

**CURRICULUM VITAE FOR KATHLEEN L. MELDE  
(previously Kathleen L. Virga)**

**CHRONOLOGY OF EDUCATION**

- 6/96 Ph.D. **Electrical Engineering**  
**University of California, Los Angeles (UCLA), CA**  
*Dissertation:* “Modeling and Performance Visualization of Broadband Integrated Antennas for Radio Communications Applications”  
Major field: Electromagnetics  
Advisor: Yahya Rahmat-Samii (elected to National Academy of Engineering, 2008)
- 6/94 Engineer **Electrical Engineering**  
Degree **University of California, Los Angeles (UCLA), CA**
- 8/87 M.S. **Electrical Engineering**  
**California State University, Northridge, CA**  
*Thesis:* “Switched Susceptance Phase Shifter”  
Emphasis in Microwave Engineering.  
Advisor: Edmund S. Gillespie
- 8/85 B.S. **Electrical Engineering**  
**California State University, Long Beach, CA**

**CHRONOLOGY OF EMPLOYMENT**

- 8/96 - present **Professor (Asst. Prof. 1996-2003, Assoc. Prof. 2003-2010)**  
Department of Electrical & Computer Engineering  
University of Arizona, Tucson, Arizona
- 2/85 - 8/96 **Staff Engineer**  
Hughes Aircraft Company  
El Segundo, California
- 12/93 - 6/95 **Research Assistant**  
Department of Electrical Engineering, UCLA  
Los Angeles, California
- 9/93 - 12/93 **Teaching Assistant**  
Department of Electrical Engineering, UCLA  
Los Angeles, California
- 9/88 - 6/89 **Part-Time Lecturer**  
Dept. of Electrical Engineering, California State University, Long Beach  
Long Beach, California
- 2/84 - 2/85 **Technical Student**  
Rockwell International  
Long Beach, California

## **HONORS AND AWARDS**

- 2015 Invited Keynote Speaker to EuCAP Conference
- 2012 Fellow of the IEEE for “Contributions to Tunable Antennas and Their Integration in Electrical Packaging,”
- 2012-2014 University of Arizona College of Engineering, Teaching Fellow
- 2010 Recipient of Excellence at the Student Interface Award, University of Arizona, College of Engineering
- 2011 Recipient of Scialog Award from the Research Corporation of Scientific Advancement
- 2008 IBM Faculty Award
- Named “University of the Year” from Orbit F/R, for creating an environment which fosters high achievement and interactive learning in antenna measurements, 2004
- Elected to 3-year term to Administrative Committee (AdCom), IEEE (Institute of Electrical and Electronic Engineers) Antennas & Propagation Society, 1999-2001
- 2001 University of Arizona, Department of Electrical and Computer Engineering, Undergraduate Course Improvement Award
- Elected to URSI (International Radio Science Union) Commission B, in 1999
- Elected to Senior Member, Institute of Electrical & Electronics Engineers (IEEE), February 1997
- Nominated for Packard Foundation Fellowship from Office of President, University of Arizona, in 1997 and again in 1998
- Awarded 2<sup>nd</sup> Place in the 1996 USNC-URSI National Radio Science Meeting Student Paper Competition
- Awarded the UCLA Dept. of Electrical Engineering Graduate Woman of the Year in 1996
- Invited 1996 Keynote Speaker, California State University Northridge, School of Engineering Commencement
- Hughes Aircraft Company Doctoral Fellowship (1990-1996)
- Four Hughes Aircraft Company Invention & Patent Awards (1987-1992)
- Hughes Aircraft Company Microwave Master’s Fellowship
- Rockwell International Engineering Scholarship (1983)
- TRW Engineering Scholarship (1982)
- Member Tau Beta Pi, Engineering Honor Society
- Member Eta Kappa Nu, Electrical Engineering Honor Society
- Member Sigma Psi, Science and Engineering Honor Society

## **Awards for Advisees**

- Nobuki Hiramatsu, Honorable Mention for 2011 IEEE Antennas and Propagation Society Student Paper Contest
- Zhen Zhou, Ph.D. Student, Inaugural John L. Prince Doctoral Fellowship from the Semiconductor Research Corporation (SRC) for five years of graduate study, Fall 2006-graduation
- Beatrice Fankem, M.S. Student, 2007 IEEE Antennas and Propagation Society Graduate Scholarship
- Beatrice Fankem, M. S. 2007 Student International Scholarship from the AAUW (American Association of University Women): 100 awards were made out of over 1000 applicants
- Brenda Holmes, M.E. Student, 2004 SRC Master’s Fellowship.

## **SERVICE/OUTREACH**

### **Outreach (National/International)**

- External Reviewer, Ph.D. Dissertation, Griffiths University, Australia, 2015
- 2012-2014, Reviewer for Spanish URSI Meeting Best Paper Competition
- Fellows Committee, IEEE Antennas and Propagation Society (2015-)
- Project Connect Participant and Career Panelist at 2015 International Microwave Symposium. Project Connect is funded by the National Science Foundation as an outreach activity for under represented minorities.
- Guest Co-Editor, IEEE Transactions on Antennas and Propagation, Special Issue on Antennas and Propagation for Cognitive Radio and Systems.
- Conference General Chair, IEEE Electrical Performance of Electronic Packaging and Systems, San Jose, CA 2013
- Conference Co-Chair, IEEE Electrical Performance of Electronic Packaging and Systems, 2012
- Finance Chair, 2016 IEEE International Symposium on Antennas and Propagation
- Special Sessions Chair, 2017 IEEE International Symposium on Antennas and Propagation
- Invited for NSF EARS Workshop (Enhancing Access to the Wireless Spectrum), 2010
- Associate Editor, IEEE Transactions on Antennas and Propagation (2001-2007)
- Associate Editor, IEEE Antennas and Wireless Propagation Letters (2006-2010)
- USNC-URSI (Commission B) Membership Committee (2008-present)
- IEEE Antennas and Propagation Society, Awards Committee (2003-2008) and (2014 )
- Appointed Chair for IEEE-APS Society Advisory Committee for Annual IEEE Antennas and Propagation Society Student Paper Competition (2008-present)
- IEEE Antennas and Propagation Society Professional Activities (PACE) Chair, 1996-1999
- IEEE Antennas and Propagation Society AdCom, 3 Year Term 1999-2001
- Reviewer for
  - IEEE Transactions on Antennas and Propagation
  - IEEE Antennas and Wireless Propagation Letters
  - IEEE Transactions on Vehicular Technology
  - IEEE Transactions on Advanced Packaging
  - IEEE Transactions on Microwave Theory and Techniques
  - IEEE Microwave Components and Wireless Letters
  - IEEE Press Book Proposals
  - Cambridge University Press Book Reviews
- Committees for Conferences/Symposia
  - Chair, Student Day, for 2014 Antenna Measurements Techniques Association Conference
  - Technical Program Committee, 2006- 2009 IEEE Antennas and Propagation Symposiums,
  - Technical Program Committee, 2007-2014 IEEE Topical Meeting on Electrical Performance of Electronic Packaging and Systems,
  - Judge for Student Paper Competition for 2007 IEEE Antennas and Propagation Symposium, Honolulu, Hawaii
  - Judge for Student Paper Competition for 2006 IEEE Electrical Performance of Electronic Packaging, Phoenix, Arizona, October 2006
  - Chair, Student Paper Competition for 2004 IEEE Antennas and Propagation Symposium, Monterey, California
- Conferences/Symposia

- Special Session Organizer and Chair, “Unleashing the Capabilities of Cognitive Radios,” 2011 IEEE Antennas and Propagation Symposium, Spokane, WA, July, 2011
- Session Chair for Session 411, “Electronic Devices and Applications,” 2009 IEEE Antennas and Propagation Symposium, Charleston, South Carolina, June 2009.
- Session Chair for Session 5, “Measurements,” 17<sup>th</sup> Annual Conference on Electrical Performance of Electronic Packaging, San Jose, CA, October 2008.
- Special Session Organizer and Chair for Session 319, “Enabling Technology for Antennas and RF Front Ends for Multifunction Communications Systems,” 2008 IEEE Antennas and Propagation Symposium, San Diego, CA, June 2008.
- Session Chair for Session 105, “RF Devices and Their Measurement,” 2008 IEEE Antennas and Propagation Symposium, San Diego, CA, June 2008.
- Session Chair for Session 10, “Advanced Transmission Lines,” 16<sup>th</sup> Annual Conference on Electrical Performance of Electronic Packaging, Atlanta, GA, October 2007.
- Special Session Organizer and Chair, “Antennas and RF Front Ends for Software Defined Radio,” 2007 IEEE Antennas and Propagation Symposium, Honolulu Hawaii, July 2007.
- Session Chair for Session 14, “EM Modeling for Transmission Lines,” 15<sup>th</sup> Annual Conference on Electrical Performance of Electronic Packaging, Phoenix, AZ, October 2006.
- Session Chair for Session 5.4 “Reconfigurable Antennas” 2005 Software Defined Radio Forum (SDR ’05), Orange County, California.
- Session Chair for Session 96 “Array Analysis and Optimization Techniques,” 2004 Antennas and Propagation Symposium in Monterey, California.

### **Intramural Citizenship (ECE Department Committees)**

- Chair, ECE Peer Review Committee 2015
- Member, ECE Faculty Status Committee (promotion and tenure) 2014-2016
- Chair, ECE Faculty Search Committee (3 positions)
- Elected Member, ECE Committee on Committees, 2009 and 2010
- Member, ECE Faculty Status (promotion and tenure) Committee, 2010-present (Chair in 2011)
- Chair, ECE Instructional Software and Equipment Planning Committee 2003-present
- Member, ECE Department Graduate Studies Committee 2005-2010
- Member, ECE Department Academic Program Review, Self-Study Report Committee (Fall 2007)
- Member, Nomination Committee for Regents’ Professor Award (2007)
- Member, ECE Department Peer Review Committee, 2005-2006 Academic Year
- Member, ECE Department Head Search Committee, 2002-2004 Academic Years

### **College Committees**

- College of Engineering, Outstanding Senior Selection Committee 2013 and 2014
- College of Engineering, Faculty Status Committee, 2012-2013
- College of Engineering, Dean’s Strategic Planning Committee, 2010-2011
- College of Engineering, Faculty Advisory Council, 2010-present
- College of Engineering, Academic Grade Appeal Committee, Fall 2006

### **University Committees**

- Goldwater Nominee Selection Committee, Honors College, Fall 2008

- University Fees Committee Fall 2004-Spring 2007

## **PUBLICATIONS (PUBLISHED OR ACCEPTED)**

### **Chapters in scholarly books and monographs:**

1. Sungjong You and Kathleen L. Melde, Flexible VHF animal collar antenna for GPS-aided wildlife tracking, " to appear in *Advancement in Wearable and Flexible Antennas*, WIT Press, Haider Khaleel, Editor, June 2014. 24 Pages.
2. K. L. Virga and Y. Rahmat-Samii, "Generation of wideband antenna performance by [Z] and [Y] matrix interpolation in the method of moments," in *Ultra-Wideband Short-Pulse Electromagnetics III*, Editors C.E. Baum, L. Carin and A.P. Stone, Plenum Publishing, pp. 185-196, 1997.

### **Refereed Journal Articles:**

1. A. Sain and K. L. Melde, "Impact of Ground via Placement in Grounded Coplanar Waveguide Interconnects," *IEEE Transactions on Components, Packaging and Manufacturing Technology*, Vol. 6, Issue: 1, pp. 136-144, January 2016
2. J. Bernhard, E. Bonek, C. Christoldoulou, D. Kunkee, K. L. Melde, "Guest Editorial for the Special Section on Antenna Systems and Propagation for Cognitive Radio," *IEEE Transactions on Antennas and Propagation* Vol. 62, No. 3, pp. 1015-1018, March 2014
3. (Invited Paper) Ho-Hsin Yeh and Kathleen L. Melde, "Development of 60 GHz RF Interconnects for Parallelized Multi-Processor Computing," *IEEE Transactions on Advanced Packaging, Special Issue on RF-ICs and Interconnects*, Vol. 3, No. 11, pp. 1946–1952, November 2013.
4. A. Sain and K. L. Melde, "Broadband Characterization of Coplanar Waveguide Interconnects with Rough Conductor Surfaces using Full Wave Simulation" *IEEE Transactions on Advanced Packaging*, Vol. 3, No. 6 pp. 1038-1046, June 2013.
5. Christin Lundgren, Rene Lopez, Joan Redwing, and Kathleen Melde, "FDTD modeling of solar energy absorption in silicon branched nanowires," *Optics Express*, Vol. 21, Issue S3, pp. A392-A400 (2013)
6. Ho-Hsin Yeh, Nobuki Hiramatsu and Kathleen L. Melde, "The Design of Broadband 60 GHz AMC Antenna in Multi-Chip RF Data Transmission," *IEEE Trans. on Antennas and Propagation*, Vol. 61, No. 4, pp. April 2013.
7. Sung Jong Yoo and Kathleen L. Melde, "VHF Collar Integrated Antenna for Ground Link of GPS Based Location System," *IEEE Transactions Antennas and Propagation*, Vol. 61, No. 1, pp. 26-32Jan. 2013.
8. Kathleen L. Melde, Hyun-Jin Park, Ho-Hsin Yeh, Beatrice Fankem, Zhen Zhou, and William R. Eisenstadt, "Software defined match control circuit integrated with a planar inverted F antenna," *IEEE Transactions Antennas and Propagation*, Vol. 58, No. 12, pp. 3884-3890, Dec. 2010.

9. (Invited Paper) Alina Deutsch, Roger Krabbenhoft, Kathleen L. Melde, Christopher V. Surovic, George A. Katopis, Gerard V. Kopcsay, Zhen Zhou, Young Kwark, Thomas-Michael Winkel, Xiaoxiong Gu, and Theodorus Standaert, "Overview of the application of the short-pulse-propagation techniques for broadband interconnect characterization," *Special issue of IEEE Transactions on Electromagnetic Compatibility*, Special Issue on PCB Level Signal Integrity, Power Integrity and EMC, Vol., 52, No. 2, pp. 266-287, May 2010.
10. Zhen Zhou and Kathleen L. Melde, "A comprehensive technique to determine the broadband physically-consistent material characteristics of microstrip lines," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 58, No. 1, pp. 185-194 January 2010.
11. Qian Li and Kathleen L. Melde, "The impact of on-wafer calibration method on the measured results of coplanar waveguide circuits," *IEEE Transactions on Advanced Packaging*, Vol. 33, No. 1, pp. 285-292, January 2010.
12. Natalia Gaviria, Jeffrey J. Rodriguez, Kathleen Melde, and Kevin McNeill, "Design of low sidelobe linear arrays with high aperture efficiency and interference nulls" *IEEE Antennas and Wireless Propagation Letters*, vol. 8, pp. 607-610, 2009
13. Beatrice Fankem and Kathleen L. Melde, "Nested PIFAs for dual mode of operation: GPS and global communications," *IEEE Antennas and Wireless Propag. Letters*, vol. 7, pp. 701-705, 2008.
14. Zhen Zhou and Kathleen L. Melde, "Development of a broadband coplanar waveguide-to-microstrip transition with vias," *IEEE Transactions on Advanced Packaging*, vol. 31 no. 4, pp. 861-872, November, 2008.
15. Peng Jin, Nathan A. Goodman, and Kathleen L. Melde, "Exploiting directional antennas for reduced-dimension space-time RAKE receiving," *IEEE Transactions on Vehicular Technology*, vol. 57, no. 6, pp. 3880-3885, November 2008.
16. Zhen Zhou and Kathleen L. Melde, "Frequency agility of broadband antennas integrated with a reconfigurable RF impedance tuner," *IEEE Antennas and Wireless Propagation Letters*, vol. 6, pp. 56-59, 2007.
17. N. Goodman and K. L. Melde, "The impact of antenna directivity on the small-scale fading in indoor environments," *IEEE Transactions Antennas and Propagation*, vol. 54, no. 12, pp. 3771-3777, December 2006.
18. L. Zhu and K. L. Melde, "On-wafer measurement of microstrip-based circuits with a vialess transition," *IEEE Transactions on Advanced Packaging*, vol. 29, no. 3, pp. 654-659, August 2006.
19. R. B. Whatley, Z. Zhou, and K. L. Melde, "Reconfigurable RF impedance tuner for match control in broadband wireless devices," *IEEE Transactions Antennas and Propagation*, vol. 54, no. 2, pp. 470-478, February 2006.
20. Guang Chen and K. L. Melde, "The application of EBG structures in power/ground plane pair SSN suppression," *IEEE Transactions on Advanced Packaging*, vol. 29, no. 1, pp. 21-30, February 2006.

21. S. Kyle Smith, Julio C. Brégains, Kathleen L. Melde, and Francisco Ares, "A comparison of optimization techniques for power patterns with low sidelobes generated by linear arrays with efficient excitation distributions," *Microwave and Optical Technology Letters*, vol. 45, no. 1, pp. 57-60, 2005.
22. K. L. Melde and M. L. Taylor, "Pattern characteristics of linear arrays using the constrained least squares distribution," *IEEE Transactions Antennas and Propagation*, vol. 51, no. 4, pp. 772-775, April 2003.
23. M.C. Greenberg, K. L. Virga, and C. L. Hammond, "Performance of the dual exponential tapered slot antenna (DE TSA) for wireless communications applications," *IEEE Transactions on Vehicular Technology*, vol. 52, no. 2, pp. 305-312, March 2003.
24. T. E. Moran, K. L. Virga, G. Aguirre, and J. L. Prince, "Methods to reduce radiation from split ground planes in RF and mixed signal packaging structures," *IEEE Transactions on Advanced Packaging*, vol. 25, no. 3, pp. 409-416, August, 2002.
25. Guang Chen, Andrej Jancura, Kathleen L. Virga, Gert Winkler, and John L. Prince, "Accurate frequency domain modeling of LTCC solid-gridded plane structures," *Microwave and Optical Technology Letters*, vol. 36, no. 5, pp. 367-371, 2003.
26. D. Beauvarlet and K. L. Virga, "Measured characteristics of 30-GHz indoor propagation channels with low-profile directional antennas," *IEEE Antennas and Wireless Propagation Letters*, vol. 1, pp. 87-90, 2002.
27. K. L. Virga and M. L. Taylor, "Transmit patterns for linear active arrays with peak amplitude and radiated effective voltage constraints," *IEEE Transactions Antennas and Propagation*, vol. 49, no. 5, pp. 732-739, May 2001.
28. M. Elzinga, K. L. Virga, and J. L. Prince, "Improved global rational approximation macromodeling algorithm for networks characterized by frequency-sampled data," *IEEE Transactions on Microwave Theory and Techniques*, vol. 48, no. 9, pp. 1461-1468, September 2000.
29. M. Elzinga, K. L. Virga, L. Zhao, and J. L. Prince, "Pole-residue formulation for transient simulation of high-frequency interconnects using householder-LS curve-fitting techniques," *IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part B: Advanced Packaging*, vol. 23, no. 2, pp. 142-147, May 2000.
30. C. G. Green, J. M. Seligman, J. L. Prince, and K. L. Virga, "Electrical characterization of integrated circuit molding compound," *IEEE Transactions on Components, Packaging, and Manufacturing Tech., Part B: Advanced Packaging*, vol. 22, no. 3, pp. 337-342, August 1999.
31. K. L. Virga and Y. Rahmat-Samii, "Efficient wideband evaluation of mobile communications antennas using  $[Z]$  or  $[Y]$  matrix interpolation with the method of moments," *IEEE Transactions Antennas and Propagation*, vol. 47, no. 1, pp. 65-76, January 1999.
32. H. Yue, K. L. Virga, and J. L. Prince, "Dielectric constant and loss tangent measurement using a stripline fixture," *IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part B: Advanced Packaging*, vol. 21, no. 4, pp. 441-446, November 1998.

33. K. L. Virga and Y. Rahmat-Samii, "Low-profile enhanced-bandwidth PIFA antennas for wireless communications packaging," *IEEE Transactions on Microwave Theory and Techniques*, vol. 45, no. 10, pp. 1879-1888, October 1997.
34. K. L. Virga and Y. Rahmat-Samii, "RCS characterization of a finite ground plane with perforated apertures: simulations and measurements," *IEEE Transactions Antennas and Propagation*, vol. 42, no. 11, pp. 1491-1501, November 1994.
35. K. L. Virga, A. F. Seaton, and L. R. Walker, "New waveguide switched patch phase shifter," *Applied Microwave and Wireless Magazine*, pp. 109-116, 1990. J. F. White Publications. Winchester, MA.

## **SCHOLARLY PRESENTATIONS**

### **Symposia/Conferences**

1. Prabhat Baniya, Aimeric Bisognin, Kathleen L. Melde, Cyril Luxey, "Impact of gain and polarization in the design of reconfigurable chip-to-chip antennas," 2016 10th European Conference on Antennas and Propagation (EuCAP), 4 pages, April 2016
2. Andrea Vilarasau, James Ringle, Asif Shahidullah, Michaelina Sorrell-strong, Luke Zurmehly, Michael Marcellin, and Kathleen Melde, "A Low Cost Open-Air Tracking System Based on an Empirical Path-Loss Model," *Proceedings of the International Telemetry Conference*, Las Vegas, NV, October, 2015, 7 pages.
3. Arghya Sain, Ian P. Armstrong, Marcos A. Vargas and Kathleen L. Melde, "Introducing embedded patterned layers for improved broadband performance of high density transmission line routing," *2015 Radio Science Meeting (Joint with IEEE International Symposium on Antennas and Propagation)* 2015 USNC-URSI, page 229, July 2015.
4. He Zhou, Sungjong Yoo, Kathleen Melde, and Janet Roveda, "HyNoC: An All-Direction Millimetre-Wave Wireless and Wired Reconfigurable Communication Fabric Design for Network-on-Chip," *Design Automation Conference*, 4 pages, June 2014.
5. (Invited Tutorial) Kathleen L. Melde, Sungjong Yoo and Ho-Hsin Yeh, "On-chip antenna arrays for multi-chip RF data transmission," *2015 9th European Conference on Antennas and Propagation, EuCAP 2015. Institute of Electrical and Electronics Engineers Inc.*, 2015. 7229000, April 2015, pp. 1-4.
6. M. A. Vargas and K. L. Melde, "Impact of geometry of embedded pattern layer on signal integrity of coupled microstrips," *IEEE 23rd Conference on Electrical Performance of Electronic Packaging and Systems (EPEPS)*, pp. 121-124, October 2014.
7. B. Noriega, A. Kundu, Connor O'Brien, Corey Speros, Dawei Ju, Michael Marcellin, and Kathleen Melde, "Time Difference of Arrival for Small Animal Tracking System," *Proceedings of the International Telemetry Conference*, San Diego, NV 2014, 7 pages.



8. Sungjong Yoo, Kathleen L. Melde, "Reconfigurable on-chip antenna arrays for multi-chip RF data transmission," *Proceedings of 2014 USNC-URSI Radio Science Meeting (Joint with AP-S Symposium)*, USNC-URSI, June 2014.
9. Ina Kundu; Sean Rice; Kevin Klug; Hao Chen; Elizabeth Marquez; Yizhou Zhong; Michael Marcellin; Kathleen Melde "Collar Integrated Small GPS Tracker," *Proceedings of the International Telemetry Conference*, Las Vegas, NV 2013, 7 pages.
10. S. Yoo and K. L. Melde, "Light Trapping Characterization of Branched Nanowire Structures for Photovoltaics," *Optics for Solar Energy in Renewable Energy and the Environment Conference, from Optical Society of America*, Nov. 2013
11. M. Vargas and K. L. Melde, "Insertion loss characterization of tightly spaced interconnects with an embedded patterned layer," *22nd Conference on Electrical Performance of Electronic Packaging and Systems (EPEPS)*, pp. 21-24, San Jose, CA October 2013.
12. S. Yoo, C. Lundgren, and K. L. Melde, "Computational Design of Photovoltaics with Silicon Nanowire," *2013 URSI North America Radio Science Meeting*, Orlando FL, July, 2013.
13. Priyank Gupta, Ali Akoglu, Kathleen Melde, Janet Roveda, "FPGA based single cycle, reconfigurable router for NoC applications," *2013 IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2013, 2428 – 2431
14. H-H. Yeh, K. L. Melde, and W. R. Eisenstadt, "Design and Packaging of Small 60 GHz Antenna Array for Multi-Chip Communication," *IEEE International Conference on Wireless Information Technology Systems*, November 2012, Page 1-4, 2012.
15. Jared R. Fowler; Jon M. Austin; Kathy T. Estrada; Martin Velazquez; Robyn Mohr; Ruben Sanchez; Kathleen Melde; Michael Marcellin, "Small wearable antenna for animal tracking," *Proceedings of the International Telemetering Conference*. 2012;48.
16. Sain and K. L. Melde, "Characterizing the Impact of Conductor Surface Roughness on CB-CPW Behavior via Reduced Computational Complexity," *IEEE 21th Conference on Electrical Performance of Electronic Packaging and Systems (EPEPS)*, pp. 260-263, October, 2012,
17. H.-S. Yeh, and K. L. Melde, "60 GHz Multi-Antenna Design in Multi-Core System," *2012 IEEE Symposium on Antennas and Propagation* Chicago, Il, July 2012, pages 1-2 DOI, 10.1109/APS.2012.6348520
18. A. Sain, and K. L. Melde, "Surface Roughness Modeling for CB-CPWs," *2012 IEEE Symposium on Antennas and Propagation* Chicago, Il, July 2012, pages 1-2. DOI, 10.1109/APS.2012.6348793
19. H.-S. Yeh, N. Hiramatsu, and K. L. Melde, "60 GHz AMC antennas in multi-processor multi-chip data transmission," *2012 IEEE International Workshop on Antenna Technology (iWAT)*, pp. 173-176, March 2012
20. H.-S. Yeh, N. Hiramatsu, and K. L. Melde, "Wireless RF Data Communications Using 60 GHz Antennas in Multi-Core Systems," *IEEE 20th Conference on Electrical Performance of Electronic Packaging and Systems (EPEPS)*, 2011, pp. 31-34.

21. Q. Li, K. L. Melde, Gong-Jong Yeh, Hui Wu, Yaochao Yang, "3D Via Modeling Simplification on Multilayer Mid-planes," *IEEE 20th Conference on Electrical Performance of Electronic Packaging and Systems (EPEPS)*, 2011, pp. 207-210.
22. William R. Eisenstadt, Jaeseok Kim, Byul Hur, Hyun-Jin Park and Kathleen Melde, "Software Control Methods for Antenna Matching Circuits for Dynamic Spectrum Allocation," *Proc. 2011 International Symposium on Antennas and Propagation and USNC-URSI/National Radio Science Meeting*, Spokane WA, July 2011
23. N. Hiramatsu and K. L. Melde, "Folded Monopole Antenna over an Artificial Magnetic Conductor for Chip-to-Chip Communications," *Proc. 2011 International Symposium on Antennas and Propagation and USNC-URSI/National Radio Science Meeting*, Spokane WA, July 2011
24. L. F. Wells and K. L. Melde, "Physically-consistent broadband material models for transmission lines on FR-4," *IEEE 19th Conference on Electrical Performance of Electronic Packaging and Systems (EPEPS)*, 2010, pp. 145 - 148
25. Z. Zhou and K. L. Melde, "The impact of Debye relaxation spectrum on the propagation characteristics of electromagnetic waves in low loss printed circuit materials," *Proc. 2010 International Symposium on Antennas and Propagation and USNC-URSI/National Radio Science Meeting*, Toronto, CA, 1 page, July 2010.
26. **Invited Paper:** H. J. Park, K. L. Melde and W. R. Eisenstadt, "Design of compact adaptive RF matching circuits using Square split ring resonators," *Proc. 2010 International Symposium on Antennas and Propagation and USNC-URSI/National Radio Science Meeting*, Toronto, CA, 4 pages, July 2010.
27. **Invited Tutorial** K. L. Melde and T. Burcham, "Challenges in high frequency measurement and simulation comparisons," *IEEE 18th Conference on Electrical Performance of Electronic Packaging and Systems*, 2009, Portland OR.
28. L. Wells, A. Deutsch, Z. Zhou, and K. L. Melde, "The effects of time windowing on the accuracy of the short-pulse propagation technique," *18<sup>th</sup> Topical Meeting on the Electrical Performance of Electronic Packaging and Systems*, Portland, OR, 2009, pp. 57-60.
29. Z. Zhou, A. Deutsch, K. Melde, G. Katopis, and J. Morsey, "An analysis on measurement sensitivity of short-pulse propagation technique using a virtual test bench," in *Proc. 17<sup>th</sup> Topical Meeting on Electrical Performance of Electronic Packaging*, San Jose, CA, pp. 213-216, October 2008.
30. Z. Zhou and K. Melde, "A simple method of generating causal broadband RLCG Models for CPW transmission lines with surface roughness," in *Proc. 17<sup>th</sup> Topical Meeting on Electrical Performance of Electronic Packaging*, San Jose, CA, pp. 227-230, October 2008.
31. Q. Li, C. Loychik, K. Melde, "Broadband permittivity extraction of dielectric materials based upon CPW lines," presented at the *Proc. 2008 International Symposium on Antennas and Propagation and USNC-URSI/National Radio Science Meeting*, San Diego, CA, 1 page, July 2008.

32. B. Fankem and K. Melde, "Nested planar inverted F antennas for GPS and global communications," presented at the *Proc. 2008 International Symposium on Antennas and Propagation and USNC-URSI/National Radio Science Meeting*, San Diego, CA, 1 page, July 2008.
33. K. L. Melde and S. A. Long, "The impact of technical leadership, outstanding teaching, and active mentoring of Professor Donald G. Dudley," in *Proc. 2008 International Symposium on Antennas and Propagation and USNC-URSI/National Radio Science Meeting*, San Diego, CA, pp. 1-4, July 2008.
34. J. Kim, H. Yeh, K. L. Melde, and W.R.E. Eisenstadt, "Automatic matching control system for loadboard test," presented at the *IEEE Wireless and Test Workshop*, San Diego, CA, April 2008.
35. Z. Zhou and K. Melde, "Physically consistent broadband material model generation for microstrip transmission lines," in *Proc. 16<sup>th</sup> Topical Meeting on Electrical Performance of Electronic Packaging*, Atlanta, GA, pp. 175-178, October 2007.
36. Qian Li and Kathleen L. Melde, "Broadband on-wafer calibrations comparison for accuracy and repeatability on co-planar waveguide structures," in *Proc. 16<sup>th</sup> Topical Meeting on Electrical Performance of Electronic Packaging*, Atlanta, GA, pp. 315-315, October 2007.
37. B. Fankem, K. Melde, and Z. Zhou, "Frequency reconfigurable planar inverted F antenna (PIFA) with software-defined match control (SDMC)," *2007 Proc. International Symposium on Antennas and Propagation and USNC-URSI/National Radio Science Meeting*, Honolulu, HI, June 2007.
38. K. Melde and W. R. Eisenstadt, "Automatic match control for cognitive RF front ends," presented at the *2007 Gomatic Conference*, Lake Buena Vista, FL, March 2007.
39. Zhen Zhou and Kathleen L. Melde, "Packaging considerations for a compact reconfigurable RF tuner with a broadband tuning range," in *Proc. 15<sup>th</sup> Topical Meeting on Electrical Performance of Electronic Packaging*, Scottsdale, AZ, pp. 237-241, October 2006.
40. Natalia Gaviria, Kathleen L. Melde, Jeffrey J. Rodriguez, and Kevin McNeill, "Development of array distributions for smart antennas with low sidelobes, interference-nulling, and effective radiated voltage constraints," in *Proc. 2006 IEEE International Symposium on Antennas and Propagation*, pp. 3323-3326, Albuquerque, NM, July 2006.
41. Amy Hillegonds, K. Melde, and J. Prince, "Ensuring passivity and automatic order selection for global rational approximation macromodeling," in *Proc. 56<sup>th</sup> Electronics Components and Technology Conference*, pp. 1683-1686, San Diego, CA, May 2006.
42. Lin Zhu and Kathleen L. Melde, "Characterization of microstrip interconnects over gridded ground planes," in *Proc. 14<sup>th</sup> Topical Meeting on Electrical Performance of Electronic Packaging*, Austin, TX, pp. 75-78, October 2005.
43. Guang Chen, Lin Zhu, and Kathleen L. Melde, "Extraction of frequency dependent *rlcg* parameters of the packaging interconnects on low-loss substrates from frequency domain

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63. C. L. Hammond and K. L. Virga, "Network Analyzer Calibration Methods for High-Density Packaging Characterization and Validation of Simulation Models," *Proceedings of the 50th Electronics Components and Technology Conference*, pp. 519-525, June 2000.
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## **GRANTS AND CONTRACTS**

### **Federal Grants Funded:**

Title: "High Density Broadband Signal Interconnects with Embedded Patterned Substrate Layers"  
Sponsor: National Science Foundation

Title: "RF Circuit Design Engineered Patterned Substrate Layers"  
Sponsor: Army Research Office

Title: "Energy Aware Millimeter Wireless Data Communications in Multicore Systems"  
Sponsor: National Science Foundation

Title: "Ultra Wideband Frequency Characterization of Materials for Flexible Microwave Circuits"  
Sponsor: Army Research Office

Title: "Radio Frequency Characterization of Thin Materials for 3D Circuit Design Applications"  
Sponsor: National Science Foundation (Connection One Supplement)

Title: "Adaptive Conformal Arrays for Next-Generation Wireless Communications"  
Sponsor: National Science Foundation

Title: "Development of Smart Antennas for Phased Arrays and Adaptive Wireless Networks"  
Sponsor: Office of Naval Research,

Title: "Cooperative Research- Electromagnetic Interactions between Embedded Passive Components and Interconnects in Mixed-Signal Systems"  
Sponsor: National Science Foundation

Title: "Integrated Design of Next-Generation Broadband Mobile Networks: Antennas, Codes, and Performance Protocols:  
Sponsor: National Science Foundation, Wireless Networking Program



Title: "Optimal Beamformer Weights for a Circular Arc Array of Directional Elements"  
Sponsor: Office of Naval Research

Title: "Characterization of High-Density Interconnect Structures for High Speed Digital and Wireless Communications Applications"  
Sponsor: National Science Foundation (

Title: "Instrumentation for the Development of Integrated Multi-Function Antennas for Phased Array Applications"  
Sponsor: Office of Naval Research

### **State Grants Funded**

Title: "Nanostructured Thin Films for Photovoltaic Energy Conversion"  
Sponsor: Science Foundation Arizona

Title: "Novel Porous Si-based Photo Voltaic Device"  
Sponsor: Arizona Research Institute for Solar Energy

Title: "Development of Genetic Algorithm Optimizer for Conformal Array Antenna Design"  
Sponsor: University of Arizona, Foundation

### **Industry Grants Funded**

Title: "Broadband Electrical Characterization of Next Generation Packaging Materials and Interconnects: Measurements and Modeling"  
Sponsor: Semiconductor Research Corporation

Title: "Automatic RF Impedance Correction Circuits for SoC RF/Mixed-Signal ATE Test"  
Sponsor: Semiconductor Research Corporation

Title: "Software-Defined and Cognitive Radio:  
Sponsor: Connection One\*

Title: "Robust Broadband Material Characterization for Complex Packaging Materials to 50GHz"  
Sponsor: Semiconductor Research Corporation

Title: "Automatic RF Match Control Circuit for Reconfigurable Wireless Devices"  
Sponsor: Connection One\*

Title: "Automatic RF Match Control Circuit for Broadband Wireless Devices"  
Sponsor: Connection One\*

Title: "SRC-VLSI and Interconnection Research"  
Sponsor: Semiconductor Research Corporation

Title: "SRC-VLSI and Interconnection Research"  
Sponsor: Semiconductor Research Corporation

Title: "SRC-VLSI Packaging and Interconnection Research"  
Sponsor: Semiconductor Research Corporation

Title: "SRC-VLSI Packaging and Interconnection Research"

Sponsor: Semiconductor Research Corporation

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Most of the funds come from industry. More information can be found at [www.connectionone.org](http://www.connectionone.org).

### **Private Foundation Grant Funded**

Title: "Bio-Inspired Electro-Optic Structures for Silicon Photovoltaics"

Sponsor: Research Corporation for Scientific Advancement

### **Major Financial Gifts**

Texas Instruments

Semiconductor Research Corporation

Sun Microsystems

IBM Corporation

## **MS and PhD ADVISING**

### **M. S. Theses Directed**

1. Ian Armstrong, May 2015, "Improving RF Circuit Performance using an Embedded Patterned Layer"
2. Marcos Vargas, Dec. 2014 "Passive Patterning Techniques for Broadband Signal Integrity of Tightly Spaced, Single-Ended Microstrips"
3. Chase Rixie, May 2012, Topic: "Calibration Comparison of Differential Transmission Line Structures"
4. Sung You, August 2011, Topic: "Wearable Antenna for Wildlife and Environmental Monitoring"
5. Hiramatsu Nobuki, May 2011, Topic: "Analysis and Design of Low-Profile Antennas over an Artificial Magnetic Conductor for Inter-Core Communications"
6. Hyun-Jin Park, August 2010, "Complementary Split Ring Resonators for Automatic Match Control Circuits"
7. Ms. Beatrice Fankem, August 2008, "Nested Planar Inverted F Antenna for GPS and Global Communications," employed at Texas Instruments in Dallas TX
8. Mr. Ho-Hsin Yeh, May 2008, "Low Loss Varactor-Based Reconfigurable Impedance Matching Network for Open-Loop Controlled Tuning Radio," continuing for Ph.D.
9. Ms. Amy Hillegonds, May 2006, "Guaranteed Passivity and Other Improvements to Pole-Residue Extraction Macromodeling"
10. Ms. Zhen Zhou, M.S., May 2006, "Modeling and Measurement on Automatic Match Control Network for Broadband Wireless Devices," continuing for Ph.D. under my supervision.
11. Mr. Richard Whatley, M.S., August 2004, "Automatic Reconfigurable RF Matching Circuit for Broadband Wireless Devices," worked for Jet Propulsion Laboratory
12. Mr. Kyle Scott Smith, M.S., August 2004, "An Examination of the Constrained Least Squares Optimization Method for Active Antenna Arrays and Circular Apertures," employed at Jet Propulsion Laboratory

13. Mr. Aycaan Erentok, M.S., December 2003, "The Optimization Methods for the Pattern Synthesis of Circular Arc Arrays Elements Using Directional Elements," continued for Ph.D. directed by R. W. Ziolkowski
14. Mr. Arvin Iskander, M. S. December 2003, "A Predetermined Initial State Eprom With Lockout To Prevent Multiple Programming In 0.5- $\mu\text{m}$  CMOS," work at National Semiconductor, Tucson
15. Ms. Cynthia Hammond, M S., May 2003, "Surface Current Visualization of Dual Exponentially Tapered Slot Antenna"
16. Mr. Didier Beauvarlet, M. S., December 2001, "Measurements and Statistics of Indoor Propagation Characteristics for Wireless Networking Applications"
17. Mr. Tamir Moran, M S., December 1999, "Emitted Radiation and Signal Integrity in High Density Packaging Structures"
18. Mr. Marc C. Greenberg, M.S., May 1999, "Characterization of the Dual Exponentially Tapered Slot Antenna for Communications Applications"
19. Mr. Mark Taylor, M.S., May 1999, "Comparison of Antenna Transmit Distributions for Active Arrays Under Peak Amplitude and Effective Radiated Voltage Constraints"
20. Mr. Heping Yue, M.S., May 1999, "S-Parameter Based Dielectric Measurement with a Stripline or Microstrip Transmission Line," (co-advised with J. L. Prince)

### **Dissertations Directed**

1. Mr. Arghya Sain, Ph.D., December 2015, "A Study On The Effects Of Ground Via Fences, Embedded Patterned Layer, And Metal Surface Roughness On Conductor Backed Coplanar Waveguide"
2. Mr. Sungjong Yoo, Ph. D. August 2014, Title: "Electromagnetic Modeling of Multi-Dimensional Scale Problems: Nanoscale Solar Materials, RF Electronics, Wearable Antennas," employed at Molex after graduation
3. Mr. Ho-Hsin Yeh, Ph.D. January 2013, Topic Development of 60 GHz Antenna and Wireless Interconnect inside MultiChip Module for Parallelized Processor System," employed at Qualcomm after graduation
4. Ms. Qian Li, Ph.D. December 2011. Topic: "Broadband Material Models for Flexible Co-Planar Transmission Lines," employed at Qualcomm after graduation
5. Ms. Zhen Zhou, Ph.D., August 2009, "Comprehensive Physically-Consistent Material Models for Microstrip Transmission Lines," employed at Intel Research Laboratories after graduation
6. Mr. Donald Bruyere, Ph. D. May 2008, "Enhanced Detection of Ground Targets by Airborne Radar" (Co-Advisor with Dr. Nathan Goodman). employed at Raytheon Corporation after graduation
7. Mr. Guang Chen, Ph. D. December 2006, "Modeling and Characterization of Plane Pair Structures in Power Distribution Systems," employed at Altera Corporation after graduation
8. Ms. Lin Zhu, Ph.D., December 2005, Dissertation Title: "Development of Modeling Simulation, and Measurement Methodologies for Signal Integrity Analysis of High-Speed Packaging Interconnects," employed at Cisco Systems after graduation