Chung Chung, Cynthia Furse, "Wide and Tri-Band Microstrip LAN Antenna Design and GUI Tool Using a GA and FDTD, "International IEEE/URSI Antennas and Propagation Symposium, June 22-26, 2004, Monterey, CA

137. Pichitpong Soontornpipit, Ramadevi Bylapudi, Cynthia Furse, Youchung Chung, "Comparison of helical microstrip antennas imbedded in lossy dielectric using genetic algorithms," International IEEE/URSI Antennas and Propagation Symposium, June 22-26, 2004, Monterey, CA

138. Farhang-Boroujeny, Behrouz, Cynthia Furse. "Robust multicarrier spread spectrum technique for data transmission over partially jammed channels." In *IEEE MILCOM 2004. Military Communications Conference, 2004.*, vol. 2, pp. 751-757. IEEE, 2004.

139. Cynthia Furse, Paul Smith, Youchung, Chet Lo, "Fault Location in Aging Aircraft Wiring Networks", Aging Aircraft Conference, New Orleans, LA, Sept. 12-15,2003

140. S.Nagaraj, Cynthia Furse, "A Novel MAC for Sensor Networks in Aircraft," ICNP conference 2003, "Second ACM International Workshop on Wireless Sensor Networks and Applications (WSNA '03)" is in San Diego on 19th of Sept. 2003

141. Youchung Chung, Pitchitpong Soontornpipit, Kamal Vasagiri, Rama Devi, Cynthia Furse, "Imbedded Microstrip and Helical Antennas as Sensors and Communicators: Sane Application of Genetic Algorithms," IEEE Antennas and Propagation International Symposium, June 2003, Columbus, OH

142. Youchung Chung, Chet Lo, John Mahoney, Jeremy Pruitt, Ryan Hanks, Santi Basava, Cynthia Furse, "Non-Destructive Fault Location on Aging Aircraft Wiring Networks, Part 1 – Cost-Optimized Solutions," IEEE Antennas and Propagation International Symposium, June 2003, Columbus, OH

143. Paul Smith, Alyssa Magelby, Deekshit Dosibhatla, Chet Lo, Cynthia Furse, Jacob Gunther,

"Non-Destructive Fault Location on Aging Aircraft Wiring Networks, Part 2 – Live Wires in Flight," *IEEE Antennas and Propagation International Symposium, June 2003, Columbus, OH*

144. Cynthia Furse, "Smart Sensors for Wiring Health Analysis," AFRL Wiring Integrity System Characterization and Evaluation Program's 1st Information Exchange and Workshop, Oct. 23-24, 2002, Dayton, OH

145. Jeff Ward, Charles Swenson, Cynthia Furse," Finite Difference Time Domain Simulations of an Impedance Probe," AGU (American Geophysical Union) in San Fransico, Dec 6-10, 2002

146. Cynthia Furse, Ruby Mohan, Arvind Jakayar, Sriram Kharidehal, Brad McCleod, Shawn Going,Lance Griffiths, Pichitpong Soontornpipit, Daniel Flamm, James Bailey, Irwan Hadi Budiman , Mark Hullinger, "A Biocompatible Antenna for Communication with Implantable Medical Devices," IEEE Antennas and Propagation International Symposium, June 16-21, 2002, San Antonio, TX

147. Cynthia Furse, Deekshit Dosibhatla, Jacob Gunther, Paul Smith, Chet Lo, Sachin Chandra, Alyssa Magelby, "Spread Spectrum Communication Techniques Applied to Impedance Measurement," IEEE Antennas and Propagation International Symposium, June 16-21, 2002, San Antonio, TX, Invited Paper

148. Cynthia Furse, Youchung Chung, Jeremy Pruitt, Glen Mabey, Derek Bates, Santi Basava, Chris Griffin, Mark Schmidt, Krishna Konda, Nagendra Grandhi, Rory Buchanan, Eric Cannon, Suketu Naik, Sumeeth Nagaraj, Sachin Chandra, Clark Landeen, Paul Smith, Deekshit Dosibhatla, Jake Gunther, Chet Lo, Ravi B. Gopal, Alyssa Magelby, "In Situ Analysis System for Diagnosis of Aging Aircraft Wiring," IEEE Antennas and Propagation International Symposium, June 16-21, 2002, San Antonio, TX

149. Guy Serbin, Dani Or, Cynthia Furse, "Radar backscatter from layered wet soils with a diurnal temperature wave," Rocky Mountain Space Grant Consortium Conference, Salt Lake City, Utah April 2001

150. Brent Waddoups, Cynthia Furse, "Analysis of Reflectometry for Detection of Chafed Aircraft Wiring Insulation," Fifth Joint NASA/FAA/DoD Conference on Aging Aircraft, September 10-13, 2001, Orlando, FLA

151. Sean Field, Pall Arnason, "Smart Wire Technology for Aircraft Applications," Fifth Joint NASA/FAA/DoD Conference on Aging Aircraft, September 10-13, 2001, Orlando, FLA

152. Chad Pendley, Cynthia Furse, Alan Tripp, Vinod Rayala," Geophysical Analysis of Cross-Borehole Propagation and Reflection Using Triaxial Sources," *IEEE Antennas and Propagation Symposium*, July 13-18, 2001, Boston, MA

153. Nitin Madan, Cynthia Furse, "Imbedded Antennas for Measurement of the Electrical Properties of Materials," *IEEE Antennas and Propagation Symposium*, July 13-18, 2001, Boston, MA

154. Cynthia Furse, Ruby Mohan, Arvind Jakayar, Sriram Kharidehal, Brad McCleod, Shawn Going, "A Biocompatible Antenna for Communication with Implantable Medical Devices," *IEEE Antennas and Propagation Symposium*, July 13-18, 2001, Boston, MA

155. Jeff Ward, Cynthia Furse, Charles Swenson, “FDTD analysis of microstrip antennas immersed in anisotropic space plasma,” *IEEE Antennas and Propagation Symposium*, July 13-18, 2001, Boston, MA

156. Brent Waddoups, Cynthia Furse, “Detection of Chafed Insulation in Aging Aircraft Wiring,” *IEEE Antennas and Propagation Symposium*, July 13-18, 2001, Boston, MA

157. Kenneth Blemel, Cynthia Furse, Sean Field, " Applications of Microsystems and Signal Processing for Wiring Integrity Monitoring," 2001 IEEE Aerospace Symposium held at Big Sky, Montana, March 2001

158. Cynthia Furse, Joseph Olakangil, Charles Swenson, "FDTD Analysis of a Short Dipole Immersed in Ionospheric Plasma," *IEEE Antennas and Propagation Symposium*, July 16-21, 2000, Salt Lake City, Utah

159. X. Li, K. Leininger, S.C. Hagness, and C. Furse, “FDTD Modeling of Electromagnetic Interactions with the Human Breast,” *World Congress on Medical Physics and Biomedical Engineering*, Chicago, Ill, July 23-28, 2000

160. Cynthia Furse, "Analysis of Current and Field Distributions for Electrotherapy Devices," *World Congress on Medical Physics and Biomedical Engineering*, Chicago, Ill, July 23-28, 2000

161. Charles Swenson, C. Furse, C. Fish, P. Nikitin, "Impedance Probes for Space Plasma Diagnostics," *URSI National Conference*, Boulder, CO, Jan. 5, 2000

162. C. Furse, M. Long, "Optimization of Imbedded Microstrip Antenna for Communication with Implantable Medical Devices," 8th AIAA/NASA/USAF/ISSMO Symposium on Multidisciplinary Design -- Adding Value, Sept. 6-8, 2000 Long Beach, CA

163. David Johnson, Cynthia Furse, Alan C.Tripp, "FDTD Modeling of the Borehole EM Response of a Conductive Ore Deposit in a Lossy Dielectric," Society of Exploration Geophysics International Conference, Sept. 12-15, 1998, New Orleans, LA (Also listed under international mininglinks.com data base.)

164. Jana Price, Cynthia Furse, "Making a World of Difference: A New Slide Show for Recruiting Women in Engineering", ASEE Rocky Mountain Regional Conference, Provo, Utah, April 1999

165. Candace Deffendol, Cynthia Furse, "Microstrip Antennas for Dielectric Property Measurement," 1999 IEEE Antennas and Propagation/ URSI International Symposium, Orlando, FL, July 1999

166. Chad Fish, Cynthia Furse, "Development of New Electronics for Antenna Impedance Measurements in the Ionosphere," 1999 IEEE Antennas and Propagation/ URSI International Symposium, Orlando, FL, July 1999

167. Cynthia Furse, David M.Johnson, Elena Cherkaeva, Alan Tripp, "Optimization Cross-borehole Prospecting Technique for Delineation of Buried Conductive Ore Deposits in a Resistive Host," 1999 IEEE Antennas and Propagation/ URSI International Symposium, Orlando, FL, July 1999

168. C. Furse, H.K. Lai, C. Estes, A. Mahadik, A. Duncan, "An Implantable Antenna for

Communication with Implantable Medical Devices," 1999 IEEE Antennas and Propagation/ URSI International Symposium, Orlando, FL, July 1999

169. C. Furse and J. Price, "Making a World of Difference -- Recruitment of Undergraduate Students at USU," 1999 IEEE Antennas and Propagation/ URSI International Symposium, Orlando, FL, July 1999

170. C. Furse, "Hands-on Electromagnetics -- Microstrip Circuit and Antenna Design Laboratories at USU," 1999 IEEE Antennas and Propagation/ URSI International Symposium, Orlando, FL, July 1999

171. N. Kamdar and C. Furse, "An Inexpensive Distance Measuring System for Location of Robotic Vehicles," 1999 IEEE Antennas and Propagation/ URSI International Symposium, Orlando, FL, July 1999

172. C.M. Furse, "Faster than Fourier -- Ultra-Efficient Time-to-Frequency Domain Conversions for FDTD Applied to Bioelectromagnetic Dosimetry," The 14th Annual Review of Progress in Applied Computational Electromagnetics, ACES Symposium, Monterey, CA, March 16-20, 1998; IEEE AP-S International Symposium, June 21-25,1998, Atlanta, GA

173. O.P.Gandhi, D.Wu, Q.-S. yu, G. Lazzi, A. Tinniswood, S.S. Pattnaik, C.M. Furse, "Numerical and Experimental Methods for Determination of SAR and Radiation Patterns of Hand-held Wireless Telephones," presented at RF Dosimetry: 25 years of Progress, University of Utah, Oct. 20-21, 1997

174. A.D. Tinniswood, C.M. Furse, O.P. Gandhi, "Computations of SAR Distributions for Two Anatomically-Based Models of the Human Head Using CAD Files of Commercial Telephones and the Parallelized FDTD Code," *IEEE AP-S International Symposium and URSI Radio Science Meeting,* Montreal, Canada, July 13-18, 1997

175. J.M. Ziriax, C.M. Furse, J.A. D'Andrea, D.J. Hatcher, P.A. Mason, and O.P. Gandhi, "Comparison of FD-TD and experimentally determined local and whole-body SAR in a rhesus monkey model," The Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy

176. G.Lazzi, C.M. Furse, O.P.Gandhi, "Use of the PML for Bioelectromagnetic Simulations," *IEEE AP-S International Symposium and URSI Radio Science Meeting,* Montreal, Canada, July 13-18, 1997

177. C.M. Furse, A.D. Tinniswood, O.P. Gandhi, "Conditions for Resonant Absorption in the Human Head for Plane Wave Exposure," The Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy

178. A.D. Tinniswood, M.Pernice, C.M. Furse, "Large-Scale Parallel Simulation of Bioelectromagnetic Interactions," Siam Conference, March 14-17, 1997, Minneapolis

179. G.Lazzi, O.P. Gandhi, C.M. Furse, "State of the Science Regarding RF Dosimetry, Measurements, and Certification," IEEE-EMC ROMA, Nov. 1996

180. G.Lazzi, C.M. Furse, O.P. Gandhi, "FDTD Computation of Electromagnetic Absorption in

the Human Head for Mobile Telephones," in *Proc. Of the Eighteenth Annual Technical Meeting of the Bioelectromagnetics Society - BEMS,* pp. 118-119, 1996

181. C.M. Furse, O.P. Gandhi, "Calculation of Electric Fields and Currents Induced in a mm-Resolution Human Model with a Novel Time-to-Frequency Domain Conversion," International Bioelectromagnetic Society Conference, Victoria, Canada, June 1996; IEEE Antennas and Propagation Society Conference, Baltimore, MD, July 21-25,1996

182. C.M.Furse, G.Lazzi, O.P. Gandhi," FDTD Computation of Power Deposition in the Head for Cellular Telephones," *Proc. Of the 1996 IEEE Antennas and Propagation Society Conference*, pp. 1794-1797, Baltimore, MD, July 21-25,1996

183. Vishram Pandit, Robert McDermott, Gianluca Lazzi, Cynthia Furse and Om Gandhi "Electrical Energy Absorption in the Human Head from a Cellular telephone: Case Study",IEEE VISUALIZATION '96, San Francisco Oct 27 - Nov 1, 1996

184. C.M. Furse, O.P. Gandhi, "Subdivision of Large Models in Finite-Difference Time-Domain Simulations for Microwave Dosimetry," *Sixteenth Annual Meeting of the Bioelectromagnetics Society,* Copenhagen, Denmark, June 13-17, 1994

185. O.P. Gandhi, J.Y. Chen, C.M. Furse, Y.Cui, "A Simple Convolution Procedure for Calculating Coupling in the Human Body for EM Fields of Prescribed Time and Space Variations, 15th Annual Meeting of the Bioelectromagnetics Society, Los Angeles, CA, 1993

186. C.M. Furse, O.P. Gandhi, V. Sarvepalli, R.J. McDermott, "Video Displays of Currents Induced in the Human Body for Exposure to Ultrawideband EM Pulses," *Fifteenth Annual Meeting of the Bioelectromagnetics Society,* Los Angeles, CA, June 13-17, 1993

187. C.M. Furse, J.Y. Chen, O.P. Gandhi, "A Frequency-Dependent Finite-Difference Time-Domain Method for Induced Current Calculations for a Heterogeneous Model of the Human Body," First World Congress for Electricity and Magnetism in Biology and Medicine, Lake Buena Vista, Florida, 1992

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189. C.M.Furse, M.F.Iskander, "Three-dimensional Electromagnetic Power Deposition in Tumors using Interstitial Antenna Arrays," *Tenth Annual Meeting of the IEEE Bioelectromagnetics Society, Stamford, CT, June 19-24, 1988*

190. M.F. Iskander, T.V. Duong, H.C. Chen, C.M.Furse, "A New Sectioning Procedure for Calculating Scattering and Absorption by Elongated Dielectric Targets," *IEEE/Ap-S International Symposium*, June 15-19, Blacksburg, VA, 1987

191. M.F. Iskander, C.M. Furse, "Utilization of Sectioning Procedure to Calculate Light Scattering by Very Long and Irregularly Shaped Aerosol Chains and Clusters," *CRDEC conference on Obscuration and Aerosol Research*, US Army, June 23-27, 1986 Aberdeen, MD, *Proc. CRDEC 1986 Scientific Conference,* R.H. Kohl, Ed.

PATENTS

1. U.S. Patent No. 9,476,932, Cynthia Furse, Faisal Khan, "Systems and methods for implementing S/SSTDR measurements." Oct. 25, 2016.

2. US Patent 8,269,497, J. Stephenson, B. Gale, C. Furse, 'Enhanced Fill Factor NMR Coils and Associated Methods,' Sept. 18, 2012

3. US Patent 8,279,122 B2, D. Landon, C. Furse, 'Mobile Communications Systems and Methods Relating to Polarization-Agile Antennas,' Oct. 2, 2012

4. US Patent 8,395,468, J.Stephenson, B. Gale, C. Furse, 'High Field Strength Magnetic Generation System and Associated Methods,' 2012

5. US Patent 7,634,012, B. Farhang-Boroujeny, C. Furse, "Multicarrier spread spectrum using non-linear modification of sub-carrier bands," Dec. 15,2009

6. US Patent 7,622,931. S. Wu, C. Furse, C. Lo ,"Non-Contact Reflectometry System and Method," Nov. 24, 2009

7. US Patent 7,548,071. "Reflectometry Test System Using a Sliding Pseudo-Noise Reference," Reid Harrison, Cynthia Furse, Chirag Sharma

8. US Patent 7,495,450, "Device and method for detecting anomalies in a wire and related sensing method," C. Furse, J. Mahoney, Y. C. Chung, N. N. Amarnath, Feb. 24, 2009

9. US Patent 6,868,357, "Frequency Domain reflectometry system for testing wires and cables utilizing in situ connectors, passive connectivity, cable fray detection, and live wire testing" Cynthia Furse, March 15, 2005

10. US Patent 6,937,944, "Frequency domain reflectometry system for baselining and mapping of wires and cables," Cynthia Furse, Kenneth Blemel, August 30, 2005

11. US Patent 7,069,163, "Digital spread spectrum methods and apparatus for testing aircraft wiring," J. Gunther, D. Dosibhatla, C. Furse, June 27, 2006

12. US Patent 7,215,126, "Apparatus and method for testing a signal path from an injection point," C. Furse, C. Lo, May 8, 2007

13. US Patent 7,271,596. Method and System for testing a signal path having an operational signal. C Lo, C Furse, Sept. 18, 2007

14. US Patent 7,165,200. N. Jani, C. Furse, "System and method for characterizing a signal path using a sub-chip sampler," Jan 16, 2007

15. U.S. Patent 7,250,772, Cynthia Furse, Paul Smith, "Method and Apparatus for Characterizing a Signal Path Carrying an Operational Signal" 2007

16. U.S Patent 7,282,922. Algorithm for Detection of Opens and Shorts of Branched Wiring Network with TDR Data, Inventors: Cynthia, Chet Lo

HONORS, AWARDS, TECHNICAL SOCIETIES:

2021-2023 IEEE Antennas and Propagation Society Distinguished Lecturer

2020 IEEE Chen To Tai Distinguished Educator Award: "For motivating, challenging, educating and inspiring the next generation of EM engineers through innovative teaching, hands on experiences, current research and lively participation."

This award recognizes an individual who has given outstanding service to education in the field of antennas and propagation, and who exemplifies the special human qualities of Chen-To Tai, whose exemplary career in teaching and research represents the highest qualities of service.

2019 University of Utah Distinguished Teaching Award

2018 "Last Lecture" Getting an A in Life: The Interplay of Success and Failure (Selected by the Assoc. Students of the UofU, this prestigious lecture invitation isn't really a LAST lecture, but is supposed to impart wisdom as if it were.)

2014-present, Member, Entrepreneurial Faculty Scholars, University of Utah

2017 Utah Governor's Medal for Science and Technology

2017 Pioneers of Progress Award for Scientific Achievement

2015 Fellow, National Academy of Inventors

2014 Distinguished Teaching Award, Electrical & Computer Engineering, UofU

2014 Utah Engineering Council (UEC) Engineering Educator of the Year

2013 ASUU Student Choice Award for contributions to the teaching profession

2009 University of Utah Reynolds Lecturer

2009 Harriett B. Rigas award (IEEE Education Society)

2009 Women Tech Council Education Excellence

2003, Best of Show, Innovation Showcase, Utah Engineering Experiment Station
2008 College of Engineering Outstanding Teaching Award, University of Utah
2008 Finalist, Stoel Rives Utah Innovation Awards, Computer and Electronics Division, LiveWire Test Labs, Inc.,
2008 Distinguished Young Alumnus, University of Utah Electrical and Computer Engineering Department
2008 Fellow, Institute of Electrical and Electronic Engineers (IEEE)
2001 Utah State University Outstanding Faculty Employee
2000 Teaching Excellence of the Year, College of Engineering, Utah State University 1998-1999
Outstanding Teacher of the Year 1998-99 Department of Electrical and Computer Engineering, Utah State University
Outstanding Teacher of the Year 1999-00 Department of Electrical and Computer Engineering, Utah State University
Outstanding Advisor of the Year 2000-01 Department of Electrical and Computer Engineering, Utah State University

Outstanding Advisor of the Year 2001-02 Department of Electrical and Computer Engineering, Utah State University
Outstanding Researcher of the Year 2000-01 Department of Electrical and Computer Engineering, Utah State University
IEEE nominee for the Utah Engineers Council Utah Engineering Educator of the Year 2001-2
USU Nominee, Carnegie Professor of the Year 2002
Chair, Education Committee, IEEE Antennas and Propagation Society (2003-2007 , member 2000-2003,2007-present)
Founding Editor-in-Chief, International Journal of Antennas and Propagation, 2006-present
Associate Editor, IEEE Transactions on Antennas and Propagation, 2000-2007; 2010-present
Associate Editor, Applied Computational Electromagnetics Society Journal, 2003-
Associate Editor, IEEE Antennas and Wireless Propagation Letters (online), 2003-2006
Member of the Founding Editorial Board, Journal of Smart Structures and Systems, 2004-pres
Member, IEEE Standards Committee, 1998-2000
Member of Eta Kappa Nu, Tau Beta Pi, and Phi Kappa Phi honor societies
Member American Society for Engineering Education
Senior Member Society of Exploratory Geophysicists
Senior Member and Faculty Advisor (1997-2007), Society of Women Engineers (USU and UofU)

TEACHING:

I teach/have taught Introduction to Electromagnetics, Wireless Communication, Antennas, Microwave Engineering, Business & Engineering, and Introduction to Electrical & Computer Engineering. These courses, including notes, video lectures, etc. are open publically on my website www.ece.utah.edu/~cfurse . I have been a pioneer in the teaching 'flipped' movement since 2007 and have also mentored numerous faculty both locally and internationally to help them teach this way. See www.teach-flip.utah.edu

I have served as the major advisor for 152 undergraduate students doing their capstone design projects in EM, and 12 high school students, including one exceptional young woman who won the Intel International Science Fair with an EM project. Most of these students were working directly with her research group on their capstone projects, and many have participated in publications and major demos for the sponsors. She has also supported and mentored 51 master's students and 27 PhDs as chair of their thesis/dissertation committee.