

Y.C. LEE, Ph.D., CV

EDUCATION

Ph.D., Mechanical Engineering, University of Minnesota, 1984
MS, Mechanical Engineering, University of Minnesota, 1982
BS, Mechanical Engineering, National Taiwan University, 1978

PROFESSIONAL EXPERIENCE

1989 to Present University of Colorado

2011 to present	S. J. Archuleta Endowed Professorship
2006 to 2012	Director, DARPA Center on Nanoscale Science and Technology for Integrated Micro-/Nano-Electromechanical Transducers (iMINT)
2006 to 2012	Administrative Director of Nanomaterials Characterization Facility (NCF)
2006 to 2008	Acting Director, Center for Advanced Manufacturing and Packaging of Microwave, Optical and Digital Electronics (CAMPmode)
2001 to 2002	Acting Director, NSF Center for Advanced Manufacturing and Packaging of Microwave, Optical and Digital Electronics (CAMPmode)
1999 to present	Professor, Mechanical Engineering
1993 to 1999	Associate Professor, Mechanical Engineering
1993 to 2002	Associate Director, NSF Center for Advanced Manufacturing and Packaging (CAMPmode)
1989 to 1993	Assistant Professor, Mechanical Engineering

Research

- System integration for microcryocoolers, flexible thermal ground planes, nanowire-based light emitting diodes, Li-ion batteries and 1-mm thin smartphones.
- Flexible thermal ground planes for smartphones and other mobile systems.
- Design and packaging of nano/micro-electromechanical systems (N/MEMS).
- Atomic layer deposition (ALD) and molecular layer deposition for microsystems.
- Solder self-alignment for precision assembly of optoelectronics and MEMS.
- Thermosonic bonding for one-step assembly of low-cost microsystems.
- Fuzzy logic to enhance statistical modeling to control complex processes.
- Packaging and integration of electronics, microwave, optoelectronics and N/MEMS.
- Microfluidic devices for bio-medical systems.

Curriculum development

Microsystem Integration, Smartphone-Based Sensing and Actuating, Molecular Biology and Micro/Nano-Scale Engineering, MEMS CAD; Electronic and Optoelectronic Packaging; Mechatronics; Micro-machine Design and Analysis; Computer aided Drawing; and Integrated Manufacturing Systems.

2014 to Present Kelvin Thermal Technologies, Inc.**2014 to 2015 President****2015 to present President and CEO**

Commercialize flexible thermal ground planes as a novel thermal management solution for smartphones, tablets, laptops, data centers, power electronics, and automotive applications.

**1984 to 1989 AT&T Bell Laboratories
Member of Technical Staff**

Responsibilities included silicon-based advanced packaging for VLSIs and optoelectronics, 3-D packaging for portable supercomputers and thermal management for multichip modules and 3-D packaging.

OTHER PROFESSIONAL EXPERIENCE**Grants and Contracts – Principle Investigator**

1. University of Colorado Start-Up Funds, \$75,000, 1989 - 1992.
2. National Science Foundation, Presidential Young Investigator Award, \$350,500 (maximum), 1990 - 1996.
3. Ozo Diversified Automation, Inc., "Matching Support to PYI," \$37,500, 1990-1994.
4. National Science Foundation, "Quick Prototyping of Multichip Modules," \$50,000 plus \$24,000 matching support from the University of Colorado, 1990 - 1991.
5. Sandia National Laboratory, "Electronic Packaging," \$5,000, 1990-91.
6. Sandia National Laboratory, "Electronic Packaging," \$5,000, 1991.
7. National Science Foundation, "Quick Prototyping System for Multichip Modules," \$61,365, 1991-1993.
8. Ozo Diversified Automation, Inc., "Matching Support to the Development of a Quick Prototyping System for Multichip Modules," \$37,500, 1991-1993.
9. AT&T Bell Laboratories, "Optoelectronic Packaging," \$10,000, 1991-92.
10. National Science Foundation, "Packaging of Compact Image Correlator," \$35,000, 1992-93 (funded through Engineering Center for Optoelectronic Computing Systems).

11. National Science Foundation, "Technology and Curriculum Development for Packaging Optoelectronic Parallel Computing Systems Based on Free-Space Optical Interconnects," \$121,000, 1992-95 (funded through University of California at San Diego).
12. Digital Equipment Corporation, "Equipment Matching Support to PYI," \$47,500, 1992-1993.
13. National Science Foundation, "Packaging of Very Compact Image Correlator," \$100,000, 1993-94 (funded through Engineering Center for Optoelectronic Computing Systems).
14. National Science Foundation, "Packaging for 3-D Computers," \$25,000, 1993-94 (funded through Engineering Center for Optoelectronic Computing Systems).
15. National Science Foundation, "Packaging of Liquid Crystal on Silicon," \$97,812, 1994-96, (funded through Engineering Center for Optoelectronic Computing Systems).
16. National Science Foundation, "Thermal and Mechanical Behavior of VCSEL-on-VLSI Smart Pixels," \$116,622, 1994-96, (funded through Engineering Center for Optoelectronic Computing Systems).
17. National Science Foundation, "Packaging of Liquid Crystal on Silicon," \$38,610, 1996-97, (funded through Engineering Center for Optoelectronic Computing Systems).
18. National Science Foundation, "Thermal and Mechanical Behavior of VCSEL-on-VLSI Smart Pixels," \$46,035, 1996-97, (funded through Engineering Center for Optoelectronic Computing Systems).
19. National Science Foundation, "Thermosonic Bonding for Flip-Chip and BGA Connections," \$349,853 (University matching support \$20,000), 1995-1997.
20. Vixel Corporation, "Fine-Pitch Flip-Chip Bonding for VCSELs," \$75,000, 1995-1997.
21. University of Colorado Undergraduate Excellence Fund, "An Educational Module on Microelectromechanical Systems (MEMS)," \$25,000, 1995- 1996.
22. Center for Advanced Manufacturing and Packaging of Microwave, Optical and Digital Electronics, University of Colorado, "Flip-Chip Assembly for Mixed Signal Technology," \$225,000, 1996 - 1998.
23. Intel Corporation, "Reliability Modeling of BGA/Flip-Chip Solder Joints," \$42,624, 1995-1996.

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24. Melles Griot Inc. and Colorado Advanced Technology Institute, "Reliability of Laser Packages," \$50,000, 1996-1997.
 25. National Science Foundation, "Manufacturing Study of Liquid Crystal on Silicon," \$8,000, 1996-1997 (funded through Engineering Center for Optoelectronic Computing Systems).
 26. National Science Foundation, "Technology and Knowledge Based to support LCOS Packaging and Manufacturing," \$49,725, 1997-1998 (funded through Engineering Center for Optoelectronic Computing Systems)
 27. Lightwave Microsystem, "Assembly for Polymer Waveguide and Switches," \$199,815, 1996- 1999.
 28. Department of Defense, "MEMS for Low-Cost Millimeter-Wave Modules," 175,000, (University matching support of \$100,000) 1997-1998.
 29. Lockheed Martine Corporation (through CAMPmode), "Reliability of Surface Mounted Spatial Light Modulator for Space Applications," \$180,000, 1997-2001.
 30. Kyocera America, Inc. (through CAMPmode), "Determination of stress-free temperatures in brazing processes," \$40,000, 1998-99.
 31. Department of Defense (DARPA program), "High-Q Tunable Capacitors and Multi-way Switches Using MEMS for Millimeter-Wave Applications," \$946,708, 1998-2002.
 32. College Engineering Excellence Fund, "Experimental Modules for Microelectromechanical Systems (MEMS)," \$25,000, 1999-2000.
 33. College Engineering Excellence Funds, Finite-Element Discovery Learning to Enhance Mechanical Engineering Curriculum, \$23,000, 2000-2001.
 34. NASA, Microelectromechanical Linear Actuators, \$150,000, 2000-2001.
 35. Coventor, RF MEMS Models, \$90,000, 2001-2002.
 36. NASA Glenn Research Center, Beam steering for antennas using MEMS-based variable capacitors, \$75,000, 2002-2003.
 37. Coventor, RF MEMS packaging, \$60,000, 2002-2003.
 38. Lockheed Martin Corporation (through CAMPmode), "Highest Q RF Microelectromechanical Devices," \$70,000, 2001-2002
 39. Network Photonics (through CAMPmode), "Study on Charge Accumulation for Reliable Optical MEMS," \$45,000, 2002-2003.

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40. Space and Naval Warfare Systems Center/DARPA, "MEMS and Packaging for Chip-Scale Integration for Atomic Clocks," \$ 699,419, 2002-6.
 41. NIST-Boulder Professional Research Experience Program (PREP), Nanoprobes for RF Field Measurements, Y. C. Lee, 2004-2005, \$50,000.
 42. Health Sciences Center, Univ. of Colorado, Lab-on-a-chip for oral cancer detection, Y. C. Lee, A. R. Mickelson and M. H. B. Stowell, \$25,000, 2004.
 43. VCI, Inc., Reliability of Airplane Structures, \$25,536, 2004.
 44. DARPA through Rockwell Scientific, MEMS, Thermal Management and RF for Chip-Scale Atomic Clocks, Y. C. Lee, V. M. Bright and Z. Popovic, \$ 450,000, 2005-06.
 45. DARPA, Photonic Crystal Fiber-Enabled Micro Cryogenic Coolers for THz Imaging Source of Support, Y. C. Lee, Victor M. Bright, Ray Radebaugh, Eyal Gerecht and James C. Booth, \$1,770,000, 2006-2008.
 46. NSF SBIR Subcontract from ALD NanoSolutions, Inc., "ALD-Enabled Polymer Packaging for Integrating MEMS and Electronics," Y. C. Lee, Victor M. Bright and Steven M. George, \$37,500, 2005-2006.
 47. Boulder MEMS, Atomic Layer Deposition for Protecting Microelectronic Packages, Y. C. Lee, \$10,000, 2005-6.
 48. DARPA Focus Center on Nanoscale Science and Technology for Integrated Micro-/Nano-Electromechanical Transducers (iMINT), Y. C. Lee, Victor M. Bright, Martin L. Dunn, Steven M. George, Rodney S. Ruoff, Dmitry Dikin, James Hone, Pavel Kabos, and Norman Sanford, \$2,440,000, 2006-2009; other funds from University of Colorado, NIST and industrial sponsors.
 49. Ibidem through DARPA iMINT, Nano-Scale ALD Coating to Protect Polymer Dielectric, \$120,000, 2006-2008.
 50. DARPA, Feasibility Studies on Four Novel Nanotube/Nanowire-Enabled Microsystems, Y. C. Lee, Victor M. Bright, Martin L. Dunn, Steven M. George, Wei Tan, \$75,000, 2007-2008.
 51. VallyLab, Thermal and Electrical Microprobes Will Provide Essential Information About Tissues for Development of Optimized Cancer Ablation Products, Roop L. Mahajan and Y. C. Lee, 2006-2008, \$110,000.
 52. Intel, Development of a Manufacturable Edge Coupling Scheme for Optoelectronic Packaging, Y. C. Lee, 2007-2010, \$300,000.

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53. DARPA, Flexible Thermal Ground Plane with Micro/Nano-Scaled Wicking Structure, Y.C. Lee, Victor M. Bright, Ronggui Yang, Steven M. George, Chen Li, and Suraj P. Rawal, 2008-2013, \$4,500,000.
 54. DARPA, Enabling System Integration Technologies for NW-Enabled LED Microsystems, Y. C. Lee, Norman Sanford, Kris Bertness and Steven M. George, \$300,000, 2008-2009.
 55. Block MEMS, Micro Cryogenically Cooled IR Detector, Y. C. Lee, \$45,000, 2008-2009.
 56. DARPA, Fiber-Enabled Micro Cryogenic Coolers, Y. C. Lee, Victor M. Bright, Ray Radebaugh, and James C. Booth, \$2,012,250, 2009-2012..
 57. Army Aviation and Missile Research Development and Engineering Center, Flexible Thermal Ground Plane for Composite Frames, Y. C. Lee, \$70,000, 2009-2010.
 58. DARPA Center on Nanoscale Science and Technology for Integrated Micro/Nano-electromechanical Transducers (iMINT), Y. C. Lee, Victor M. Bright, Martin L. Dunn, Steven M. George, Charles Rogers, Ronggui Yang, Kris Bertness, Norman Sanford, Pavel Kabos, Bruce Dunn, C. J. Kim, and Rod Ruoff; \$ 2,350,000 from June 2010 to December 2012; other funds from University of Colorado, NIST and industrial sponsors.
 59. QinetiQ-NA, Thermal Management, Y. C. Lee, \$30,000, 2011, awarded through the DARPA iMINT Center.
 60. DRS Technologies, Compact Compressor, Y. C. Lee and Victor M. Bright, \$100,000, 2011-2012.
 61. National Science Foundation, SNM: Roll-to-Roll Atomic/Molecular Layer Deposition, Y. C. Lee, Steven M. George, Kurt Maute and Prabhakar Pagilla, \$1,200,000, 2012-2017.
 62. North Grumman, Flexible Thermal Ground Planes for Space Applications, Y. C. Lee and Li-Anne Liew, \$200,000, 2012-2013.
 63. North Grumman, Battery and Thermal Ground Plane, Y. C. Lee and Se-Hee Lee, \$83,000, 2013-2014.
 64. i2C Solutions, Conformal Thermal Ground Planes, subcontract of a STTR project, Y. C. Lee, Ronggui Yang and Li-Anne Liew, \$50,000, 2013-2014.
 65. Army ARDEC, Atomic layer deposition for conformal technologies, Y. C. Lee, \$20,000, 2012-2013.
 66. DARPA/ARL, Wafer-Scale Integrated Micro Cryogenic Coolers, Y. C. Lee, Victor M. Bright, Ray Radebaugh and Peter Bradley, \$1,575,000, 2013-2017.

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67. Central Intelligence Agency, Hermetic Encapsulation of Flexible Device Technologies, Y. C. Lee, \$240,000, 2013-2015.
 68. Colorado Advanced Industries Accelerator, Advanced Industries Grant Program, University of Colorado Boulder, Y.C. Lee, Ronggui Yang, Li-Anne Liew, Ryan Lewis, \$150,000, 2014-2016.
 69. Texas Instruments: Phase Change Cooling Using Flexible Thermal Ground Planes for High-Power Applications, University of Colorado Boulder, Y.C. Lee, Ronggui Yang, Ryan Lewis, \$150,000, 2015-2018.
 70. Advanced Industry Accelerator Program by State of Colorado, System-specific thermal ground planes for smartphones and tablets, Kelvin Thermal, Y. C. Lee and Ryan J. Lewis, \$250,000, 2016-2018.
 71. Asia Vital Components (AVC), Flexible thermal ground planes, Kelvin Thermal, Y. C. Lee and Ryan J. Lewis, \$100,000, 2016-2018.

Grants and Contracts – Co-Principle Investigator

1. Semiconductor Research Corporation, "Real-Time Process Control Using Fuzzy Logic and Neural Networks for Semiconductor Mfg. Processes," \$150,000, 1992-93 (PI: R. L. Mahajan).
2. National Science Foundation, Symposium on Optoelectronic Packaging Science, \$3,000, 1992 (PI: A. R. Mickelson).
3. National Science Foundation, "Equipment Dedicated to Research in the Engineering of Hybrid Optoelectronic Devices and Components," \$75,000, 1992-1994, (PI: K. M. Johnson).
4. Semiconductor Research Corporation, "Real-Time Process Control Using Fuzzy Logic and Neural Networks for Semiconductor Mfg. Processes," \$175,000, 1993-94, (PI: R. L. Mahajan).
5. National Science Foundation, Workshop on Optoelectronic Packaging, \$3,000, 1993, (PI: A. R. Mickelson).
6. Center for Advanced Manufacturing and Packaging, U. of Colorado, "Thermal Management," \$110,000, 1992-94, (PI: R. L. Mahajan).
7. Semiconductor Research Corporation, "Use of Fibrous Heat Sink for High-Power Packages," \$47,000, 1992-93, (PI: R. L. Mahajan).
8. Photonic Research Ins., "Packaging of VCSEL-on-Si for Optical Computing Systems," \$140,250, 1993-1996, (PI: John Neff).
9. Semiconductor Research Corporation, "Real-Time Process Control Using Fuzzy

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- Logic and Neural Networks for Semiconductor Mfg. Processes," \$175,000, 1994-95, (PI: R. L. Mahajan).
10. Science Applications International Corporation (SAIC), "Free Space Optical Interconnects for a 3-D Computer," \$946,530, 1994-1996, (PI: John Neff).
 11. AMP, Inc, "Mechanical, Thermal, Optical and Cost CAD/CAM," \$310,480, 1994-1996, (PI: R. B. Hooker).
 12. Rome Air Force, "Photonic Waveguide Interface Module," \$400,000, 1995-1996, (PI: R. B. Hooker).
 13. National Science Foundation, "Academic Infrastructure Award for Design and Fabrication of Smart Pixels," \$497,797 (University of Colorado matching \$287,797), 1994-1997, (PI: K. M. Johnson).
 14. AMP, Inc., "An Investigation into Mechanical, Thermal, Optical and Cost CAD Tools," \$37,500, 1996-1997, (PI: R. B. Hooker).
 15. Colorado Commission on Higher Education, "Delivery of the ITLL to Colorado Institutions via the World Wide Web," \$127,082, 1996-1997, (PI: M. L. Dunn).
 16. Northrop-Grumman (DARPA program), "Free Space Optical Interconnect," \$2,000,000, 1997-2000, (PI: John Neff).
 17. Colorado Commission on Higher Education, "Delivery of the ITLL to Colorado Institutions via the World Wide Web," \$120,000, 1997-1998, (PI: M. L. Dunn).
 18. Air Force Office for Scientific Research (AFOSR), "Micromirror Arrays for High Energy Applications," \$565,000, 1998-2000, (PI: Victor M. Bright)
 19. Northrop-Grumman (DARPA program), "VLSI Photonics," \$1,500,000, 1998-2001, (PI: John Neff).
 20. DARPA, \$895,100, 1998-2001, "MEMS and solder self-assembly for 3-D MEMS and MEMS array," (PI: Victor M. Bright)
 21. NSF, An Interactive Experimental/Numerical Simulation System with Applications in MEMS Design, \$ 499,999, 2000-2002, (PI: L. Bradeley)
 22. Watkins Johnson, High-Q Variable Oscillator and Pre-selector Using RF MEMS, \$ 40,000, 1999-2000, (PI: Victor M. Bright)
 23. Maxwell Technologies, Inc., MEMS High Density Connector Designs, \$60,000, 1999-2000, (PI: Victor M. Bright)
 24. DARPA, Optical MEMS for Beam Steering (STAB), \$700,000, 2000-2002, (PI: John Neff)

25. DARPA, Integrated MEMS for Steering Smart Pixel Array Output Beams, \$298,475, 2000-2001, (PI: John Neff)
26. Sandia National Labs, Fabrication and Flip-Chip Integration of MEMS Mirror Arrays with Control Electronics, \$50,000, 2000-2001, (PI: Victor M. Bright)
27. DARPA, Programmable Aperture MEMS-Interconnected Antenna Array Using Printed Circuit Technology, \$ 909,000, 1999-2002, (PI: K. C. Gupta)
28. AFOSR, Optically Holographic Interferometric Vapor Sensor Arrays, \$657,406, 2001-2003, (PI: V.M. Bright)
29. DARPA, Atomic Layer Deposited Nano-Scale Films and Processes for Self-encapsulated and Robust Micro- and Nano-Electro-Mechanical Systems, \$199,995, 2004-2005, (PI: Victor M. Bright)
30. Butcher grant of University of Colorado, Imaging the Onset of Type 1 Diabetes using Molecular Contrast Agents, Conrad Stoldt, Y.C. Lee, Robin Shandas and John Hutton, \$71,500, 2005-2006.
31. CU-HSC Cancer Center, Tissue-Based Lab-on-a-Chip for Instant Biopsy, Whitney A. High and Y. C. Lee, \$20,000, 2005.
32. DRS Technologies, Atomic Layer Deposition for Bolometers, Victor M. Bright, Y. C. Lee and Steven M. George, \$240,000, 2011-2014.
33. DARPA, Atomic Layer Deposition (ALD)-Fabricated Bolometers, Victor M. Bright, Y. C. Lee and Steven M. George, \$142,000, 2011-2012, awarded through the DARPA iMINT Center.
34. Lockheed Martin Co., Cathodes for Li-ion Batteries, Se-Hee Lee and Y. C. Lee, \$60,000, 2011.
35. DARPA, ALD-enabled Microfabricated Hemispherical Resonator Gyroscope, Victor M. Bright, Y. C. Lee and S. M. George, \$544,597, 2013-2014.
36. DARPA, Bolometer aLD (BOLD), Victor M. Bright, Y. C. Lee and S. M. George, George Skidmore, Chuan Li, \$ 770,000, 2013-2015.
37. DARPA, SPARTA: Subcellular Pan-Omics for Advanced Rapid Threat Assessment, William M. Old, Michael H.B. Stowell, Y.C. Lee, Natalie G. Ahn, Xuedong Liu, Nichole Reisdorph, \$14,578,359, 2014-2018.
38. An anonymous industrial sponsor, Thin thermal ground planes, Kelvin Thermal, Ryan J. Lewis and Y. C. Lee, \$375,000, 2016-2019.

PUBLICATIONS**Theses Advised**

1. Sandip Chandra, "System Analysis of a Desktop Prototyping Center for Application-Specific Portable Supercomputers," M.S. Thesis, University of Colorado, Boulder, CO, 1990.
2. Khalil Zouari, "Pressure Distribution of the Vertical Interconnect in 3-D Packaging," M.S. Thesis, University of Colorado, Boulder, CO, 1991.
3. S. K. Patra, "Study of Self-Aligning Soldering for Electronic and Optoelectronic Packaging," Ph.D. Thesis, University of Colorado, Boulder, CO, 1992.
4. Hong Xie, "Fuzzy-Logic Models for Manufacturing Process Control and Design Optimization," Ph.D. Thesis, University of Colorado, Boulder, CO, 1993.
5. M. Gershovich, "Micron-Level Measurement of a Soldering Process for Optoelectronic Assembly," M.S. Thesis, University of Colorado, Boulder, CO
6. Sa Yoon Kang, "Experimental and modeling studies for thermosonic flip-chip bonding," Ph.D. Thesis, University of Colorado, Boulder, CO, 1995.
7. Wei Lin, "Study of soldering technology for liquid-crystal-on-silicon (LCOS) modules," Ph.D. Thesis, University of Colorado, Boulder, CO, 1995.
8. Brian R. Schaible, "Modeling nonlinear processes using fuzzy logic," M.S. Thesis, University of Colorado, Boulder, CO, 1995.
9. Yiu-Wai Andy Chan, "An integrated model for ball grid array/flip-chip solder joints reliability," M. S. Thesis, University of Colorado, Boulder, CO, 1995.
10. Qing Tan, "Longitudinal Thermosonic Bonding for Flip Chip Assembly," Ph.D. Thesis, University of Colorado, Boulder, CO, 1997.
11. Saeed Hareb, "Mechanical Behavior of Solder- and Epoxy-Attached Optoelectronic Assemblies," Ph.D. Thesis, University of Colorado, Boulder, CO, 1998.
12. Timothy McLaren, "Technology and Compression Modeling for Thermosonic Flip Chip Bonding," Ph.D. Thesis, University of Colorado, Boulder, CO, 1998
13. Susan C. Tower, "Prediction of Yield for Flip-chip Solder Assemblies," M.S. Thesis, University of Colorado, Boulder, CO 1998
14. Ronda S. Irwin, "Quick Flip-Chip Assembly of Microelectromechanical Systems," M.S. Thesis, University of Colorado, Boulder, CO 1998

15. Kevin Harsh, "Solder for MEMS Self-Assembly," M. S. Thesis, University of Colorado, Boulder, CO 1998
16. Brian R. Schaible, "Fuzzy Logic Based Regression Models of Flip-Chip Bonding Processes," Ph.D. Thesis, University of Colorado, Boulder, CO, 1999.
17. Bingzhi Su, "GaAs Die Crack Initiation in Area Array Electronic Packages," Ph.D. Thesis, University of Colorado, Boulder, CO 2000.
18. Chunjun Wang, "Flexible Circuits Based Microelectromechanical Switches," M.S. Thesis, University of Colorado, Boulder, CO 2001.
19. Kevin Harsh, "Design Optimization for MEMS Solder Self-Assembly", Ph.D. Thesis, University of Colorado, Boulder, CO, 2001.
20. Jianglong Zhang, "Angle Digitizing and Fixing for Optical Micro-mirrors," Ph.D. Thesis, University of Colorado, Boulder, CO, 2002.
21. Zhichun Ma, "Design and Optimization for Shape Tuning of Large MEMS Flaps for Fluid Mixing," Ph.D. Thesis, University of Colorado, Boulder, CO, 2003.
22. Faheem F. Faheem, "Packaging of Two-Dimensional Microelectromechanical Systems (MEMS) Variable Capacitors with Liquid Crystal Polymer," Ph.D. Thesis, University of Colorado, Boulder, CO, 2004.
23. Simone Szeman Lee, "MEMS-based Devices for RF Applications: Switches and Field Probes," Ph.D. Thesis, University of Colorado, Boulder, CO, 2005.
24. Alexander D. Laws, "Thermal Management of Chip Scale Atomic Clocks." Ph.D. Thesis, University of Colorado, Boulder, CO, 2007.
25. Muhong Lin, "Fabrication, Assembly and Characterization of a Hollow-Core Fiber Based Micro Cryogenic Cooler," Ph.D. Thesis, University of Colorado, Boulder, CO, 2009.
26. Jen-Hau Cheng, "Atomic Layer Deposition Enabled Interconnect and Packaging Technologies for As-Grown Nanowire Devices," Ph.D. Thesis, University of Colorado, Boulder, CO, 2010
27. Yadong Zhang, "ALD Enabled Wafer Level Polymer Packaging for MEMS," Ph.D. Thesis, University of Colorado, Boulder, CO, 2011.
28. Ming Kong, "Experimental and Modeling Studies on Solder Self-alignment for Optoelectronics Packaging," Ph.D. Thesis, Univ. of Colorado, Boulder, CO, 2012.
29. Ryan L. Lewis, "Testing and Analysis of Micro Cryogenic Coolers with Mixed Refrigerant," Ph.D. Thesis, University of Colorado, Boulder, CO, 2012.

30. Yunda Wang, "Polymer-Based Micro Cryogenic Coolers," Ph.D. Thesis, University of Colorado, Boulder, CO, 2012.
31. Hsin-ju Wu, "Microfluidic Devices for Membrane Protein Nanoparticle Formation," Ph.D. Thesis, University of Colorado, Boulder, CO, 2013.
32. Alex Yersak, "Roll-to-Roll Atomic Layer Deposition for Ultrabarriers," Ph.D. Thesis, University of Colorado, Boulder, CO, 2016.
33. Collin J. Coolidge, "Low Pressure Ratio Cascaded Joule-Thomson Cryogenic Coolers," Ph.D. Thesis, University of Colorado, Boulder, CO, 2017.

Books or Symposium Proceedings

1. Manufacturing Aspects in Electronic Packaging, symposium proceeding edited by Y. C. Lee and T. J. Bennett, ASME Book G00756, 1992.
2. Manufacturing Aspects in Electronic Packaging, symposium proceeding edited by Y. C. Lee, W. T. Chen and Y. Yih, ASME Book H00864, 1993.
3. Optoelectronic Packaging, M. R. Feldman and Y. C. Lee, SPIE Proceedings, Volume 2691, February 1996.
4. Advanced in Electronic Packaging, E. Suhir, M. Shiratori, Y. C. Lee and G. Subbarayan, Conference Proceedings, EEP-Vol. 1 and 2, ASME, New York, 1997.
5. Optoelectronic Packaging, John Wiley and Sons, editors: Alan R. Mickelson, N. Bassavahally and Y. C. Lee, 1997.
6. Manufacturing Challenges in Electronic Packaging, editors: Y. C. Lee and W. T. Chen, Chapman and Hall Pub., 1998.
7. Micro-Optics Integration and Assemblies, M. R. Feldman and Y. C. Lee, SPIE Processings, Volume 3289, January, 1998.
8. Advanced in Electronic Packaging, D. Agonafer, M. Saka and Y. C. Lee, Conference Proceedings, EEP-Vol. 26-2, ASME, New York, 1999.
9. Micro-Electro-MechanicalSystems (MEMS) - 1999, MEMS-Vol. 1, Liwei. Lin, Y. C. Lee and 20 other co-editors, ASME, New York, 1999.
10. Micro-Electro-MechanicalSystems (MEMS) - 2000, MEMS-Vol. 2, Abe Lee, Y. C. Lee and 20 other co-editors, ASME, New York, 2000.
11. InterPACK'01, The Pacific Rim/International, Intersociety, Electronic Packaging Technical/Business Conference & Exhibition, Kauai, Hawaii, July 8-13, 2001, ASME Conference CD-ROM.

12. Micro- and Opto-Electronic Materials and Structures: Physics, Mechanics, Design, Reliability, Packaging, Two-Volume Book, ed. by E. Suhir, Y. C. Lee and C. P. Wong, Springer, 2007.
13. MEMS Packaging, ed. by Y. C. Lee, Y. T. Cheng and Ramesh Ramadoss, World Scientific Publishing, February 2018.

Articles Published in Journals

1. Capillary-Driven Liquid Film Boiling Heat Transfer on Hybrid Mesh Wicking Structures, R. Wen, Shanshan Xu, Y. C. Lee and Ronggui Yang, Nano Energy, 51, June 2018, pp. 373-382.
2. Introduction to MEMS Packaging, Y. C. Lee, Ramesh Ramadoss and Nils Hoivik, a chapter in MEMS Packaging, ed. by Y. C. Lee, Y. T. Cheng and Ramesh Ramadoss, World Scientific Publishing, February 2018, pp. 1-30.
3. Enhanced bubble nucleation and liquid rewetting for highly efficient boiling heat transfer on two-level hierarchical surfaces with patterned copper nanowire arrays. Wen R, Li Q, Wang W, Latour B, Li CH, Li C, Lee Y-C, Yang R., Nano Energy, 38 (August 01, 2017): 59-65.
4. Hierarchical Superhydrophobic Surfaces with Micropatterned Nanowire Arrays for High-Efficiency Jumping Droplet Condensation, Wen R, Xu S, Zhao D, Lee Y-C, Ma X, Yang R., ACS Applied Materials & Interfaces, 9 (51) (December 27, 2017): 44911-44921.
5. Three-Dimensional Superhydrophobic Nanowire Networks for Enhancing Condensation Heat Transfer, Wen R, Xu S, Ma X, Lee Y, Yang R., Joule. 2 (2017): 1-11.
6. Flexible Thermal Ground Planes Fabricated with Printed Circuit Board Technology. Li-Anne Liew, Ching-Yi Lin, Ryan Lewis, Susan Song, Qian Li, Ronggui Yang and Y. C. Lee, ASME. J. Electron. Packag. March, 2017, Volume 139, 011003, 10 pages.
7. Microelectromechanical Systems and Packaging, Y. C. Lee, Ming Kong and Yadong Zhang, a chapter in Materials for Advanced Packaging, Springer, 2nd Edition (Editors: Lu, Daniel, Wong, C.P.), pp. 691-731, 2017.
8. Development of Ultra-Thin Thermal Ground Planes by Using Stainless-Steel Mesh as Wicking Structure, Shanshan Xu, Ryan John Lewis, Li-Anne Liew, Yung-Cheng Lee, Ronggui Yang, IEEE/ASME Journal of Micro-Electro-Mechanical Systems Letters, October 2016, pp. 842-844.
9. Characterization of Thin Film Dissolution in Water with in Situ Monitoring of Film Thickness Using Reflectometry, Yersak, R. Lewis, J. Tran, Y.-C. Lee, ACS Appl. Mater. Interfaces 2016, 8, 17622-17630.

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Papers and/or Presentations at Professional Meetings

1. Microfluidic Devices (Lab-on-a-Chip's), Y. C. Lee, in Panel session on Thermo-fluidic challenges in healthcare, IEEE ITherm, San Diego, May 30, 2018.
2. Micromesh-Enabled Low Cost Thermal Ground Planes for High Heat Flux Power Electronics, Shanshan Xu, Ryan J. Lewis, Rongfu Wen, Ronggui Yang, Y.C. Lee, Woochan Kim, and Luu Nguyen, interactive presentation session, IEEE ECTC, San Diego, May 31, 2018.
3. Thin Thermal Ground Planes for High Power-Density Applications, Xu, Shanshan, Ryan Lewis, Jiran Li, Luu Nguyen and Y. C. Lee, ASME InterPACK 2017, San Francisco, August 29 to September 1, 2017.
4. Past, Present and Future of Flexible Thermal Ground Planes, Y. C. Lee, keynote presentation, IMAPS Advanced Technology Workshop and Tabletop Exhibit on Thermal Management, Los Gatos, California, October 25-27, 2016.
5. Flexible thermal ground planes for smartphones, Y. C. Lee, panel session on thermal management for mobile devices, IEEE ITherm, Las Vegas, NV, May 31-June 3, 2016.
6. Flexible thermal ground planes for high power applications, Y. C. Lee, panel session on thermal management for data centers, IEEE ITherm, Las Vegas, NV, May 31 to June 3, 2016.
7. Flexible thermal ground planes for mobile devices, Y. C. Lee, panel session on mobile devices in ASME IMECE, Phoenix, AZ, Nov. 12-17, 2016.
8. Fundamental Research Driven by Novel Microsystems, Y. C. Lee, Keynote speech, National Heat and Mass Transfer Conference, Dalian, China, October 31, 2015.
9. Flexible Thermal Ground Planes (TGPs) for Smartphones/Tablets and Wearable Electronics, Y. C. Lee, Symposium on Thermal Management for Mobile Systems, Taipei, Taiwan, November 2, 2015.
10. Flexible Thermal Ground Planes, Y. C. Lee, CoolingZone, Webinar, October 22, 2015.
11. Improved Flexibility of Alumina Ultrathin Barrier Films by Nano-Lamination, Ryan Lewis, Julie Slaughter, and Y. C. Lee, ASME InterPACK Conference, San Francisco, California, July 6-9, 2015.
12. Defect Density Distributions in Atomic Layer Deposited Films on Polymeric Substrates, Yersak, A., Lewis, R., Lee, Y. C., ASME InterPACK Conference, San Francisco, CA, July 6-9, 2015.
13. Design, Fabrication and Characterization for Ultra-Thin Thermal Ground Planes, Shanshan Xu, Ryan J. Lewis, Li-Anne Liew, YC Lee and Ronggui Yang, International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK), San Francisco, CA, July, 2015.
14. Influences of screen mesh wicking structure on the performance of ultra-thin thermal ground planes, Shanshan Xu, Ryan J. Lewis, Li-Anne Liew, Nicolas

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- Pinkowski, YC Lee, Ronggui Yang, International Mechanical Engineering Conference and Exhibition (IMECE2015), Houston, TX, November 13-19, 2015.
15. Design for manufacturability of atomic layer deposition-based devices: Defect distributions in ALD films, Alex Yersak, Y.C. Lee, Markus Groner, Joe Spencer, Steve George, Kurt Maute, and Prabhakar Pagilla, ALD 2015 Conference, Portland, Oregon, June 28th to July 1, 2015.
 16. Defect density distributions in atomic layer deposited films on polymeric substrates, Alex Yersak, Y.C. Lee, Ryan Lewis, ASME InterPACK Conference, San Francisco, California, July 6-9, 2015.
 17. The use of spectral reflectometry for in situ film thickness and real time air gap measurements, Alex Yersak, Y.C. Lee, Collin Coolidge, Ryan Lewis, and Li-Anne Liew, ASME InterPACK conference, San Francisco, California, July 6-9, 2015.
 18. Atomic layer Deposited TiO₂ as Sacrificial Layers and Internal Coatings for Nanoscale Gaps, Li-Anne Liew, Ching-Yi Lin, Alexander Yersak, Ryan J., Lewis, Collin Coolidge, and Yung Cheng Lee, ASME InterPACK Conference, San Francisco, California, July 6-9, 2015.
 19. Design and Fabrication of a Polyimide Based MEMS Single Refrigerant Joule-Thomson Micro Cooler, Collin Coolidge, Ray Radebaugh, Li-Anne Liew, Yizi Xu, Ching-Yi Lin, Victor M. Bright, Peter Bradley and Yung Cheng Lee, ASME InterPACK Conference, San Francisco, California, July 6-9, 2015.
 20. Micro Cryogenic Coolers, Y. C. Lee, Interagency Advanced Power Group (IAPG) Mechanical Working Group (MWG) meeting, May 13-15, 2014 at AFRL Phillips Technology Institute in Albuquerque, New Mexico.
 21. "Atmospheric Pressure R2R ALD with In-situ Process Monitoring," M. Groner, J. Spencer, ALD NanoSolutions; A. Yersak, Y.C. Lee, Univ. of Colorado, ALD 2013, July 28-31, San Diego, CA.
 22. "Hierarchical Micro/Nano-Structured Surfaces with Improved Water Spreading for Efficient Boiling Heat Transfer," Qian Li, Wei Wang, Benoit Latour, Yung-Cheng Lee, George P. Peterson, Ronggui Yang, ASME International Mechanical Engineering Conference and Exhibition (IMECE2013), San Diego, CA, November 15-21, 2013.
 23. "Intrinsically Superhydrophilic Interfaces for Enhanced Boiling and Evaporation Using Atomic Layer Deposition," Xianming Dai, Fanghao Yan, Ronggui Yang, Yung-Cheng Lee, and Chen Li, International Workshop on Micro and Nano Structures for Phase Change Heat Transfer (Poster Sessions), MIT, April 22-23, 2013
 24. "Microfluidic Device for Super-fast Evaluation of Membrane Protein Crystallization," Hsin-Jui Wu, Tamara Basta, Mary Morphey, D. C. Rees, Michael H. B. Stowell, and Y. C. Lee, IEEE NEMS 2013, Suzhou, China, Apr. 6-10, 2013

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27. "Monolithically Micromachined Polyimide Joule-Thomson Cryogenic Coolers," Yunda Wang, Ryan Lewis, Ray Radebaugh, and Y. Lee, ASME-INTERPAK2013, San Francisco, July 2013.
28. "Performance Enhancement of Micro Cryogenic Coolers with Micro-channel Pre-cooling," Ryan Lewis, Yunda Wang, Paul Schroeder, Ray Radebaugh, Y.C. Lee, Cryogenic Engineering Conference and International Cryogenic Materials Conference (CEC/ICMC)-2013, Anchorage, Alaska; to be published in *Advances in Cryogenic Engineering*, Vol. 59, (2013).
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30. "Thermal Conductivity of Molecular Layer Deposited (MLD) Polymer Thin Films," Jun Liu, Byunghoon Yoon, Miao Tian, Eli Kuhlmann, Steven M. George, Yung-Cheng Lee, and Ronggui Yang, ASME International Mechanical Engineering Conference and Exhibition (IMECE2012), Houston, TX, November 9-15, 2012.
31. "Thermal Conductivity Measurement of Molecular Layer Deposited (MLD) Polymer Thin Films using Transient Thermoreflectance Method," Jun Liu, Byunghoon Yoon, Eli Kuhlmann, Steven M. George, Yung-Cheng Lee, and Ronggui Yang, 18th Thermophysical Properties Symposium, Topic: Thermal Properties of Nanostructured Materials, Boulder, CO, June 25-29, 2012.
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 37. "Low Power Micro Cryogenic Cooler Achieved by Ultra-High Thermal Isolation," M.-H. Lin, P. E. Bradley, J. C. Booth, R. J. Lewis, R. Radebaugh, and Y. C. Lee, ASME 2011 Pacific Rim Technical Conference & Exposition on Packaging and Integration of Electronic and Photonic Systems, July 6-8, 2011, Portland, Oregon, USA
 38. "Micro Cryogenic Coolers for IR Imaging," Ryan Lewis, Yunda Wang, Jill Cooper, Martin Muhong Lin, Victor M. Bright and Y.C. Lee, invited paper, SPIE Defense, Security, and Sensing, Orlando, FL, 25-29 April 2011, SPIE Proceeding 8012-75.
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108. "Design Optimization of Surface Micro-machined Self-assembled MEMS Structures," Kevin F. Harsh, Victor M. Bright, Yung-Cheng Lee, The ASME International, Intersociety Electronic & Photonic Packaging Conference & Exhibition (InterPACK'01), Kauai, Hawaii, July 8-13, 2001.
109. "Prediction of the Crack Initiation of GaAs in a Soldered Assembly," Bing Su, Martin L. Dunn and Y. C. Lee, The ASME International, Intersociety Electronic & Photonic Packaging Conference & Exhibition (InterPACK'01), Kauai, Hawaii, July 8-13, 2001.
110. "Flip-Chip Variable High-Q MEMS Capacitor for RF Applications," Nils Hoivik, Yung-Chen Lee and Victor M. Bright, The ASME International, Intersociety Electronic & Photonic Packaging Conference & Exhibition (InterPACK'01), Kauai, Hawaii, July 8-13, 2001.
111. "Flip-Chip Transfer MEMS on a Transparent Substrate for Optical Applications," Jianglong Zhang, Adisorn Tuantranont, Nils Hoivik, Wenge Zhang, Victor M. Bright and Y. C. Lee, The ASME International, Intersociety Electronic & Photonic Packaging Conference & Exhibition (InterPACK'01), Kauai, Hawaii, July 8-13, 2001.
112. "Thermal Management of Micromirror Arrays for High-Energy Applications," Jianglong Zhang, Adisorn Tuantranont, Victor M. Bright and Y. C. Lee, The ASME International, Intersociety Electronic & Photonic Packaging Conference & Exhibition (InterPACK'01), Kauai, Hawaii, July 8-13, 2001.
113. "Digitally controllable Variable High-Q MEMS Capacitor for RF Applications", N. Hoivik, M.A. Michalicek, Y.C. Lee, K.C. Gupta and V.M. Bright, IEEE MTT-S 2001 International Microwave Symposium, Phoenix Arizona, May 20-25, 2001, Symposium Digest.
114. "Packaging for MEMS," Y. C. Lee, Keynote Speech, International Symposia on Materials Science for the 21st Century, Symposium E: Micromaterials - New Frontier for the 21st Century, Osaka, Japan, May 21-26, 2001.
115. "Bulk-Etched Surface Micromachined And Flip-Chip Integrated Micromirror Array for Infrared Applications," A. Tuantranont, Li-A. Liew, V.M. Bright, J. Zhang, W. Zhang, and Y.C. Lee, 2000 IEEE/LEOS International Conference on Optical MEMS, Kauai, Hawaii, 21-24 Aug. 2000, pp. 71-72.

116. "MEMS-Controllable Microlens Array for Beam Steering and Precision Alignment in Optical Interconnect System," Tuantranont A., V.M. Bright, J. Zhang, W. Zhang, J. Neff, and Y. C. Lee, the *2000 Solid-State Sensor and Actuator Workshop*, June 4-8, 2000, Hilton Head Island, SC.
117. "MEMS-based Variable Capacitor for Millimeter-wave Applications," Y. C. Lee, Zhiping Feng, Huantong Zhang, Wenge Zhang, Bingzhi Su, K. C. Gupta and Victor M. Bright, the *2000 Solid-State Sensor and Actuator Workshop*, June 4-8, 2000, Hilton Head Island, SC.
118. "Tolerance Study on Solder Self-Assembled Optical MEMS," Kevin F. Harsh, Paul E. Kladitis, Yanhan Zhang, Martin L. Dunn, Victor M. Bright, and Y. C. Lee, *Micro-Opto-Electro-Mechanical Systems Conference*, Glasgow, Scotland, May 22-25, 2000.
119. "Prediction of Fatigue Crack Initiation between Underfill Epoxy and Substrate," Derick Wu, Bingzhi Su, Martin L. Dunn and Y. C. Lee, *50th Electronic Components and Technology Conference* May 21-24, 2000; Las Vegas, Nevada.
120. "Study of Micro-scale Limits of Solder for MEMS Self-assembly," K. F. Harsh, V. M. Bright and Y. C. Lee, *50th Electronic Components and Technology Conference*, May 21-24, 2000; Las Vegas, Nevada.
121. "Optical and RF MEMS Devices for Electronics Circuits," Y. C. Lee, V. M. Bright and K. C. Gupta, *International Conference on High-Density Interconnect and Systems Packaging*, Denver, April 25-28, 2000.
122. "Smart Phase-Only Micromirror Array Fabricated by Standard CMOS Process", A. Tuantranont, V.M. Bright, L. Liew, W. Zhang, and Y.C. Lee, *Proc. Thirteenth Annual International IEEE Conference on Micro Electro Mechanical Systems (MEMS 2000)*, Jan.23-27, 2000, Miyazaki, Japan.
123. "Three-Dimensional Modeling of Solder Shape for the Design of Solder Self-Assembled Micro-electro-mechanical Systems," P.E. Kladitis, K.F. Harsh, V.M. Bright, and Y. C. Lee, *Proc. 1999 ASME IMECE MEMS Symposium*, MEMS-Vol. 1, pp. 11-18, Nashville, TN, Nov. 1999.
124. "Solder Self-Alignment for Optical MEMS," Kevin F. Harsh, Paul E. Kladitis, M. Adrian Michalick, Jianglong Zhang, Wenge Zhang, Adisorn Tuantranont, Victor M. Bright, and Y. C. Lee, (Invited Paper), *IEEE LEOS Annual Meeting*, San Francisco, November 8-12, 1999.
125. "Micromirror arrays fabricated by flip-chip assembly," M.A. Michalick, W. Zhang, K.F. Harsh, V.M. Bright, and Y.C. Lee, *Proc. SPIE 1999 Symposium on Micromachining and Microfabrication: Miniaturized Systems with Micro-optics and MEMS*, Vol. 3878, pp. 68-79, Santa Clara, CA, Sept. 1999. (Invited Paper.)

126. "Self-Aligned Assembly of Microlens Arrays with Micromirrors," A. Tuantranont, V.M. Bright, W. Zhang, J. Zhang, and Y.C. Lee, Proc. *SPIE 1999 Symposium on Micromachining and Microfabrication: Miniaturized Systems with Micro-optics and MEMS*, Vol. 3878, pp. 90-100, Santa Clara, CA, Sept. 1999.
127. "Gallium Arsenide/Gold Flip-Chip Connection Stress Fields," B. Su, P. E. W. Labossiere, M. L. Dunn, and Y. C. Lee, *The ASME International, Intersociety Electronic & Photonic Packaging Conference & Exhibition (InterPACK'99)*, Maui, Hawaii, June 13-19, EEP-Vol. 26-1, Advances in Electronic Packaging, pp. 2037-2045, 1999.
128. "Flip-chip assembly for RF and optical MEMS," W. Zhang, K.F. Harsh, M.A. Michalicek, V.M. Bright, and Y.C. Lee, *The ASME International, Intersociety Electronic & Photonic Packaging Conference & Exhibition (InterPACK'99)*, Maui, Hawaii, June 13-19, EEP-Vol. 26-1, Advances in Electronic Packaging, pp. 349-354, 1999.
129. "Design and Modeling of RF MEMS Tunable Capacitors Using Electro-thermal Actuators," Z. Feng, W. Zhang, B.S. Su, K.F. Harsh, K.C. Gupta, V.M. Bright, and Y.C. Lee, Digest of 1999 IEEE MTT-S International Microwave Symposium, pp. 1507-1510, Anaheim, California, June 1999.
130. "Flip Chip Integration of Lenslet Arrays on Segmented Deformable Micromirrors," A. Tuantranont, V. M. Bright, W. Zhang, and Y. C. Lee, Proceedings of the International Society for Optical Engineering (SPIE '99) vol. 3680 - Symposium on Design, Test, and Microfabrication of MEMS/MOEMS, Paris, France, March 30 - April 1, 1999, pp. 668-678.
131. "Packaging of Lenslet Array on Micromirrors," A. Tuantranont, V. M. Bright, W. Zhang, and Y. C. Lee, Proceedings of the International Society for Optical Engineering (SPIE '99) vol. 3631 - Photonics West '99 International Symposium on Optoelectronics '99 - Integrated Devices and Applications, San Jose, CA, January 23-29, 1999, pp. 156-164.
132. "Thermal interaction between laser and micro-mirrors," Jianglong Zhang, Victor M. Bright, and Y.C. Lee, Technical Digest, *OSA: Spatial Light Modulators and Integrated Optoelectronic Arrays*, pp. SWC2-1/111 – SWC2-3/113, 1999.
133. "Flip-Chip Assembly for Si-Based RF MEMS," K. F. Harsh, W. Zhang, V. M. Bright, and Y. C. Lee, Proceedings of the 12th IEEE International Conference on Microelectromechanical Systems (MEMS '99), Orlando, FL, January 17-21, 1999, pp. 273-278.
134. "Prototype Microrobots for Micro Positioning in a Manufacturing Process and Micro Unmanned Vehicles," P. E. Kladitis, V. M. Bright, K. F. Harsh, and Y. C. Lee, Proceedings of the 12th IEEE International Conference on Microelectromechanical Systems (MEMS '99), Orlando, FL, January 17-21, 1999, pp. 570-575.

135. "Quick Prototyping of Flip Chip Assembly with MEMS," Ronda Irwin, Wenge Zhang, Kevin Harsh, Y. C. Lee, 1998 IEEE Radio and Wireless Conference, Colorado Springs, CO, August 9-12, 1998.
136. "RF and Mechanical Characterization of Flip-Chip Interconnects in CPW Circuits with Underfill," Zhiping Feng, Wenge Zhang, Bingzhi Su, K. C. Gupta and Y. C. Lee, IEEE MTT-S International Microwave Symposium, Baltimore, June 8-11, 1998.
137. "MEMS Designed for Tunable Capacitors," Huey D. Wu, Kevin F. Harsh, Ronda S. Irwin, Wenge Zhang, Alan R. Mickelson, Y. C. Lee and J. B. Dobsa, IEEE MTT, Baltimore, June 8-11, 1998.
138. "Thermosonic Flip Chip Bonding System with a Self-Planarization Feature Using Polymer," Qing Tan, Brian Schaible, Leonard J. Bond and Y. C. Lee, Proceedings of the 48th Electronic Components & Technology Conference, Seattle, WA, May 1998.
139. "Reliability Study of an Epoxy-Bonded Laser-to-Fiber Assembly," Derick Wu and Y. C. Lee, Proceedings of the 48th Electronic Components & Technology Conference, Seattle, WA, May 1998.
140. "Quick Prototyping of Flip Chip Assembly with MEMS," Ronda S. Irwin, Wenge Zhang, Kevin Harsh, Y.C. Lee, Proceedings of the 44th International Instrumentation Symposium, Reno, Nevada, May 3-7, 1998, pp 256-261.
141. "Solder Self Assembly for MEMS," Kevin Harsh, Ronda Irwin, and Y. C. Lee, Proceedings of the 44th International Instrumentation Symposium, Reno, Nevada, May 3-7, 1998.
142. "Solder Joint Reliability Modeling for a 540-I/O Plastic Ball-Grid-Array Assembly," Bingzhi Su, Saeed Hareb, and Y. C. Lee; Mirng-Ji Lii and Mark E. Thurston, Proceeding of the International Conference on Multichip Modules and High Density Packaging, April 15-17, 1998, Denver, CO, pp 422-428.
143. "Prediction of Yield for Flip-Chip Solder Assemblies," Susan Tower, Bingzhi Su, and Y.C. Lee, Proceedings of the International Conference on Multi-chip Modules and High Density Packaging, April 15-17, 1998, Denver, CO, pp. 35-40.
144. "Modeling for Solder Self-Assembled MEMS," K. Harsh and Y. C. Lee, paper no. 3289-26, Proceedings of SPIE Vol. 3289, San Jose, CA, January 24-30, 1998.
145. "Flip-chip Assembly for Senior Design Projects," Qing Tan and Y. C. Lee, IEEE Education Conference, Washington D.C., July 21-23, 1997.
146. "Fuzzy Logic Based Regression Models for Electronic Manufacturing Applications," Brian Schaible and Y. C. Lee, ASME International Intersociety Electronic & Photonic Packaging Conference, Hawaii, June 15-19, 1997, pp. 147 - 155.

147. "RF Modeling of Flip-Chip Interconnects in Coplanar Waveguide Circuits," Zhiping Feng, Wenge Zhang, K. C. Gupta, and Y. C. Lee, ASME International Intersociety Electronic & Photonic Packaging Conference, Hawaii, June 15-19, 1997, pp. 561 - 566.
148. "Reliability Modeling for Ball Grid Array Assembly with a Large Number of Warpage Affected Solder Joints," Y. W. Chan, T. H. Ju, Saeed A. Hareb, Y. C. Lee, Jih-Shun Wu, and Mirng-Ji Lii, ASME International Intersociety Electronic & Photonic Packaging Conference, Hawaii, June 15-19, 1997, pp. 1507 - 1514.
149. "Efficient Design Using Fuzzy Logic Based Regression Models," Brian Schaible, Y. C. Lee, and Hong Xie, 47th Electronic Components and Technology Conference, San Jose, CA, May, 1997, pp 453 - 461.
150. "Polymer Tapered Waveguides and Flip-Chip Solder Bonding as Compatible Technologies for Efficient OEIC Coupling," Dominic J. Goodwill, Regis S. Fan, Brian Hooker, Yung-Cheng Lee, Brian L. McComas, Alan R. Mickelson, Nina D. Morozova, and Darja Tomic, 47th Electronic Components and Technology Conference, San Jose, CA, May, 1997, pp 788 - 796.
151. "Gas Flow Effects on Precision Solder Self-Alignment," Bingzhi Su, M. Gershovich, and Y. C. Lee, 47th Electronic Components and Technology Conference, San Jose, CA, May, 1997, pp 797 - 803.
152. "Thermosonic Flip-Chip Bonding Using Longitudinal Ultrasonic Vibration," Qing Tan, Wenge Zhang, Brian Schaible, Leonard J. Bond, T. H. Ju, and Y. C. Lee, 47th Electronic Components and Technology Conference, San Jose, CA, May, 1997, pp 1128 - 1133.
153. "The Effect of Underfill Epoxy on Mechanical Behavior of Flip Chip Assembly," Wenge Zhang, Derick Wu, Bingzhi Su, Saeed Hareb, and Y. C. Lee, 47th Electronic Components and Technology Conference, San Jose, CA, May, 1997, pp 1170 - 1175.
154. "Controlled Solder Self-Alignment Sequence for an Optoelectronic Module without Mechanical Stops," N. D. Morozova, L.-A. Liew, W. Zhang, R. Irwin, Bingzhi Su, and Y. C. Lee, 47th Electronic Components and Technology Conference, San Jose, CA, May, 1997, pp 1188 - 1193.
155. "Demonstration of a massively parallel bi-directional crosspoint switch with optical control," H. J. Zhou, J. Neff, Y. Chen, V. Morozov, A. Fedor, Y. C. Lee, C. C. Mao, W. Berseth, T. McLaren, and E. Tang, SPIE Proc. 3005, pp. 266-292, 1997.
156. "VCSEL/CMOS Smart Pixel Arrays for Free-Space Optical Interconnects," John Neff, C. Chen, T. McLaren, C. C. Mao, A. Fedor, W. Berseth and Y. C. Lee, Third International Workshop on Massively Parallel Processing Using Optical Interconnects, Hawaii, October, 1996.

157. "Fuzzy logic based regression modeling of nonlinear processes," Brian Schaible and Y. C. Lee, Electrochemical Society Fall Meeting, Vol. 96-2, San Antonio, TX, October 6 - 11, 1996.
158. Berseth, W., Neff, J., Chen, C., Fedor, A., Lee, Y.C., Mao, C.C., McLaren, T., Morozov, V., O'Brien, D., 1996, "A 3-D Parallel Free-Space Optical Crosspoint Switch", Technical Digest 1, International Topical Meeting on Optical Computing, Sendai, Japan, August.
159. "Thermosonic Bonding for Flip-Chip Assembly," Qing Tan, Wenge Zhang, Tim McLaren, Zhiping Feng, Brian Schaible, L. J. Bond, T. H. Ju, K. C. Gupta, Y. C. Lee, and T. A. Siewert, Wireless Communication Conference, Boulder, CO, August 19-21, 1996.
160. "Assembly of VCSEL Based Smart Pixel Arrays," McLaren, T., Zhang, W., Irwin, R., Morozova, N., Chen, C., Neff, J., Lee, Y.C., IEEE/LEOS Summer Topical Meetings (Smart Pixels), Keystone, Colorado, August 5-9, 1996
161. "Laser-array to Single-Mode-Fiber Coupling Module with Increased Tolerance budget Using Polymer Waveguide Tapers," D. J. Goodwill, R. S. Fan, N. D. Morozova, R. B. Hooker, A. R. Mickelson and Y. C. Lee, SPIE Proceedings, Vol. 2844, SPIE Annual Meeting, Denver, CO, August 1996.
162. "Studies on Flip-Chip Assembly for Optoelectronic Packaging," Y. C. Lee, (invited talk), SPIE Annual Meeting, Denver, CO, August, 1996.
163. "Packaging of Ferroelectric Liquid Crystal on Silicon Spatial Light Modulators," N. D. Morozova, W. Zhang, Wei Lin, T. H. Ju, Y. C. Lee, K. M. Johnson and D. J. McKnight, SPIE Proceedings Vol. 2848, SPIE Annual Meeting, Denver, CO, August, 1996.
164. "Soldering for Optoelectronic Packaging," Y. C. Lee and Qing Tan, IEEE Electronic Components and Technology Conference, Orlando, FL, May 28 - 30, 1996, pp.26-26. (Invited paper).
165. "Thermal Management for Optoelectronic Packaging," Y. C. Lee, invited panelist on Thermal challenges in 21st Century, InterSociety Conference on Thermal Phenomena in Electronic Systems, Orlando, FL, May 29 - June 1, 1996.
166. "Modeling VCSEL Characteristics Using Device and Package Models," N. D. Morozova and Y. C. Lee, SPIE Conference on Optoelectronic Packaging, San Jose, California, February 1- 2, 1996.
167. "Studies for flip-chip/BGA Soldering," Y. C. Lee, (invited talk), Semi-Korea, January 25, 1996.
168. "An Integrated Model for Ball Grid Array Solder Joint Reliability," T. H. Ju, Y. W. Chan, S. A. Hareb, and Y. C. Lee, ASME International Mechanical

Engineering Congress and Exposition, San Francisco, November 12-17, 1995, pp. 83-89.

169. "Random Change of Vibration Modes in Thermosonic Bonding," Sa-Yoon Kang, Kai Chuang, and Y. C. Lee, ASME International Mechanical Engineering Congress and Exposition, San Francisco, November 12-17, 1995, pp. 49-58.
170. "Cost-effective R&D for Emerging Solder Technologies," Keynote speech, Eighth Annual Solder Technology for Electronics Packaging Symposium, Binghamton, New York, October 30 - 31, 1995.
171. "Fuzzy Logic Modeling for Process Optimization and Control," Brian Schaible and Y. C. Lee, International Symposium on Plasma Chemistry, Minneapolis, Minnesota, August 21-25, 1995.
172. "Thermal Management of VCSEL-based Optoelectronic Modules," Y. C. Lee, W. S. Fu, S. W. Swirhun, T. Keyser, J. L. Jewell, and W. E. Qinn, IEEE Electronic Components and Technology Conference, Las Vegas, May 21 to 24, 1995.
173. "Thermosonic Flip-Chip Assembly of 8x8 VCSEL Array," Tim McLaren, Sa Yoon Kang, Wenge Zhang, Diana Hellman, and Y. C. Lee, IEEE Electronic Components and Technology Conference, Las Vegas, May 21 to 24, 1995.
174. "An Integrated Model for Ball Grid Array Solder Joint Reliability," T. H. Ju, Y. C. Lee, S. M. Hareb, and Y. W. Chan, 1995 International Conference on Multichip Modules, Denver, April 19 to 21.
175. "Introduction to Optoelectronic Packaging and Interconnects," ASME International, Intersociety Electronic Packaging Conference, Maui, Hawaii, March 26-30, 1995.
176. "Thermosonic Bonding for Flip-Chip Assembly," Sa Yoon Kang, T. McLaren, Wenge Zhang, and Y. C. Lee, 1995 IEEE Multichip Module Conference, Santa Cruz, Jan. 31 to Feb. 2., pp. 75-80.
177. "Thermal and Mechanical Behavior of BGA/Flip-Chip Assembly," Y. C. Lee, ISHM/SMTA Workshop on BGA Technology, Denver, Jan. 19, 1995.
178. "Studies of Thermosonic Bonding for Flip-Chip Assembly," Sa Yoon Kang, P. M. Williams, and Y. C. Lee, International Conference on Electronic Materials, Hsinchu, Taiwan, Dec. 19-21, 1994. (Invited)
179. "Thermal and Mechanical Analysis for Ceramic Ball Grid Array Assembly," T. H. Ju and Y. C. Lee, International Conference on Electronic Materials, Hsinchu, Taiwan, Dec. 19-21, 1994.
180. "Optoelectronic Packaging," Y. C. Lee, Workshop on Concurrent Engineering for Advanced Interconnect Technology, Amelia Island, FL, Nov. 13-16, 1994. (Invited)

181. "Studies on Solder Self-alignment," Y. C. Lee, IEEE LEOS Annual Meeting, Boston, MA, Oct. 31-Nov. 2, 1994. (Invited)
182. "Thermal Management of Ceramic Ball Grid Array Assembly," Y. C. Lee and J. A. Zitz, IEEE BGA/Flip-Chip Technology Workshop, Binghamton, NY, Oct. 19-21, 1994.
183. "Solder Engineering for Reliable Connections," Tutorial, Seventh Annual Solder Technology for Electronics Packaging Sympos, SUNY at Binghamton, NY, Oct. 17-18, 1994.
184. "Analysis of Variance Using Fuzzy Logic Models," H. Xie and Y. C. Lee, IEEE World Congress on Fuzzy Logic, Orlando, FL, June 30-July 2, 1994.
185. "Solder Modeling for Electronic/Optoelectronic Packaging," Y. C. Lee, Teh-Hua Ju, and Wei Lin, NIST/NSF Interconnect Workshop, Minneapolis, MN, May 31-June 2, 1994.
186. "Assembly Models for Flip-Chip Soldering and Bonding," Y. C. Lee, 8th International Microelectronic Conference, Omiya, Japan, April 20, 1994.
187. "Gas Flow Effects on Self-Aligning Soldering for Optoelectronics," M. Gershovich and Y. C. Lee, 8th International Microelectronic Conference, Omiya, Japan, April 20, 1994.
188. "Research on Self-Alignment for Optoelectronic Applications," Y. C. Lee, Teh-Hua Ju, Wei Lin, A. Chan, and M. Gershovich, ISHM Advanced Technology Workshop on Optoelectronics, April 15-17, 1994, Aspen, Colorado.
189. "Packaging for 128x128 Ferroelectric Liquid Crystal-on-VLSI Modules," Wei Lin, Teh-Hua Ju, Y. C. Lee, D. J. McKnight, and K. M. Johnson, ISHM Advanced Technology Workshop on Optoelectronics, April 15-17, 1994, Aspen, Colorado.
190. "Effects of Ceramic Ball-Grid-Array Package's Manufacturing Variations on Solder Joint Reliability," T. H. Ju and Y. C. Lee, ISHM MCM Conference, Denver, April 12-15, 1994.
191. "Effects of Ceramic Ball-Grid-Array Package's Manufacturing Variations on Solder Joint Reliability," Teh-hua Ju, Wei Lin, Y. C. Lee, and Jay Liu, ASME Winter Annual Meeting, New Orleans, Nov. 30, 1993.
192. "Modeling and Experiment on Thermosonic Flip-Chip Bonding," S. Y. Kang, P. M. Williams, T. A. Keyser, and Y. C. Lee, ASME Winter Annual Meeting, New Orleans, Nov. 30, 1993.
193. "Solderless Connection Technologies," Y. C. Lee and P. M. Williams, ASME Winter Annual Meeting, New Orleans, Nov. 30, 1993.

194. "Compact Optical Processors Using Multi-Chip Modulates," (invited), Optical Society of America Technical Digest, K. M. Johnson and Y. C. Lee, October 5, 1993, Toronto, Canada.
195. "Process Optimization Using Fuzzy Logic Models," H. Xie, Y. C. Lee, R. L. Mahajan, and Ren Su, SRC TECHCON, Atlanta, Sept. 28-30, 1993.
196. "Experimental Verification of a General Purpose Solder Profile Model," T. H. Ju, Y. W. Chan, W. Lin, and Y. C. Lee, S. K. Patra, and S. H. Lee, ASME Int'l Electronics Packaging Conference, Binghamton, New York, Sept. 29, 1993.
197. "Cooling of A FCHIP Package with a 100 Watt, 1 sq. cm Chip," Y. C. Lee, Wenge Zhang, Hong Xie, and Roop L. Mahajan, ASME Int'l Electronics Packaging Conference, Binghamton, New York, Sept. 29, 1993.
198. "Packaging of Liquid Crystal on Silicon Modulators Using Solder," T. H. Ju, W. Lin, Y. C. Lee, and K. M. Johnson, IEEE-LEOS Summer Topical Meeting, Santa Barbara, CA, July 26-28, 1993.
199. "CAD of Solder Joints for Self-Aligned Assemblies," S. K. Patra, W. Lin, and Y. C. Lee, IEEE-LEOS Summer Topical Meeting, Santa Barbara, CA, July 26- 28, 1993.
200. "Thermosonic Bonding: An Alternative to Area-Array Solder Connections," Sa Yoon Kang, Teh-hua Ju, and Y. C. Lee, Electronic Components and Technology Conference, Florida, June 2-4, 1993.
153. "Study of Soldering for VLSI/FLC Spatial Light Modulators," Wei Lin, Y. C. Lee and K. M. Johnson, Electronic Components and Technology Conference, Florida, June 2-4, 1993.
154. "Thermal Modeling Using Fuzzy Logic for 1-100 Watt/sq. cm Chips," H. Xie and Y. C. Lee, Int'l Conf. on MCMs, Denver, April 14-16, 1993.
155. "Modeling of Flip-Chip Thermocompression Bondings: Part I - A Physical Yield Model," Sa-Yoon Kang and Y.C. Lee, ASME Winter Annual Meeting, Anaheim, Nov. 1992.
156. "Modeling of Flip-Chip Thermocompression Bondings: Part II - Uncertainties and Self-Learning Physico-Fuzzy Models," H. Xie, S.Y. Kang and Y.C. Lee, ASME Winter Annual Meeting, Anaheim, Nov. 1992.
157. "Minimum-Energy Surface Profile of Solder Joints for Non-circular Pads," S. K. Patra, S. S. Sritharan, and Y. C. Lee, ASME Winter Annual Meeting, Anaheim, Nov. 1992.
158. "Neural Network and Fuzzy Logic Models for a Horizontal CVD Reactor," R. L. Mahajan, X. A. Wang, H. Xie, and Y. C. Lee, SPIE Conference on Artificial

Intelligence and Neural Networks, April 1992, Orlando.

159. "Yield Modeling of MCM Assembly with Flip-Chip Thermocompression Bondings," Sa-Yoon Kang, H. Xie and Y.C. Lee, IEEE MCM Conference, Santa Cruz, March 18 - 20, 1992.
160. "High-Density Assembly," Y. C. Lee, ISHM Multichip Module-C Workshop, Florida, December 1991.
161. "Experiment and Modeling of the Self-Alignment Mechanism in Flip-Chip Soldering," M. Landry, S. K. Patra and Y. C. Lee, ASME Winter Annual Meeting, Atlanta, 1991.
162. "Self-Aligned Soldering for Fast Image Correlator," Y. C. Lee and K. Johnson, International Electronic Packaging Society Conference, San Diego, CA, September 15 - 19, 1991.
163. "MCM Assembly Using Low-Cost Robots," Y. C. Lee and D. Orthman, Multichip Module Workshop, Santa Cruz, March 28-29, 1991.
164. "Modeling of the Self-Alignment Mechanism in Flip-Chip Soldering; Part II: Multiple Solder Joints," S. K. Patra and Y. C. Lee, 41st Electronic Components and Technology Conference, Atlanta, May 1991. (Outstanding Paper Award).
165. "Quasi-Static Modeling of Self-Alignment Mechanism in Flip-Chip Soldering Process," S. Patra and Y. C. Lee, ASME Winter Annual Meeting, Dallas, TX, Nov.25-30, 1990.
166. "Stress Analysis of Vertical Interconnects for 3-D Packaging," K. Zouari and Y. C. Lee, ASME Winter Annual Meeting, Dallas, TX, Nov. 25-30, 1990.
167. "Quick Prototyping Center for HWSI Multichip Modules," S. Chandra and Y. C. Lee, SPIE Intern'l Symposium on Advances in Interconnects and Packaging, Boston, Nov. 4-9, 1990.
168. "Design of HWSI Multichip Modules for Quick Prototyping and Manufacturing," Y. C. Lee, 40th Electronic Components and Technology Conference, Las Vegas, NV, May 21-23, 1990.
169. "Desktop Prototyping and Manufacturing for HWSI-Based Supercompact Systems," Y. C. Lee, J. P. Avery and R. Su, Government Microcircuit Applications Conference, Orlando, Fl., Nov. 7 - 9, 1989.
170. "Hermetic Sealing for an Advanced VHSIC/VLSI Packaging Technology," J. M. Segelken, Y. C. Lee and B. Poborets, Government Microcircuit Applications Conf., Las Vegas, Nov. 8-10, 1988.
171. "Experimental and Numerical Studies of Particle Velocities in Thermal Plasma Jets," E. Fleck, Y. C. Lee and E. Pfender, 8th Int'l Symposium on Plasma

Chemistry, Tokyo, Japan, 1987.

172. "A Gas-Shrouded Plasma Spray Torch," with E. Fleck and E. Pfender, 7th Int'l Symposium on Plasma Chemistry, Eindhoven, Netherlands, July, 1113(1985).
173. "Heat Transfer Analysis of the Plasma Sintering Process," Y. C. Lee and E. Pfender, Materials Research Society Symposia Proceedings, Vol. 30, Plasma Processing and Synthesis of Materials, Elsevier Science Publishing Co., Inc., New York, November 1983.
174. "The Importance of Knudsen and Evaporation Effect," with Y. C. Lee, X. Chen and E. Pfender, 6th Int'l Symposium on Plasma Chemistry, Montreal, Canada, 1983.
175. "Modeling of Particles Injected into a D.C. Plasma Jet," Y. C. Lee, K. C. Hsu and E. Pfender, 5th Int'l Symposium on Plasma Chemistry, Edinburg, Scotland, 1981.

Invited Presentations, Seminars or Short Courses (Speaker: Y. C. Lee)

1. February 15, 1990; Intel Corporation, Chandler, AZ, "Quick Prototyping for HWSI-Based Supercompact Systems."
2. February 16, 1990; Motorola Inc., Phoenix, AZ, "Quick Prototyping for HWSI-Based Supercompact Systems."
3. April 23, 1990; United Technologies Research Center, CT, "Modeling Work in Thermal Plasma Processing."
4. July 31, 1990; ASIC Tutorial, Microelectronic System Education Conference & Exposition, Santa Clara, CA, "Quick Prototyping for HWSI-Based Supercompact Systems."
5. November 20, 1990; Seminar Series of the Center for Optoelectronic Computing Systems, University of Colorado, Boulder, CO, "Advanced Packaging for Electronics and Optoelectronics."
6. February 27, 1991; Seminar Series of the Center for Optoelectronic Computing Systems, Colorado State University, CO, "Advanced Packaging for Electronics and Optoelectronics."
7. October 24, 1991; Seminar Series of Department of Mechanical Engineering, Colorado State University, Fort Collins, CO, "Self-Aligned Soldering for Advanced Electronic Packaging."
8. October 28, 1991; AT&T Bell Labs., Princeton, NJ, "Self-Aligned Soldering for Advanced Electronic Packaging."
9. November 5, 1992; Tutorial, Center for Advanced Packaging of Microwave, Optical, and Digital Electronics, University of Colorado, Boulder, CO,

"Introduction to Multichip Modules."

10. November 16, 1992; Seminar, Digital Equipment Corporation, Hudson, MA, "Studies on Soldering, Thermocompression Bonding, and Thermal Management Related to Flip-Chip Connected Packages."
11. May 18, 1993; SME Chapter 354 Monthly Seminar, Lafayette, CO, "Multichip Modules"
12. August 31, 1993; Special One-Day Seminar; Allied Signal, Kansas City, MO, "Advanced Packaging Research for Flip-Chip Assemblies"
13. November 16, 1993; Short Course; OPTCON, San Jose, CA, "Introduction to Optoelectronic Packaging"
14. April 5, 1994; Intel, Chandler, AZ, "Thermosonic Flip-Chip Bonding"
15. April 11 - 13, 1994; Two-day Short Course; Taipei, Taiwan, "Electronic/Optoelectronic Packaging"
16. April 21, 1994; NTT, Japan, Seminar, "Optoelectronic Research at the University of Colorado"
17. August 11, 1994; Short Course; Univ. of Colorado, Boulder, CO, "Thermal and Mechanical Design of BGA Assemblies"
18. Oct. 17-18, 1994, "Solder Engineering for Reliable Connections," Tutorial, Seventh Annual Solder Technology for Electronics Packaging Sympos, SUNY at Binghamton, NY.
19. July 18, 1995; Intel, Chandler, AZ, "Reliability Modeling of BGA Assembly"
20. August 24-25, 1995; VCSEL Short Course, University of Colorado, Boulder, "VCSEL Packaging"
21. October 9 - 11, 1995, "Thermal Management for Optoelectronic Components and Systems," Review talk in NSF Workshop on Thermal Management Technology in 21st Century, Minneapolis, Minnesota.
22. October 30 - 31, 1995, "Cost-effective R&D for Emerging Solder Technologies," Keynote speech, Eighth Annual Solder Technology for Electronics Packaging Symposium, Binghamton, New York.
23. January 24, 1996, Samsung Electronics, Korea, "Studies for Flip-chip/BGA Soldering and Thermosonic Flip-chip Bonding"
24. January 26, 1996, Seminar, Packaging Consortium, Korea, " Thermal and Mechanical Modeling for BGA Assembly"

25. June 13, 1996, Short Course, National Chung Cheng University, Taiwan, "Introduction to Electronic Packaging" and "Studies for Flip-Chip/BGA Soldering and Flip-Chip Bonding"
26. September 18, 1996, Seminar, Department of Mechanical Engineering, University of Colorado, Boulder, "Packaging for Microelectronic, Optoelectronic, Millimeter-Wave and Microelectromechanical Systems"
27. November 5, 1997, "Engineering solder for microelectronics, optoelectronics, MEMS and X," Distinguished Lecture Series, Packaging Research Center, Georgia Institute of Technology, Georgia, USA.
28. February 19, 1998, "Engineering solder for optoelectronics packaging and MEMS," Seminar, Rock Mountain OSA/IEEE LEOS chapter.
29. June 8, 1998, "Flip-chip Assembly for Optoelectronics Packaging," Seminar, Industrial Technology Research Institute, Taiwan.
30. June 9, 1998, "Packaging for RF and Optoelectronic MEMS," Seminar, National Chia-Tung University, Taiwan.
31. June 16, 1998, "Area-Array Assembly for Microelectronics, Optoelectronics, Microwave and MEMS," Seminar, Japan Society of Mechanical Engineers.
32. June 19, 1998, "Flip-chip Assembly for Optoelectronics Packaging," Seminar sponsored by Visiting Researcher Scholarship Program, Fujitsu Labs. LTD.
33. June 22, 1998, "Packaging for RF and Optoelectronic MEMS," Seminar, Tsing-Hua University, China.
34. July 27, 1998, "MEMS Designed and Packaged for RF Applications," Seminar, Bell Laboratories, Lucent Technologies, Murray Hill, NJ.
35. October 18, 1999, "MEMS for Beam Steering," Seminar, HRL Labs., Malibu, CA.
36. October 29, 1999, "Flip-chip Assembly for Optoelectronics Packaging," Seminar, Ortel Corporation, Los Angeles, CA.
37. December 9, 1999, "MEMS-based Tunable Capacitors and Multiway Switches for Millimeter-wave Applications," Seminar, NIST, Boulder, CO.
38. December 15, 1999, "MEMS-based Tunable Capacitors and Multiway Switches for Millimeter-wave Applications," Seminar, Motorola, Tempe, AZ.
39. December 14, 1999, "Application-Specific MEMS for Optical and RF Applications," Seminar, LASP, Boulder, CO.
40. July 3, 2000, "Packaging as an Enabling Technology for Novel MEMS," Institute

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- Seminar, Microelectronics Institute, Technical University of Denmark, Denmark.
41. November 29, 2000, "Packaging as an Enabling Technology for Novel MEMS," Y. C. Lee, Department Seminar, Department of Mechanical Engineering, University of Minnesota.
 42. August 20, 2001, Opelectronic and MEMS packaging, Microsoft, Seattle.
 43. October 4, 2001, Center Seminar, MEMS design and packaging, University of Michigan.
 44. October 5, 2001, Solder and Solderless Connections for Microwave, Optical, Digital Electronics and MEMS, Rose-Hulmann, Terre Haute.
 45. October 18, 2001, Seminar, MEMS design and packaging, University of Washington, Seattle.
 46. May 28, 2001, Seminar, MEMS design and packaging, Tsing Hua University, Taiwan.
 47. May 23, 2001, Seminar, MEMS design and packaging, Kyushu University, Japan.
 48. May 25, 2001, Optical MEMS, short course, Industrial Technology Research Institute, Taiwan.
 49. July 31, 2001, Optoelectronic and MEMS Packaging, short course, SPIE conference, San Diego.
 50. August 22, 2001, Optoelectronic and MEMS Packaging, short course, SPIE ITcom Conference, Denver.
 51. Jan. 22, 2002, Optoelectronic and MEMS Packaging, short course, SPIE Photonic West, San Jose, CA.
 52. July 14, 2002, Optoelectronic and MEMS Packaging, sort course, IEEE PhoPack, Palo Alto, CA.
 53. March 21, 2002, Nano-Scale Engineering for Reliable Microsystems, Seminar, ME Department, University of Colorado – Boulder.
 54. Jan. 29, 2003, Optoelectronic and MEMS Packaging, short course, SPIE Photonic West, San Jose, CA.
 55. January 18, 2003, "Design and Packaging of Micro/Nano Systems," Y. C. Lee invited talk given at the Colloquium on Micro/Nano Thermal Engineering, Seoul National University, Korea.
 56. January 24, 2003, "CAMPmode Research and MEMS Design, Packaging and Reliability," Y. C. Lee invited seminar given at Ricoh Inc., Japan.

57. April 24, 2003, "Design and Packaging of Micro/Nano Systems," Y. C. Lee seminar given at the University of Alaska at Fairbanks.
58. April 30, 2003, "Design and Packaging of Micro/nano Systems," Y. C. Lee seminar given at the University of Denver.
59. July 30, 2003, "Packaging and Reliability for Foundry-fabricated MEMS," Workshop on Microsystems Packaging Technology, Ciudad Juárez, Mexico.
60. October 9, 2003, "Bio-Molecular Motors and Micro-Motors," Y. C. Lee seminar given at the CU Mechanical Engineering Department seminar.
61. October 1, 2004, "Packaging for Microsystems" seminar and "Molecular Biology for Packaging Engineers," tutorial given by Y. C. Lee at Intel Corporation, Chandler, AZ.
62. October 19-20, 2004, "MEMS Design and Packaging," Invited talk at Electronic Packaging Symposium at GE Global Research Center, Niskayuna, New York.
63. October 6, 2005, "Packaging for Microsystems," Y. C. Lee, ASM Rocky Mountain Chapter, Monthly Seminar.
64. October 23-24, 2006, "DARPA Focus Center on Integrated MEMS/NEMS," Y. C. Lee, invited talk at Electronic Packaging Symposium at GE Global Research Center, Niskayuna, New York.
65. January 8, 2008, Atomic layer deposition and molecular layer deposition, DARPA Workshop on Advanced Materials, Miami, FL.
66. April 23, 2008, "Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT)," Telecyne Scientific Company, Thousand Oaks, CA.
67. October 14, 2008, "Micro Cryocooler," BAE Systems, Boston, MA.
68. July 27, 2008, "Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT), IBM, Yorktown Heights, NY.
69. July 28-30 2008, "Micro/Nanotechnology for Barrier Coatings and Flexible Thermal Ground Planes," Electronics Packaging Symposium at GE Global Research Center, Niskayuna, New York.
70. April 9, 2009, "Nanowire/Nanotube/Graphene-Enabled Microsystems" Department seminar, Department of Mechanical Engineering, University of Colorado, Boulder, CO.
71. November 18, 2009, "Overview of DARPA Center on Nanoscale S&T for

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- Integrated Micro/Nano-Electromechanical Transducers (iMINT),” Raytheon, Andover, MA.
72. November 18, 2009, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” BAE Systems, Merrimack, NH.
73. November 19, 2009, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” Draper Lab., Cambridge, MA.
74. November 19, 2009, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” Foster Miller, Waltham, MA.
75. April 8, 2010, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” Corning Research Center, Corning, NY.
76. April 9, 2010, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” GE Global Research Center, Niskayuna, NY.
77. June 21, 2010, “Thermal Ground Planes, Micro Cryocoolers and DARPA iMINT Center, Raytheon, El Segundo, CA.
78. July 21, 2010, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” Lockheed Martin, Palo Alto, CA.
79. July 21, 2010, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” Intel, Santa Clara, CA.
80. July 23, 2010, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” Qualcomm, San Jose, CA.
81. August 2, 2010, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” HRL Labs, Malibu, CA.
82. September 1, 2010, “Overview of DARPA Center on Nanoscale S&T for Integrated Micro/Nano-Electromechanical Transducers (iMINT),” Sandia National labs, Albuquerque, NM.
83. November 30, 2010, “Solder Self-Alignment for optoelectronics, Intel, Chandler, AZ.
84. February 18, 2011, Nano-Scale Engineering for Flexible Thermal Ground Planes, Micro Cryogenic Coolers and Other Novel Microsystems, Ball Aerospace,

Boulder, CO.

85. July 5, 2011, Thermal Ground Planes, Micro Cryocoolers and DARPA iMINT Center, Raytheon, El Segundo, CA.
86. October 14, 2011, DARPA iMINT Research Center, Industrial Advisory Council (IAC) meeting, Department of Mechanical Engineering, University of Colorado, Boulder.
87. March 14, 2012, Flexible Thermal Ground Planes for Thin and Flexible Smartphones, Rocky Mountain Section of the Materials Research Society.
88. April 16, 2012 Review of iMINT Battery Research, Symposium on Batteries, University of Colorado, Boulder.
89. April 18, 2012, Flexible Thermal Ground Planes and ALD-Enabled High Density Batteries, Laboratory for Physical Science, University of Maryland, College Park, MD.
90. April 19, 2012, Flexible Thermal Ground Planes, Thermacore, Lancaster, PA.
91. Packaging for 1-mm Thin Smartphones, Y. C. Lee, Panel on Smartphones, IEEE I-Therm, San Diego, CA, May 31, 2012.
92. ALD/MLD for 1-mm Thin Smartphones, Y. C. Lee, Broadcom, Irvine, CA, August 15, 2012.
93. ALD/MLD for Packaging, Y. C. Lee, IEEE CPMT Chapter Seminar, Orange County, August 16, 2012.
94. Flexible Thermal Ground Planes, Y. C. Lee, Advancements in Thermal Management, Denver, September 19, 2012.
95. Flexible Thermal Ground Planes, Y. C. Lee, Advancements in Thermal Management, Denver, June 6-7, 2013.
96. Packaging and Thermal Management Challenges for Future 1-mm Thin Smartphones, Y. C. Lee, Panel on Smartphones, ASME INTERPACK 2013, San Francisco, July 2013.
97. Flexible Thermal Ground Planes, Y. C. Lee, DARPA Workshop on Thermal Ground Planes, Washington DC, September 19, 2013.
98. Flexible Thermal Ground Planes, Panelist, Session on Innovations in Thermal Packaging Materials, IEEE IThermal conference, May 27-30, Orlando, FL.
99. Roll-to-Roll ALD/MLD, Panelist, Session on Nanomanufacturing: Successful, Scalable, and Sustainable, ASME International Mechanical Engineering Congress and Exposition, November 14-20, 2014, Montreal, Canada.

100. State of Colorado's Advanced Industries Accelerator program, Colorado Photonics Industry Association, annual meeting held at CU-Boulder on October 29, 2014.
101. Micro/Nano-technologies for Microsystem Integration, Y. C. Lee, Seminar, Huazhong University of Science and Technology, Wuhan, China, October 26, 2015.
102. Micro/Nano-technologies for Microsystem Integration, Y. C. Lee, Seminar, Wuhan University, Wuhan, China, October 26, 2015.
103. Micro/Nano-technologies for Microsystem Integration, Y. C. Lee, Seminar, National Chung Hsin University, Taichung, Taiwan, August 24, 2016.
104. Fundamental Research Driven by Novel Microsystems, Seminar, National Taiwan University, Taipei, Taiwan, on May 15, 2017.
105. Flexible thermal ground planes, Seminar, Qualcomm company-wide workshop on thermal management, San Diego, CA, February 28, 2017.
106. Flexible thermal ground planes for high heat flux applications, Seminar, Raytheon, El Segundo, CA, March 29, 2017.
107. Micro/Nano-technologies for Microsystem Integration, Seminar, National Taiwan University of Science and Technology, Taipei, Taiwan, January 3, 2018.
108. Opportunities and Challenges of Advanced Thermal Management Technologies, Seminar, Murata Manufacturing, Yasu, Japan, May 18, 2018
109. ALD-Enabled Packaging Technologies for 1-mm Thin Smartphones, Seminar, Shenzhen Institutes of Advanced Technology, Shenzhen, China, June 13, 2018.

PATENTS

<u>Patent Number</u>	<u>Year Issued</u>	<u>Title</u>
5,049,982	1991	Article Comprising A Stacked Array of Electronic Subassemblies
5,497,258	1996	Low-cost FLC/VLSI Spatial Light Modulator Packaging Using Solders
7,426,067	2008	Atomic Layer Desposition on Micro-Mechanical Devices

9,163,883	2015	Flexible thermal ground plane and manufacturing the same
9,651,312	2017	Flexible thermal ground plane and manufacturing the same
9,921,004	2018	Polymer based microfabricated thermal ground plane
9,909,814	2018	Flexible thermal ground plane and manufacturing the same

PROFESSIONAL AFFILIATIONS, AWARDS and SERVICES

Affiliations

Fellow, ASME

Honors and Awards

CU-ME Department Outstanding Service Award, 2016
 CU-ME Department Outstanding Service Award, 2015
 CU-ME Department Woodward Award, 2014
 ASME InterPACK Achievements Award, 2013
 S.J. Archuleta Endowed Professorship, 2011
 CU-ME Department Outstanding Service Award, 2008
 ASME Electronic and Photonic Packaging Division's Mechanics Award in 2007
 Team of the Year Award, Teledyne Scientific Company, 2007
 CU-ME Woodward Outstanding Mechanical Engineering Faculty Award, 2005-2006
 GOMACTech-03 Meritorious Paper Award, Govern. Micro. Appli. Conf, 2003
 IEEE Transactions on Advanced Packaging Honorable Mention Paper Award, 2003
 ASME Fellow, December 2002.
 Visiting Researcher Scholarship Program, Fujitsu Labs., June 18-25, 1998
 Outstanding Paper Award, ASME J. of Electronic Packaging, 1993
 Outstanding Young Manufacturing Engineer Award, SME, 1992
 Outstanding Paper Award, IEEE Electronic Component & Tech. Conf., 1991
 Presidential Young Investigator Award, NSF, 1990-94
 Poster Session Best Paper Award, Govern. Micro. Appli. Conf., 1988
 Ph.D. Dissertation Fellowship, University of Minnesota, 1983-1984

Professional Services

- Editor, ASME Journal of Electronic Packaging, July 2014 to present
- Director, DARPA Center for Integrated Micro/Nano-Electromechanical Transducers (iMINT), September, 2006 - 2012.
- Administrative Director, Nanomaterials Characterization Facility (NCF), September 2006 –2012.

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- Acting Director, Center for Advanced Manufacturing and Packaging of Microwave, Optical and Digital Electronics (CAMPmode), 2001 to 2002 and 2006 to 2008.
 - Associate Director, Center for Advanced Manufacturing and Packaging (CAMPmode), 1993-2002.
 - Chair, Nomination Committee, ASME Electronic and Photonic Packaging Division, 2006-2007.
 - Chair, Awards Committee, ASME Electronic and Photonic Packaging Division, 2005-2006.
 - Chair, Executive Committee, ASME Electronic and Photonic Packaging Division, 2004-2005.
 - Member of Advisory Board, ASME International Intersociety Electronic Packaging Conference, InterPACK'05, San Francisco, July 17-22, 2005 and InterPACK'07, Vancouver, July 8-13, 2007.
 - Advisory Board of JSME International Journal, Series A: Solid Mechanics and Material Engineering, 2005, 2006, and 2007.
 - Associate Technical Editor, ASME Journal of Electronic Packaging (2001-2004)
 - Guest Technical Editor, IEEE Transaction on Advanced Packaging (2003-2005)
 - Reviewer of: National Science Foundation (proposal reviewer and site visit review), NSF Panel Review of Packaging Research Center at Georgia Institute of Technology, NRC/Ford Fellowships, DOE/NRC Integrated Manufacturing Pre-doctoral Fellowships, ASM, E J. of Electronic Packaging, ASME J. of Applied Mechanics, IEEE Trans. on Components, Hybrids, and Manufacturing Technology, International J. of Heat and Mass Transfer, Plasma Chemistry and Processing, Engineering Economist, IEEE Computer magazine, and IEEE Education.
 - 1991 Multichip Module Workshop (Santa Cruz, March 28-29, 1991, sponsored by the National Science Foundation): program committee member.
 - 41st IEEE Electronic Components and Technology Conference (Atlanta, Georgia, May 13-15, 1991): committee member in the packaging subcommittee.
 - Workshop on Optoelectronic Packaging (sponsored by the National Science Foundation, Boulder, Colorado, August 1-2, 1991): workshop organizer with two other colleagues.
 - 1992 IEEE Multi-Chip Module Conference (Santa Cruz, March 18-20): member of the subcommittee on technology.
 - Symposium on Optoelectronic Packaging Science (sponsored by the National Science Foundation, August 19-21, 1992): steering committee member and session chair.
 - First Joint Workshop on Electronic Packaging Education (Sponsored by the Cornell University, October 5-6, 1992): member of the program board.
 - Symposium on the Manufacturing Aspects in Electronic Packaging, ASME Winter Annual Meeting (Anaheim, CA, December, 1992): symposium organizer.
 - 1993 IEEE Multi-Chip Module Conference (Santa Cruz, March 18-20): program committee member.
 - Workshop on Optoelectronic Packaging (sponsored by the National Science Foundation; Santa Barbara, CA, August 28-30, 1993): Program Chairman.
 - ASME International Electronic Packaging Conference, Binghamton, NY, Sept. 31 - Oct. 2, 1993, chair of the optoelectronic sessions.
 - Symposium on the Manufacturing Aspects in Electronic Packaging, ASME Winter Annual Meeting (New Orleans, November 31 to December 1, 1993): symposium

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- organizer.
- 1994 IEEE Multi-Chip Module Conference (Santa Cruz, March 18-20): program committee member.
 - 1994 NSF International Workshop on Optoelectronic Packaging (Breckenridge, CO, August 14 to 17); program chair.
 - 1995 IEEE Multi-Chip Module Conference (Santa Cruz, Feb. 1 to 3); program committee member.
 - International InterPACK'95, Intersociety Electronic Packaging Conference (sponsored by ASME, JSME, IEEE; Maui, Hawaii, March 26 - 30, 1995): coordinator for international liaisons, chair of optoelectronics session, and moderator of International Forum.
 - ASME International Mechanical Engineering Congress and Exposition (San Francisco, November 12, 1995); session chair.
 - SPIE Symposium on Optoelectronic Packaging (San Jose, Feb. 1, 1996); symposium co-organizer and session chair.
 - IEEE Multi-Chip Module Conference (Santa Cruz, Feb. 1 to 3, 1996); program committee member and session chair.
 - Education Conference for Electronic Packaging (Ithaca, NY, September 30, 1996); program committee member.
 - Colorado ISHM/SMTA Symposium on Flip-chip, BGA and CGA, (Colorado, January 23, 1997); Program Chair.
 - ASME InterPACK'97, International Intersociety Electronic Packaging Conference, Hawaii, June 15-19, 1997; Technical Program Chair.
 - SPIE Symposium on Micro-Optics Integration and Assemblies (San Jose, Jan. 24-30, 1998); symposium co-organizer and session chair.
 - Conf. on Thermal Phenomena in Elec. Systems, (Seattle, May 27-30, 1998); session chair
 - IEEE MTT-S International Microwave Symposium, organizer of a panel session on MEMS for Microwave and Millimeter-wave Applications, (Baltimore, June 7-12, 1998; 500 participants!)
 - SPIE Symposium on Photonics Packaging and Integration (San Jose, Jan. 23-29, 1999); symposium program committee.
 - ASME InterPACK'99, Hawaii, June 13-17, 1999; Overall Technical Program Chair.
 - IMAPS Advanced Technology Workshop on MEMS Packaging, Chicago, October 23-24, 1999, Technical Program Co-chair.
 - ASME IMECE, Nashville, TN, November 15-18, 1999, organizer of a panel session.
 - ASME IMECE, Orlando, November 15-21, 2000, Session Chairs.
 - ASME InterPACK'01, Hawaii, July 9-13, 2001, General Chair.
 - ASME InterPACK'03, Hawaii, July 6-11, 2003, Advisory Board, Track Chair and Session Chairs.
 - ASME IMECE, Washington DC, November 15-21, 2003, Session Chairs.
 - ASME IMECE, Anaheim, CA, November 13-19, 2004, Session Chairs.
 - ASME InterPACK'05, San Francisco, July 17-22, 2005; Advisory Board, Session Chairs.
 - ASME IMECE, Orlando, November 5-11, 2005, Session Chair.
 - ASME IMECE, Chicago, November 6-10, 2006, Session Chair.
 - ASME InterPACK'07, Vancouver, Canada, July 8-13, 2007; Advisory Board, Panel

Session Chair.

- ASME InterPACK'09, San Francisco, CA, July 19–23, 2009, Advisory Board and Session Chair for Photonics and Optics.
- Member of Committee on Optoelectronic Packaging, IEEE Electronic Components and Technology Conference (ECTC), 2007-2010.
- Session Chair, Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT 2009), Denver, Colorado – USA, April 20 - 23, 2009.
- ASME InterPACK'11, Portland, OR, July 6-8, 2011, Advisory Board and Track Chair for Panel Sessions,
- Eco-materials and Eco-innovation for Global Sustainability (ECO-MATES), Osaka, Japan, November 28-30, 2011; Session Chair.
- ITherm 2012, San Diego, California, May 30 - June 1, 2012; Track Chair for Panel Sessions.
- ASME InterPACK'13, San Francisco, CA, July 16-18, 2013; Advisory Board and Track Chair for N/MEMS Track.
- International Symposium on Interfacial Joining and Surface Technology (IJST 2013), Osaka University, Nov. 27 to 29 in 2013; Advisory Board.
- IEEE ITherm 2014, Orlando, FL, May 27 – 30, 2014; Track Chair for Panel Sessions.
- ASME InterPACK'15, San Francisco, CA, July 6-9, 2015; Advisory Board and Track Chair for Workshops.
- IEEE ITherm 2016, Las Vegas, NV, May 31 – June 3, 2016; Track Chair for Panel Sessions.
- ASME InterPACK'17, San Francisco, CA, August 29 to September 1, 2017; Advisory Board and Chair of Awards Committee.
- ASME InterPACK'18, Advisory Board and member of Awards Committee, San Francisco, CA, August 29 to September 1, 2018.
- ASME Electronic and Photonic Packaging Division, Executive Committee, member, June 2017 to present.