

Robert N. Dean, Jr.

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Electrical and Computer Engineering Department
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EDUCATION:

- **Ph.D. ECE:** Auburn University: Auburn, AL, 2006
Areas of concentration: Electronics and Controls
Dissertation topic: A Technique for the Measurement of Relative Velocity Between Parallel Plate Electrodes in Micromachined Structures
- **MS in EE:** Auburn University, 1991
- **BEE:** Auburn University, 1988
- **Additional Education:**
Heat Transfer in Electronic Packaging Short Course, 2004
Chip Scale Packaging Technology Short Course, 2001
Flip Chip Technology Short Course, 2000
Xilinx Programmable Logic Training Course, 1995

PROFESSIONAL EXPERIENCE:

- 2011 – pres. **Associate Professor, Dept. of Electrical and Computer Engineering, Auburn University.**
Teaches graduate and undergraduate courses in electronics, MEMS and sensors. Conducts research in MEMS and advanced packaging. Recent projects include: advanced MEMS gyroscope development, instrumentation, electronic systems for/in harsh environments, multi-chip module development, ultra-thin electronics and Si/SiC/GaN power device testing.
- 2007 – 2011. **Assistant Professor, Dept. of Electrical and Computer Engineering, Auburn University.**
Teaches graduate and undergraduate courses in electronics, MEMS and sensors. Conducts research in MEMS and advanced packaging. Recent projects include: advanced MEMS gyroscope development, instrumentation, electronic systems for/in harsh environments, multi-chip module development, ultra-thin electronics and Si/SiC/GaN power device testing.
- 2006 – 2007 **Assistant Research Professor, Dept. of Electrical and Computer Engineering, Auburn University.**
Conducted microsystems research and manages microsystems research. Developed and tested MEMS devices, packaging and systems, including support electronics and software. Develops manufacturing processes for MEMS devices and packaging. Designed custom instrumentation (analog, digital, mixed-signal, microcontroller, PC interfacing and software). Projects included: advanced controllers for MEMS actuators; the characterization and mitigation of the deleterious effects of high power acoustic noise on MEMS gyroscopes; and the development of novel interface electronics for electrostatic MEMS devices.
- 1999 – 2006 **Research Associate IV, Center for Advanced Vehicle Electronics at Auburn University**
Conducted microsystems research and manages microsystems research activities and

personnel at the Center. Developed and tested MEMS devices, packaging and systems, including support electronics and software. Developed manufacturing processes for MEMS devices and packaging. Designed custom instrumentation. Projects included: a novel technique for measuring the relative velocity between micromachined structures; MEMS actuators; MEMS mechanical low-pass filters for vibration isolation; microfluidic devices for thermal management; hermetic packaging for nano-devices; silicon MEMS devices; advanced packaging for COTS MEMS devices; and micromachining process development for non-silicon materials, including for biomedical applications.

- 1997 - 1999 **RF CMOS Designer, SY Technology, Inc.,** Huntsville, AL
Designed electronics and MEMS devices for various DOD and commercial projects. Also managed several DOD projects. Projects included: 3D helical micromachined antenna structures for submillimeter sensing, process development for a 325 element MEMS mirror for adaptive optics, low-stress packaging for large MEMS devices, multiple-output power supply design for various MEMS actuators, design of electronics for interfacing to MEMS devices, hardware and software interfacing of custom electronics to PC's, design of a CMOS imaging array test chip, design of a precision programmable dual current source, design of two PCI based DSP boards for video applications, and design of a multi-processor Hartmann wavefront sensor DSP board.
- 1992-1997 **Electronics Designer, Dynetics, Inc.,** Huntsville, AL
Designed electronics for various DOD and commercial projects. Projects included: a video identification and processing system, a VME baseband radar signal pre-processor for a 2-D optical correlator, high-speed A/D and D/A boards, PLL frequency synthesizer design, DSP boards, a hand-held orientation input device for industrial robots, audio scramblers and descramblers, custom test equipment, and interfacing hardware to PC's.
- 1991-1992 **Systems Analyst, Dynetics, Inc.,** Fort Walton Beach, FL
Performed hardware-in-the-loop testing and analysis of the radar receiver for the AMRAAM missile program at Eglin AFB. Testing included pre-flight, post-flight and ECM/ECCM.
- 1989-1991 **Research Assistant, Center for the Commercial Development of Space at Auburn University**
Performed research in micromachined sensors and associated electronics for the US Space Station project. Designed, simulated, prototyped, and tested a full-custom CMOS integrated circuit for interfacing with capacitive transducers.

JOURNAL PUBLICATIONS: PUBLISHED

- T.A. Baginski, R.N. Dean and E.J. Wild, "Micromachined planar triggered spark gap switch," IEEE Trans. on Components, Packaging and Manufacturing Technology, Vol. 1, No. 9, Sept. 2011, pp. 1480-1485.
- R.N. Dean, A. Anderson, S.J. Reeves, G. Flowers and A.S. Hodel, "Electrical noise in MEMS capacitive elements resulting from environmental mechanical vibrations in harsh environments," IEEE Trans. on Industrial Electronics, Vol. 58, No. 7, July 2011, pp. 2697-2705.
- R.N. Dean, S. Castro, G.T. Flowers, G. Roth, A. Ahmed, A.S. Hodel, B.E. Grantham, D. Bittle and J. Brunsch, "A characterization of the performance of MEMS gyroscopes in acoustically harsh environments," IEEE Trans. on Industrial Electronics, Vol. 58, No. 7, July 2011, pp. 2591-2596.
- R.N. Dean, S. Surgnier, J. Pack, N. Sanders, P. Reiner, C.W. Long and R. Fenner, "Porous ceramic packaging for a MEMS humidity sensor requiring environmental access," IEEE Trans. on Electronics Packaging Manufacturing, Vol. 1, No. 3, March 2011, pp. 428-435.

- S.J. Kim, R. Dean, R.L. Jackson and G.T. Flowers, “An investigation of the damping effects of various gas environments on a vibratory MEMS devices,” *Tribology International*, Vol. 44, 2011, pp. 125-133.
- M.J. Bozack, E.R. Crandall, C.L. Rodekohr, R.N. Dean, G.T. Flowers and J.C. Suhling, “High lateral resolution auger electron spectroscopic (AES) measurements for Sn whiskers on brass,” *IEEE Trans. on Electronics Packaging Manufacturing*, Vol. 33, No. 3, July 2010, pp. 198-204.
- D.K. Harris, A. Palkar, G. Wonacott, R. Dean and F. Simionescu, “An experimental investigation in the performance of water-filled silicon micro-heat pipe arrays,” *ASME J. of Electronic Packaging*, Vol. 132, Is. 2, June 2010, pp. 021005-1 – 021005-8.
- S.J. Kim, R. Dean, G. Flowers and C. Chen, “Active vibration control and isolation for micromachined devices,” *ASME J. of Mechanical Design*, Vol. 131, Sept. 2009, pp. 091002-1 – 091002-6.
- R.N. Dean and A. Luque, “Applications of microelectromechanical systems in industrial processes and services,” *IEEE Trans. on Industrial Electronics*, Vol. 56, No. 4, April 2009, pp. 913-925.
- Y.-C. Chen, Y. Tzeng, A.-J. Cheng, R. Dean and M. Park, “Inkjet printing of nanodiamond suspensions in ethylene glycol for CVD growth of patterned diamond structures and practical applications,” *J. Diamond and Related Materials*, Vol. 18, Is. 2-3, Feb.-March 2009, pp. 146-150.
- M. Black, H. Boyett, N. Sanders, J. Weller, R. Dean, R.W. Johnson and M. Kranz, “Packaging MEMS die on E-glass substrates,” *J. Microelectronics and Electronic Packaging*, Vol. 5, No. 3, 2008, pp. 122-125.
- R. Dean, J. Weller, M. Bozack, C. Rodekohr, B. Farrell, L. Jauniskis, J. Ting, D. Edell and J. Hetke, “Realization of ultra fine pitch traces on LCP substrates,” *IEEE Trans. on Components and Packaging Technologies*, Vol. 31, No. 2, June 2008, pp. 315-321.
- J.E. Rogers, R. Ramadoss, P.M. Ozmun, and R.N. Dean, “A microelectromechanical accelerometer fabricated using printed circuit processing techniques” *Journal of Micromechanics and Microengineering*, Vol. 18, 2008 (7pp).
- R. Dean, G. Flowers, R. Horvath, N. Sanders, S. Hodel, J. Hung and T. Roppel, “Characterization and experimental verification of the nonlinear distortion in a technique for measuring relative velocity between micromachined structures in normal translational motion,” *IEEE Sensors Journal*, Vol. 7, No. 4, April 2007, pp. 496-501.
- R. Dean, J. Weller, M. Bozack, B. Farrell, L. Jauniskis, J. Ting, D. Edell, and J. Hetke, “Micromachined LCP connectors for packaging MEMS devices in biological environments,” *J. Microelectronics and Electronic Packaging*, Vol. 4, No. 1, 2007, pp. 17-22.
- R. Dean, G. Flowers, N. Sanders, R. Horvath, M. Kranz and M. Whitley, “Micromachined vibration isolation filters to enhance packaging for mechanically harsh environments,” *J. Microelectronics and Electronic Packaging*, Vol. 2, No. 4, 2005, pp. 223-231.
- R. Dean, P. Nordine and C. Christodoulou, “A novel method for fabricating 3-D helical THz antennas directly on semiconductor substrates,” *Microwave and Optical Technology Letters*, January 20, 2000, pp. 106-111.

JOURNAL PUBLICATIONS: SUBMITTED

- R.N. Dean, D.K. Harris, A.Y. Palkar and G.D. Wonacott, “Liquid metal filled micro heat pipes for thermal management of solid state devices,” *IEEE Trans. on Industrial Electronics*, manuscript accepted for publication 8/12/11.

- T.A. Baginski, R.N. Dean and E.N Hurwitz, “A high power one-shot switch implemented with an avalanche diode and MOSFET,” *Advances in Power Electronics*, manuscript submitted 6/13/11.
- R.N. Dean, A. Rane, M. Baginski, J. Richard, Z. Hartzog and D.J. Elton, "A capacitive fringing field sensor design for moisture measurement based on printed circuit board technology," *IEEE Trans. on Instrumentation and Measurement*, manuscript accepted for publication 9/16/11.
- C.G. Wilson and R.N. Dean, “A computationally concise microcontroller based sliding mode controller for buck converters,” *IEEE Trans. of Industrial Informatics*, manuscript submitted 11/30/11.

PUBLISHED BOOK CHAPTERS:

- R. Ramadoss, R. Dean and X. Xiong, “MEMS Testing”, Chapter 13 in L. T. Wang, C. Stroud, and N. Touba (Eds.), *System on Chip Test Architectures: Nanometer Design for Testability*, Elsevier, Burlington, MA, First Edition, 2008, pp. 591-652.

PATENTS:

- “Fringing Field Sensor in Printed Circuit Board Technology;” Robert Neal Dean, Jr.; U.S. provisional patent number: 61/258,915; U.S. provisional patent filed November 6, 2009.
- “Synthetic Voltage Division to Extend the Stable Operating Range of Parallel Plate and Gap-Closing Actuators;” Robert Neal Dean, Jr. and John Y. Hung; U.S. provisional patent number: 61/229,192; U.S. provisional patent filed July 28, 2009.
- “A Micromachined Device Utilizing Electrostatic Comb Drives to Filter Mechanical Vibrations;” Robert Neal Dean, Jr. and George Timothy Flowers; U.S. patent number: 7,355,318, issued April 8, 2008.
- “Three Dimensional Micromachined Electromagnetic Device and Associated Methods;” Rodney L. Clark and Robert N. Dean, Jr.; U.S. patent number: 6,271,802; issued August 7, 2001.

CONFERENCES WITH PUBLISHED PROCEEDINGS:

- E. Adanur, C. Ellis, R.N. Dean, E. Tuck and D. Strembicke, “A novel plating technique for realizing copper filled TSVs in silicon wafers,” *Proc. of the ASME 2011 Int. Mechanical Engineering Congress & Expo.*, Denver, CO, Nov. 11-17, 2011, (6pp).
- R.N. Dean, C. Wilson, J.P Brunsch and J.Y. Hung, “A synthetic voltage division controller to extend the stable operating range of parallel plate actuators,” *Proc. of the 2011 IEEE Multi-conference on Systems and Control*, Denver, CO, Sept. 28-30, 2011, pp. 1068-1074.
- R.N. Dean Jr., N.H. Burch, M.N. Black, A. Beal and G.T. Flowers, “Microfibrous metallic cloth for acoustic isolation of a MEMS gyroscope,” *Proc. of the SPIE Smart Structures/NDE Conference*, San Diego, CA, March 6-10, 2011, (10pp).
- C. Stevens, R. Dean, S. Lawrence, L. Levine, “The use of metallographic and SEM analysis for characterization of sidewall surfaces in MEMS devices with DRIE processing,” *Proc. of the 43rd Int. Symposium on Microelectronics (IMAPS 2010)*, Raleigh, NC, Oct. 31 – Nov. 4, 2010, pp. 703-706.
- C.G. Wilson, R. Dean, G.T. Flowers and J.Y. Hung, “A technique for embedding SPICE in a Simulink environment for MEMS Simulation,” *Proc. of the 2010 ASME International Mechanical Engineering Congress and Exposition (IMECE 2010)*, Vancouver, BC, Canada, Nov 12-18, 2010, (6pp).

- E.R. Crandall, G.T. Flowers, R.N. Dean and M.J. Bozack, "Oxidation-induced growth of Sn whiskers in a pure oxygen gas environment," Proc. of the 56th IEEE Holm Conference on Electrical Contacts, Charleston, SC, Oct. 4-7, 2010, (5pp).
- E.R. Crandall, G.T. Flowers, R.N. Dean and M.J. Bozack, "Growth of Sn whiskers on semiconductor and insulator surfaces," Proc. of the 56th IEEE Holm Conference on Electrical Contacts, Charleston, SC, Oct. 4-7, 2010, (6pp).
- R.N. Dean, A. Rane, M. Baginski, Z. Hartzog and D.J. Elton, "Capacitive fringing field sensors in printed circuit board technology," Proc. of the 2010 IEEE International Instrumentation and Measurement Technology Conference, Austin, TX, May 3-6, 2010, pp. 970-974.
- R.N. Dean and A. Rane, "An improved capacitance measurement technique based of RC phase delay," Proc. of the 2010 IEEE International Instrumentation and Measurement Technology Conference, Austin, TX, May 3-6, 2010, pp. 367-370.
- N.H. Burch, M.N. Black, R.N. Dean, G.T. Flowers, "Microfibrous metallic cloth for damping enhancement in printed circuit boards," Proc. of the SPIE Smart Structures/NDE Conference, San Diego, CA, March 7-11, 2010, (6pp).
- L. Del Castillo, A. Moussessian, R. McPherson, T. Zhang, Z. Hou, R. Dean and R.W. Johnson, "Flexible electronic assemblies for space applications," Proc of the 2010 IEEE Aerospace Conference, Big Sky, MO, March 6-13, 2010, (6pp).
- C. Stevens, R. Dean and L. Levine, "Analysis of MEMS structure sidewalls for carbon and fluorinated residue with SEM, EDS and TSA," Proc. of the 42nd Int. Symposium on Microelectronics (IMAPS 2009), San Jose, CA, Nov. 1-5, 2009, pp. 181-184.
- N. Hyatt, M. Black, R. Dean, G. Flowers, B. Grantham and R. Garner, "Damping enhancement in printed circuit boards with potting materials or microfibrous metallic cloth," Proc. of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, San Diego, California, Aug. 30 – Sept. 2, 2009, (6pp).
- C.L. Rodekahr, G.T. Flowers, M.J. Bozack, R.N. Dean, R.L. Jackson and P. Lall, "Influence of quantifiable external stresses on tin whisker growth," Proc. of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, San Diego, California, Aug. 30 – Sept. 2, 2009, (6pp).
- S.J. Kim, R. Dean, R. Jackson and G. Flowers, "An investigation of the damping effects of various gas environments on a vibratory MEMS device," Proc. of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, San Diego, California, Aug. 30 – Sept. 2, 2009, (7pp).
- R. Dean, A. Rane and N. Hyatt, "A capacitive sensor interface circuit based on relative phase delay," Proc. of the ISA 55th International Instrumentation Symposium, League City, TX, June 1-5, 2009, (12pp).
- R. McPherson, R. Dean, R.W Johnson and L. Del Castillo, "Ultra-thin, flexible electronics," Proc. ECTC 2009 – the 59th Electronic Components and Technology Conference, San Diego, CA, May 26-29, 2009, pp. 607-611.
- S.J. Kim, C. Chen, G. Flowers and R. Dean, "Active vibration control and isolation for micro-machined devices," ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Elliott City, MD, Oct. 28-30, 2008 (8pp).
- B. Holland, R. McPherson, T. Zhang, Z. Hou, R. Dean, R.W. Johnson, L.D. Castillo and A. Moussessian, "Ultra-thin, flexible electronics," 2008 Electronic Components and Technology Conference (ECTC 2008), Lake Buena Vista, FL, May 27-28, 2008, pp. 1110-1116.

- S.J. Kim, C. Chen, G. Flowers and R. Dean, "Active damping control of micromachined devices in a low atmospheric pressure environment," Proc. of SPIE Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring 2008, Vol. 6928, San Diego, CA, March 9-13, 2008 (11pp).
- S. Castro, G. Roth, R. Dean, G. Flowers and B. Grantham, "Influence of acoustic noise on the dynamic performance of MEMS gyroscopes," Proc of IMECE2007: the 2007 ASME Int. Mech. Eng. Congress and Exposition, Seattle, WA, Nov. 11-15, 2007, (7pp).
- R. Dean, G. Flowers, A. Ahmed, A. Hodel, G. Roth, S. Castro, R. Zhou, R. Rifki, A. Moreira, B. Grantham, D. Bittle and J. Brunsch, "On the degradation of MEMS gyroscope performance in the presence of high power acoustic noise," Proc. of the 2007 IEEE Int. Symposium on Industrial Electronics (ISIE 2007), Vigo, Spain, June 4-7, 2007, pp. 1435-1440.
- J. E. Rogers, R. Ramadoss, P. M. Ozmun, and R. N. Dean, "MEMS accelerometer fabricated using printed circuit processing techniques," Proc. of the 2007 IEEE Int. Symposium on Industrial Electronics (ISIE), Vigo, Spain, June 4-7, 2007, pp. 3250 - 3254.
- J. E. Rogers, P. M. Ozmun, J. H. Hung and R. N. Dean, "Bi-directional gap closing MEMS actuator using timing and control techniques," Proc. of the 32nd Annual Conference of the IEEE Industrial Electronics Society (IECON 06), Paris, France, Nov. 18, 2006, pp. 3149 - 3154.
- A. Anderson, R. Dean, G. Flowers and A. S. Hodel; "Low cost test apparatus for MEMS inertial sensors;" Proceedings of The 3rd International Conference on Cybernetics and Information Technologies, Systems and Applications; jointly with The 4th International Conference on Computing, Communications and Control Technologies; Vol. II; Orlando; Florida; July 20-23; 2006; pages 175-179.
- R. Dean, G. Flowers, N. Sanders, R. Horvath, W. Johnson, M. Kranz, and M. Whitley, "Experimental validation and testing of components for active damping control for micromachined mechanical vibration isolation filters using electrostatic actuation," Proc. of SPIE Smart Structures / NDE Conference, Vol. 6172, San Diego, CA, Feb. 26 - March 2, 2006, pp. 362-372.
- R.N. Dean, J.Y. Hung, and B.M. Wilamowski, "Advanced controllers for microelectro-mechanical actuators," Proc. of the 2005 IEEE Int. Conference on Industrial Technology, Hong Kong, December 14-17, 2005, pp. 899-904.
- R. Dean, J. Pack, N. Sanders, P. Reiner, "Micromachined LCP for packaging MEMS sensors," Proc. of IEEE IECON 2005 Conference, Raleigh, NC, Nov. 6-10, 2005, pp. 2363-2367.
- R. Dean, G. Flowers, N. Sanders, K. MacAllister, R. Horvath, A. S. Hodel, W. Johnson, M. Kranz and M. Whitley, "Damping control of micromachined lowpass mechanical vibration isolation filters using electrostatic actuation with electronic signal processing," Proceedings of the SPIE International Symposia on Smart Structures & Materials, SPIE Vol. 5760, San Diego, CA, March 6-10, 2005, pp. 11-22.
- R. Dean, J. Weller, M. Bozack, B. Farrell, L. Jauniskis, J. Ting, D. Edell, and J. Hetke, "Novel biomedical implant interconnects utilizing micromachined LCP," Proceedings of the International Symposia on Optical Science and Technology, SPIE Vol. 5515, Denver, CO, Aug. 2-6, 2004, pp. 88-99.
- R. Dean, R. W. Johnson, H. Garrison, N. Schutz, M. Kranz, B. Bowers, B. Payne and R. Legowik, "Strategies for successfully integrating MEMS die onto laminate," Proc. of IMAPS 2002, Denver, CO, Sept. 4-6, 2002, pp. 109-114.
- R. Dean, G. Flowers, S. Hodel, K. MacAllister, R. Horvath, A. Matras, G. Robertson and R. Glover, "Vibration isolation of MEMS sensors for aerospace applications," Proc. of the

IMAPS International Conference and Exhibition on Advanced Packaging and Systems, Reno, NV, March 10-13, 2002, pp. 166-170.

- D. M. Brown, R. Dean, J. D. Brown “LED backlight: design, fabrication, and testing,” SPIE Vol. 3938, January 2000, pp. 180-187.
- R. Dean, P. Nordine and C. Christodoulou, “A novel method for fabricating 3-D helical THz antennas directly on semiconductor substrates,” SPIE Vol. 3617, January 1999, pp. 67-77.
- R. Durrett, R. Dean, D. F. McCartney, and E. A. Viveiros, “Interface and post-processing requirements to insert an acousto-optic range-Doppler processor into an advanced radar digital signal processor,” SPIE Vol. 2489, April 1995, pp. 165-176.

OTHER CONFERENCE AND WORKSHOP PRESENTATIONS:

- E. Adanur, C. Ellis, R.N. Dean, E. Tuck and D. Strembicke, “Copper plated TSVs in silicon wafers using a novel process,” 2011 IMAPS Mid-Atlantic Microelectronics Conference, Atlantic City, NJ, June 23-24, 2011.
- T.A. Baginski, R.N. Dean and S.P. Surgnier, “A new robust one-shot switch for high-power pulse applications,” 2011 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 7-10, 2011.
- C. Ellis, A. Beal and R. Dean, “Cu MEMS,” 2011 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 7-10, 2011.
- J. Richard and R. Dean, “Flexible metamaterials RF filters implemented through micromachining LCP substrates,” 2011 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 7-10, 2011.
- R. Dean, A. Rane, C. Stevens, M. Baginski, Z. Hartzong and D. Elton, “Implementing fringing field sensors in PCB technology,” 2010 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 9-11, 2010.
- C. Stevens, R. Dean, S. Lawrence, L. Levine, “The use of metallographic and SEM analysis for characterization of sidewall surfaces in MEMS devices with DRIE processing,” 2010 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 9-11, 2010.
- D.K. Harris, R. Dean, A. Palkar and G. Wonacott, “High flux value micro heat pipe arrays,” 2010 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 9-11, 2010.
- T.A. Baginski, R.N. Dean and E.J. Wild, “A micromachined robust planar triggered sparkgap switch for high power pulse applications,” 2010 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 9-11, 2010.
- S.J. Kim, R. Ibrahim, M. Black, M. Palmer, R. Dean and G. Flowers, “A system for the early evaluation of newly developed MEMS devices,” 2009 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 10-12, 2009.
- Y.-C. Chen, Y. Tzeng, A.-J. Cheng, R. Dean and M. Park, “Inkjet printing of surfactant assisted nanodiamond suspensions and practical applications,” Proc. of the 2nd Int. Conf. on New Diamond and Nano Carbons (NDNC2008), Taipei, Taiwan, May 26-29, 2008, poster presentation.
- B. Holland, R. McPherson, R. Dean, R.W. Johnson and L. Del Castillo, “Handling and processing of die for use in ultra-thin flexible electronics,” IMAPS ATW and Tabletop Exhibition on Military, Aerospace, Space and Homeland Security, Linthicum Heights, MD, April 30 – May 1, 2008.
- R. Dean, G.T. Flower and S. Castro, “Developments in foreign MEMS gyroscopic sensors,” Tennessee Valley Emerging Technology Conference, Huntsville, AL, March 26-28, 2008.
- S.J. Kim, C. Chen, R. Dean, G. Flowers, A.S. Hodel, S.J. Reeves, “A packaging solution to Reduce Electrical Noise in MEMS Capacitive Elements Resulting from Environmental

- mechanical vibrations," 2008 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 17-20, 2008.
- A Rane and R. Dean, "Polymer MEMS accelerometer integrated with organic electronics," 2008 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 17-20, 2008.
 - D. Harris, G. Wonacoot, R. Dean and A. Palkar, "High heat flux micro-channel devices using liquid metals for laser diode applications," 2008 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 17-20, 2008.
 - R. Dean, G. Flowers, A. Ahmed, A. Hodel, G. Roth, S. Castro, R. Zhou, R. Rifki, A. Moreira, J. Brunsch, D. Bittle and B. Grantham, "An Investigation of the Deleterious Effects of High Power, High Frequency Acoustic Noise on MEMS Gyroscopes," 2007 International Conference and Exhibition on Device Packaging, Optoelectronics – Photonics Advances in Optoelectronic Packaging, Scottsdale, AZ, March 18-22, 2007.
 - D. K. Harris, A. Palkar and R. Dean, "High Heat Value Micro-Heat-Pipe Arrays Using a Liquid Metal as the Working Fluid," 2007 International Conference and Exhibition on Device Packaging, MEMS – MEMS and Related Microsystems, AZ, March 18-22, 2007.
 - R. Dean, G. Flowers and D. Harris, "Microsystems Technologies to Augment Liquid Bio-Fuels Production," Alternative Energy Solutions from Alabama's Natural Resources Conference, Auburn, AL, October 23-24, 2006, Poster Presentation.
 - R. Dean, N. Sanders, J. Pack and P. Reiner, "Porous Ceramic Packaging for MEMS Sensors Requiring Environmental Access," IMAPS International Conference and Exhibition on Device Packaging, MEMS – Assembly and Packaging Technical Workshop, Scottsdale, AZ, March 20-23, 2006.
 - D. Harris, R. Dean, O. Nadgauda, N. Sanders, C. Ellis and M. Palmer, "A Package Sealing Technique for Mercury Filled Microfluidic Devices," IMAPS International Conference and Exhibition on Device Packaging, MEMS – Wafer Bonding Technical Workshop, Scottsdale, AZ, March 20-23, 2006.
 - R. Dean, G. Flowers, N. Sanders, K. MacAllister, R. Horvath, A. S. Hodel, W. Johnson, M. Kranz and M. Whitley, "Active Micromachined Vibration Isolation Filters using Electrostatic Actuation to Enhance Packaging for Mechanically Harsh Environments," IMAPS International Conference and Exhibition on Device Packaging, Proc. CD-only, Scottsdale, AZ, March 13-16, 2005.
 - R. Dean, G. Flowers, K. MacAllister, N. Sanders, and M. Kranz, "Micromachined Packaging Structures for Isolating Sensitive Devices from High Frequency Mechanical Vibrations," IMAPS Workshop on Packaging of MEMS and Related Micro-Nano-Bio Integrated Systems, Long Beach, CA, Nov. 18-19, 2004.
 - R. Dean, J. Weller, M. Bozack, K. MacAllister, N. Sanders, B. Farrell, L. Jauniskis, J. Ting, D. Edell and J. Hetke, "Surface Micromachining of Thin Films on LCP Substrates for Biomedical Applications," IMAPS Workshop on Packaging of MEMS and Related Micro-Nano-Bio Integrated Systems, Long Beach, CA, Nov. 18-19, 2004.
 - B. Farrell, P. Jaynes, W. Johnson and R. Dean, "The Liquid Crystal Polymer Packaging Solution," IMAPS 2003, The 36th International Symposium on Microelectronics, Boston, MA, Nov. 16-20, 2003.
 - B. Farrell P. Jaynes, W. Johnson and R. Dean, "The Liquid Crystal Polymer Packaging Solution," MICRO SYSTEM Technologies 2003, Munich, Germany, Oct. 6-8, 2003.
 - R. Dean, T. Baginski, M. Bozack, C. Ellis, G. Flowers, R. W. Johnson, N. Schutz, Y. Tzeng, and S. Wentworth, "Microsystems Research at Auburn University," Workshop on Nano and Microsystems Technology and Metrology, Huntsville, AL, Dec 4-5, 2002.

- C. Ellis, R. Dean, L. Almeida and I. Anderson, "Quad Electrostatic Inchworm Drive Optical Actuator," Workshop on Nano and Microsystems Technology and Metrology, Huntsville, AL, Dec 4-5, 2002.
- R. Dean, N. Schutz and L. Thomas, "Microsystems and Packaging Applications," Liquid Crystal Polymer Material Processing & Applications Symposium, Huntsville, AL, Oct 29, 2002.
- R. Dean, N. Schutz, L. Thomas and S. Tully, "MEMS Devices in Printed Circuit Board Technology," IMAPS Advanced Technology Workshop on Packaging of MEMS & Related Micro Integrated Nano Systems, Denver, CO, Sept 6-8, 2002.
- B. Farrell, P. Jaynes, D. Kubiak, and R. Dean, "Microfabrication Techniques for Liquid Crystal Polymer Substrates," IMAPS Advanced Technology Workshop on Packaging of MEMS & Related Micro Integrated Nano Systems, Denver, CO, Sept 6-8, 2002.
- R. Dean, H. Garrison, C. Ellis, G. Robertson and N. Schutz, "Micro Machining of LCP for MEMS Applications," LCP Materials Symposium, sponsored by PMTEC and AMCOM, Huntsville, AL, January 17, 2002.
- M. Kranz, R. Legowik, W. Bowers, R. Dean, H. Garrison and N. Shultz, "Micro-Packaging of COTS MEMS for Remote Monitoring Systems," 3rd Advanced Technology Workshop on Packaging of MEMS and Related Micro Integrated Nano Systems, IMAPS, Scotts Valley, CA, Nov. 8-10, 2001.
- R. Dean, C. Ellis, G. Robertson, L. Thomas, N. Schutz, S. Tully and H. Garrison, "MEMS Vacuum Tooling for Handling Micro-Optics," 3rd Advanced Technology Workshop on Packaging of MEMS and Related Micro Integrated Nano Systems, IMAPS, Scotts Valley, CA, Nov. 8-10, 2001.
- R. Dean, A. Matras, L. Thomas, H. Garrison, N. Schutz, K. MacAllister and S. Tully, "A Laminate Based MEMS Accelerometer," 3rd Advanced Technology Workshop on Packaging of MEMS and Related Micro Integrated Nano Systems, IMAPS, Scotts Valley, CA, Nov. 8-10, 2001.
- R. Dean, C. Ellis and H. Garrison, "A Novel Method for Handling MEMS Die," Workshop on Microsystems Technology and Applications, Huntsville, AL, July 2001.
- D. Strembicke, A. Werkheiser, R. Dean, R. W. Johnson, "A Novel Flip-Chip Packaging Method for 3-Axis MEMS Accelerometers," IMAPS Advanced Technology Workshop, Packaging and Integration of MEMS & Related Microsystems, Orlando, FL, Nov. 10-12, 2000.
- M. Kranz, B. Bowers, R. Dean, R. Legowik, "Advanced Manufacturing Techniques for Integration of COTS MEMS into Missile Health Monitoring Systems," poster presentation, The Knowledge Foundation, Inc. COTS MEMS Conference, Berkeley, CA, Aug. 3-4, 2000.
- S. Pan, H. Garrison, R. W. Johnson, M. Palmer, R. Dean, R. Thompson, and J. Evans, "Conductive Adhesives for Under-the-Hood Automotive Applications," Fifth International High Temperature Electronics Conference, Albuquerque, NM, June 2000.

PROFESSIONAL ACTIVITIES

- Steering committee member for the "Emerging and Enabling Technology Conference," Huntsville, AL, July 26-28, 2011.
- Technical Co-Chair for the MEMS Track of the 2011 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 8-10, 2011.
- Guest Editor, IEEE Transactions on Industrial Electronics: Special Section on Electronic Devices and Systems in Harsh Environments, Vol. 58, No. 7, July 2011.
- Technical Co-Chair for the MEMS Track of the 2010 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 8-11, 2010.

- Steering committee member for the “Emerging and Enabling Technology Conference,” Huntsville, AL, August 24-27, 2009.
- Guest Editor, IEEE Transactions on Industrial Electronics: Special Section on Advances in Microelectromechanical Systems, Vol. 56, No. 4, April 2009.
- Technical Co-Chair for the MEMS Track of the 2009 IMAPS Device Packaging Conference, Scottsdale/Fountain Hills, AZ, March 10-12, 2009.
- Steering committee member for the “Tennessee Valley Emerging Technology Conference,” Huntsville, AL, March 26-28, 2008.
- Technical Co-Chair for the MEMS Track of the 2008 IMAPS Device Packaging Conference, Scottsdale, AZ, March 17-20, 2008.
- Session chair for "Session TP2: MEMS – Assembly and Packaging Technical Workshop" at the IMAPS International Conference and Exhibition on Device Packaging, Scottsdale, AZ, March 20-23, 2006.
- Member of the Technical Advisory Committee for the "IMAPS 6th Topical Technology Workshop on Packaging of MEMS and Related Micro-Nano-Bio Integrated Systems," Long Beach, CA, November 18 - 19, 2004.
- Session chair for "Session III - Special Session: “PCB and Polymer for MEMS and Microsystems Packaging," at the IMAPS Advanced Technology Workshop on Packaging of MEMS & Related Micro Integrated Nano Systems, Denver, CO, September 6-8, 2002.
- Robert Dean (invited speaker), “An Introduction to MEMS,” a three-hour short course, 2005 Elements of Mechanical Engineering Conference, Auburn University, AL, Oct. 7, 2005.
- Robert Dean (invited speaker), “An Introduction to MEMS,” a three-hour short course, Center for Advanced Vehicle Electronics semiannual meeting, Auburn University, AL, April 17, 2002.

PROFESSIONAL MEMBERSHIPS

- ASME
- IEEE – Senior Member
- IMAPS
- SPIE

HONORS AND AWARDS

- Courtesy Joint Appointment with the Auburn University Department of Mechanical Engineering, Nov. 2009
- Best Paper of Session; R. Dean, R. W. Johnson, H. Garrison, N. Schutz, M. Kranz, B. Bowers, B. Payne and R. Legowik, “Strategies for Successfully Integrating MEMS Die onto Laminate,” IMAPS 2002, Proceedings 2002, Denver, CO, Sept. 4-6, 2002, pp. 109-114.
- Best Paper of Session; R. Dean, G. Flowers, S. Hodel, K. MacAllister, R. Horvath, A. Matras, G. Robertson, and R. Glover, “Vibration Isolation of MEMS Sensors for Aerospace Applications,” Proceedings of the IMAPS International Conference and Exhibition on Advanced Packaging and Systems, Reno, NV, March 10-13, 2002, pp. 166-170.
- Phi Kappa Phi, National Honor Society
- Alpha Theta Chi, Collegiate Honor Society
- Tau Beta Pi, Engineering Honor Society
- Eta Kappa Nu, Electrical Engineering Honor Society