

Curriculum Vitae of Wilmer R. Bottoms, PhD

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Dr. W.R. “Bill” Bottoms, the holder of a Ph.D. from Tulane University, has an extensive background in academia, venture funding, and in the commercial semiconductor device and equipment sector.

Education

Doctor of Philosophy in Physics from Tulane University, New Orleans, Louisiana	1969
Bachelor of Arts in Physics from Huntingdon College, Montgomery, Alabama	1965

Experience

1999 - Present **Private venture capital, Board Member, Consultant, Expert Witness**

Dr. Bottoms has been involved in managing his venture capital investment and other activities, primarily in the semiconductor industry since his left Credence Systems in December of 1998. The following is a brief description of his professional involvements during that period.

Private Venture Capital

Dr. Bottoms has maintained a personal venture capital investment portfolio and participated in the startup of several companies in the electronics and electronic materials industry since 1998. These include:

3MTS, a test equipment and service company providing automatic test equipment and applications programming for solid state components and modules.

NanoNexus, a manufacturer of probe cards for testing integrated circuits using MEMS technology.

SBA Materials, a developer and manufacturer of self-assembled dielectric materials for integrated circuit manufacture and electronics packaging applications.

APMT, a developer and manufacturer of equipment for real-time monitoring of polymer reactions.

Board Member and Technical Advisor

Dr. Bottoms has served as a Board member of Alchimer, a company that develops equipment and process for the manufacture of through silicon vias and other critical metal layers in semiconductor devices and packages; Southwest Nanotechnologies (SWeNT), a leading producer of carbon nanotubes; Chairman of SBA Materials, a producer of dielectric materials and developer of clean room processes for use of the materials in semiconductor device manufacturing; Chairman and CEO of Nanonex, a manufacturer of MEMS devices; Chairman and CEO of 3MTS, a supplier of equipment and applications programs for testing electronic components and systems and Executive Chairman of APMT, a manufacturer of analytical equipment for control of industrial processes in polymer production. He was a member of the Board of Tulane University and has served as Chairman of both its Academic Affairs Committee and Student Affairs Committee. He currently serves as an Emeritus member of the Board and a member of the Academic Affairs Committee.

He has also served as:

- a member of the Technical Advisory Board of SemEquip, a Ceradyne subsidiary developing equipment and process for ion implantation
- a member of the Technical Advisory Board for R3 Logic, a company providing design tools for 3D integration of electronics.
- an advisor to Tezzaron, a designer and manufacturer of 3D stacked integrated circuits

A Leader in Industry Organizations

Dr. Bottoms Currently serves as a participant in the International Roadmap for Semiconductors (ITRS) in four capacities: Chairman of the Technical Working Group for Assembly and Packaging of electronic components; a member of the Technical Working Group for Emerging Research Materials, a member of the Technical Working Group for Emerging Research Devices and Chairman of the Focus Team for Heterogeneous Integration.

He has served as Chairman of the Technical Working Group for Packaging and Package Substrates for INEMI Roadmap.

He has also served on the Board of the Micro-photonics Center of MIT and a member of the Technical Working Group for the Communications Technology Roadmap prepared by the MIT Micro-photonics Center.

He is Chairman of the SEMI Awards Committee for the Semiconductor Equipment and Materials International (SEMI) organization.

Expert Witness

Dr. Bottoms has acted as an expert in several cases related to semiconductor packaging and process technology. In the last five years he has been engaged as an expert in:

- Two cases related to packaging of discrete components used for communications circuits including open cavity packages.
- One case related to chip scale packages
- One case related to the materials and clean room processes used in integrated circuit manufacturing.
- Two cases related to MEMS devices.
- One case related to the power semiconductor devices
- Two cases involving design and manufacturing of semiconductor light emitting diodes (LEDs)
- Two cases related to automated materials handling systems for semiconductor manufacturing

He has also been a fact witness and consultant in numerous IP cases related to the semiconductor industry. Details are available upon request.

Invited Speaker and author of technical papers

Dr. Bottoms is a frequent lecturer on semiconductor electronics and packaging and has published several articles in the field.

1998 – 1999

Heuristic Physics Laboratories

Dr. Bottoms was the Chairman of Heuristic Physics Laboratories, a

developer and manufacturer of Yield Enhancement Software for IC manufacturing.

1996 – 1998

Credence Systems

Dr. Bottoms was Chairman and CEO of Credence Systems Corporation, a developer and manufacturer of automatic test equipment for testing of integrated circuits.

1985 – 1996

Patricof & Company

Dr. Bottoms was, Senior Vice President and General Partner of Patricof & Company Ventures Inc. an International venture capital management firm. During this period he was instrumental in founding several firms in the electronics industry including Tessera, California Devices and Microelectronics Packaging.

1976 – 1985

Varian Associates

Dr. Bottoms worked in several positions with Varian Associates. He initially joined Varian as Manager of Research and Development for the Industrial Equipment Group in 1976 and in 1981 was the founding president of the newly formed Semiconductor Equipment Group. This Group grew to become the world's leading supplier of both Ion Implantation equipment and sputtering equipment for the manufacture of integrated circuits.

1969 – 1976

Princeton University

Dr. Bottoms was a member of the electrical engineering faculty of Princeton University.

1969

ESSO Research and Engineering

Dr. Bottoms spent six months working with the catalyst group at Esso Research and Engineering before joining the faculty of Princeton University.

Government and Industry Appointments

Dr. Bottoms has been appointed to several Government and Industry positions during his career. These include:

- Chairman of the Subcommittee of the Technical Advisory Committee of the United States Commerce Department Export Control Commission for Semiconductor Equipment and Materials
- Chairman of the Evaluation Panel for the Center of Electronic and Electrical Engineering of the National Bureau of Standards
- National Program Chairman for the American Vacuum Society
- Chairman of the National Research Council Board on Assessment for NIST Programs
- Co-Chairman of the Sematech Supplier Roundtable for Semi-Sematech
- A member of the Industrial Advisory Board for Lawrence Livermore National Laboratories
- A member of the Working Group for the National Technology Roadmap for Semiconductors
- Chairman of the Technical Working Group for Assembly and Packaging for the International Technology Roadmap for Semiconductors
- Chairman of the Industrial Advisory Panel to the Institute of Materials Research and Engineering of Singapore

Selected Presentations and Publications

- “Anomalous Growth of Gold Microcrystals”, Fourth Annual Symposium, Louisiana Society for Electron Microscopy, 1967
- “Gold Microcrystals of Pentagonal Symmetry”, Twenty-Fifth Annual EMSA Meeting, Proc. 1967 EMSA Chicago
- “Growth and Defect Structure of Lamellar Gold Microcrystals”, reprinted from The Journal of Applied Physics, Vol. 39. No. 7, pp. 3016-3021, June 1968
- “High Resolution Replication of Metallic Microcrystals”, Twenty-Sixth Annual EMSA Meeting, Proc. 1968, New Orleans

- “Measurement of Plant Water Potentials with a Thermopile Cycrometer, Vol. 61, 1969
- “Electron Diffraction Intensity Calculations Using the Scattering Matrix Formulation,” Tulane University, New Orleans, Louisiana Society For Electron Microscopy, March 13-14, 1969
- “N-Beam Intensity Calculations for the “Forbidden” Reflections in Coherent Twinned Gold Platelets, International Union of Crystallography, Eight General Assembly and International Congress, Collected Abstracts, August, 1969, August 7 – 24, 1969
- “The Advantages and Limitations of Low Energy Electron Diffraction” Louisiana Society For Electronic Microscopy, New Orleans, LA, March 5, 1970
- “An Ultra High Vacuum Scanning Electron Microscope “ Louisiana Society For Electron Microscopy Conference 1971
- “Relative Intensities in Single Crystalline ED Patterns, Proc. 1971 EMSA, Boston, MA
- “Lattice Images on Non-Integer Planes in Gold, Proc. 1971 EMSA, Boston, MA
- “Structure and Anneal Behavior of ION Implanted Si, 31st Physical Electronics Conference, National Bureau of Standards, Gaithersburg, Maryland, March 15 – 17, 1971
- “Correlation of LEED, Auger and Electronic Diagnostics for Surface Studies, Solid State Seminar, Physics Department, Princeton, University, (1971)
- “Electronic States of Free Surfaces”, Work was supported by the Office of Naval Research under Contract No. N00014-67-A-0151-0014 and by National Science Foundation under Grant No. GK.11101. Reprinted from Progress in Solid State Chemistry Volume 6, Pergamon Press – Oxford & New York – 1971
- “Photodesorption From CdS” Supported by the Office of Naval Research and by the National Science Foundation, Surface Science 28 (1971) 517 – 524, North-Holland Publishing Co
- “Design and Performance Considerations in the Scanning Electron Microscope, Proceedings of the Ninth Annual Varian Vacuum Seminar, May 1971
- “Electronic, LEED, and Auger Studies of ZnO Surfaces, Fifth International Vacuum Congress and the 1971 International Conference on Solid Surfaces, Boston, Mass., October 11-15, 1971
- “Correlation of Electronic LEED, and Auger Diagnostics on ZnO Surfaces (with J.D. Levine, A. Willis and Peter Mark) Surface Science, Vol. 23 (1972) p. 144
- “Correlation of Electronic, LEED, and Auger Diagnostics on ZnO Surfaces”, Surface Science 29 (1972) 114-164, North –Holland Publishing Co.
- “The Influence of Surface Structure on the Chemisorption of Oxygen by CdS Single Crystals”, Supported by the Office of Naval Research and by the National Science Foundation, Part of Ph.D. dissertation, Surface Science 29 (1972) 165-172, North-Holland Publishing Co.
- “Analytical Capabilities of the Scanning Electron Microscope”, Bell & Howell Research Laboratories, Los Angeles, CA (1972)

- “Image Formation in Electrical Optical Instruments”, Stanford University, Palo Alto, CA (1972)
- “Ambient-Sensitive Semiconductivity of Lead Iodide Crystals”, J. Phys. Chem. Solids, 1972, Vol. 33, pp. 357-362, Pergamon Press, Printed in Great Britain
- “Solid State Electronic Experiments Using an On-Line Computer”, Spring Meeting of the American Society for Engineering Education, Princeton, NJ (1972)
- “Surface Structure Dependence of the Ambient-Sensitivity of CdS Single Crystals, Surface Science, Vol. 29, (1972)
- “Carbon Based Reactions on ZnS Surfaces, Journal of the Electrochemical Society, 119 (1972) 242C
- “A High Vacuum Scanning Electron Microscope”, Electron Microscopy Society of America, Los Angeles, CA 1973
- “Study of Electronic Transport and Breakdown in Thin Insulating Films (with W.C. Johnson and M.A. Lampert), Semi-Annual Technical Report, No. 2, July, 1973
- “The Origin and Interpretation of Elastic and Inelastic Scattering of Electrons”, Joint Meeting of the Northern and Southern California Societies for Electron Microscopy, Monterey, CA May 24-26, 1973
- “Contamination in the SEM” Scanning Electron Microscopy/1973 (Part I), Proceedings of the Sixth Annual Scanning Electron Microscope Symposium, IIT Research Institute, Chicago, Illinois 60616, USA, April, 1973
- “Recent Developments in Auger Electron Spectroscopy with High Spatial Resolution”, Electron Probe Society, Elmsford, NY, March 7, 1973
- “Auger Electron Spectroscopy with High Spatial Resolution”, Thomas J. Watson Research Center, IBM Corporation, Yorktown Heights, NY, March 1, 1973
- “Secondary Electron Spectroscopy in the Scanning Electron Microscope”, an invited talk to the Mid-Atlantic Section of the American Vacuum Society, Washington, DC, February 1973.
- “Characterization of Ion Migration in MOS Systems by Internal Interface Imaging”, Work supported by ARPA Contract No. F19628-72-C-0298, J.Vac. Sci. Technol., 11, 965 (1974)
- “Computer Control for a Scanning Electron Microscope”, June 1974
- “Structural and Chemical Analysis of Surfaces” American Chemical Society, 6th Northeast Regional Meeting, August 18 – 21, 1974
- “Electron Beam Diagnostics of Semiconductor-Insulator Interfaces”, presented at the Gordon Research Conference on Metal-Insulator-Semiconductor Systems, August 29, 1974
- “Catalytic Conversion of Water to Hydrogen Utilizing Visible Light”, Photo Enhanced Reactions Colloquium, October 16, 1974

- “Photocatalytic Generation of Hydrogen From Water”, Published in the Atomic Energy Commission Conference Proceedings 1974
- “Contrast Mechanism in Electron Beam Images of Interface Structures”, presented at the National Meeting of the AVS, October 1974
- Scanning Electron Microscopy, chapter in “Methods and Phenomena Series” (Elsevier Publishing Company, Amsterdam) 1974
- “Electron Beam Probe Studies of Semiconductor-Insulator Interface”, J. Vac. Sci. Technol., Vol. 11, No. 6, Nov./Dec. 1974
- “Electronic and Crystallographic Characterization of Electronic Materials”, presented at Stanford University, December 10, 1974
- “Chemisorption Reactions on High Index ZnS Surfaces, Journal of the Electrochemical Society, Vol. 122, No. 1, pp. 119-121, January, 1975.
- “A High Vacuum Emission Chamber for Scanning Electron Microscopy”, Reprinted from: “33rd Ann. Proc. Electron Microscopy Soc. Amer.”, Las Vegas, Nevada, 1975.
- “Photocatalytic Generation of Hydrogen From Water”, (with R.B. Miles), Published at the Atomic Energy Commission, Proceedings of the 2nd NASA Conference on Laser Energy Conversion, January 27-28, 1975
- “Electron Beam Imaging of the Semiconductor-Insulator Interface”, presented at the 2nd Annual Conference on the Physics of Compound Semiconductor Interfaces, Feb. 4, 1975
- “Contrast Mechanisms in Electron Beam Images of Interface Structures,” Reprinted from Journal of Vacuum Science & Technology, Volume 12, Number 1, January/February, 1975, pp. 134-139
- “Characterization of Ion Migration in MOS Systems by Internal Interface Imaging”, (with D. Guterman and P. Roitman) Proc. 1975 EMSA, 33rd Annual Proceeding, Las Vegas, NV. G.W. Bily, (ed).
- Diagnostics of Internal Structure in Electronic Materials with the Scanning Electron Microscope”, presented at Tulane University, February 7, 1975
- “Si Wafer Screening with an Electron Microscope” , presented at Hewlett-Packard, Palo Alto, California, April 21, 1975
- “An Electron Beam Analog of the Surface Photovoltage and Scanning Internal Photoemission Techniques”, ARPA/NBS Workshop on Surface Analysis for Silicon Devices, Gaithersburg, Maryland, April 1975
- “Electron Beam Induced Imaging of Silicon Surfaces” NBS Special Publication 400-23, ARPA/NBS Workshop IV, Surface Analysis for Silicon Devices, held at NBS, Gaithersburg, Maryland, April 23 – 24, 1975 (Issued March 1976)
- Book Review of “Introduction to the Properties of Crystal Surfaces, published in Physics Today, June 1975
- “Tritium Holdup Due to Coatings on the First Wall of Fusion Reactors, Proceedings of the International Conference on Radiation Effects and Tritium Technology for Fusion and Reactors, Gatlinburg, Tenn., October 1 – 3, 1975

- “Electron Beam Imaging Of The Semiconductor-Insulator Interface” Work Supported by ARPA Contract No. F19678-72-C-0298, CRC Critical Reviews in Solid State Sciences, October, 1975, pp. 297-311
- “Electron Beam Studies of Surface and Interface Structure in Electron Materials”, Electronic Materials Symposium, Northern California Metallurgical Section of AIME, March 25, 1976
- “Analysis of Metal-Insulator-Semiconductor Systems with Electron Beams”, 12th Annual Symposium of the New Mexico Chapter, American Vacuum Society, March 17, 1976
- “SEM Characterization of Electronic Materials”, IBM, East Fishkill, NY, February 19, 1976
- “Development of a Molecular Beam Epitaxy System”, Varian Associates Symposium, June 16, 1976.
- “Molecular Beam Epitaxy”, NCCG Election, Palo Alto, CA, October 7, 1976
- “SEM Studies of Metal-Oxide-Silicon Capacitors”, Session Chairman, Semiconductor Defect Analysis, 18th Annual Conference on Electron Materials, Metallurgical Society of AIME, Univ. of Utah, June 25, 1976
- “The Technique of Molecular Beam Epitaxy”, Special Seminar, Central Research Labs, Varian Associates, Palo Alto, CA, December 21, 1976
- “New Developments in Auger Microprobe Analysis, Surface Science Seminar, Cornell University, December 7, 1976
- “Improvements in Auger Equipment and Techniques Let Us Look at Surfaces Thru An Energy Window” Reprinted with Permission from Industrial Research, September, 1977.
- “High Current Ion Implantation Systems”, Varian Technical Symposium, Gloucester, MA, October, 1977.
- “New Developments in Auger Microprobe Analysis”, 13th Annual Symposium, American Volume Society, New Mexico Chapter, April 19-21, 1977
- “Scanning Electron Microscope Studies of Interface State Generation and Hole Trapping in Metal-Oxide-Semiconductor Systems”, (with P. Roitman) J. Elec. Microscopy, Vol. 26, 2, p. 180, 1977
- “New Instrumental Capabilities in Auger Electron Microscopy” 1977
- “New Developments in Auger Microprobe Analysis”, Sixth Annual Symposium Applied Vacuum Science & Technology, Tampa, FL, February 14-17, 1977
- “A Stable Field Emission Electron Source”, reprinted from “35th Ann. Proc. Electron Microscopy Soc. Amer.” Boston, Mass., 1977
- “SEM Studies of Metal-Oxide-Silicon Capacitors” (with P. Roitman) Proc. Of the Workshop on SEM Applications to Semiconductor, ITT Research Institute, Chicago, IL, March, 1977
- “New Instrumental Capabilities in Auger Electron Microscopy”, (with J.A. Schoeffel, N.J. Taylor), March/April 1978, JVST, Vol. 15, 2, p. 786

- “An Introduction To Electron Beam Lithography”, Semicon Europa, May 22, 1978
- “Electron Beam Lithography”, Semicon – Europa, September 12-14, 1978
- “Application of Electron Beam Lithography & Circuit Development & Production”, Custom Integrated Circuit Conference, May 23-25, 1979
- “Ion Implantation with Laminar/Slit Ion Beams in High Current Modes”, Invited speaker, AVS Meeting, Los Angeles, CA , March, 1979
- “High Current Ion Implantation Systems” (with G. Ryding)”, Radiation Effects, 1979
- “Reactive Ion Beam Etching of Aluminum Copper Silicon Alloys” , SEMICON Japan Technical Program, Tokyo, Japan, December, 1980
- “Introduction to Reaction Ion Beam Etching” November, 1980 – This is a pre-print of the article which was published in the February 1981 volume of Solid State Technology
- “Recent Advances in Wafering Techniques and Equipment”, January, 1981
- “Mask Fabrication Using Electron Beam Exposure Systems” (with A. Shigetomi, H. Morimoto, T. Kato, Mitsubishi Electric Corp., Japan). SPIE Proceedings, Vol. 275, Semiconductor Microlithography VI, San Jose, CA, March 30-31, 1981
- “E-Beam Lithography where it is where it’s going” IGC Conference Center, June 21, 22, 23, 1981
- “Presentation to Eberstadt Technology Conference” New York, April 18, 1983
- “Trends in Wafer Fab, and Their Driving Economic Forces”, Solid State Technology, August 1983.
- “Electron Beam Lithography for Microelectronic Device Manufacture – Where It Is – Where It’s Going”, Proc. IGC Conference, Holiday, Inn, Monterey, CA, December 11-13, 1983
- “Automated Materials Handling in Front-End Wafer Fabrication”, (with J.S. Wenstrand), ASEE, San Francisco, CA , January 24-26, 1984.
- “Trends in Microlithography”, Hambrecht & Quist Semiconductor Conference, San Francisco, CA, March 8, 1984
- “Automation and Material Handling in Wafer Fabrication”, Semicon Europa ’84, Zuspä Convention Center, Zurich, Switzerland, March 13, 1984
- “Equipment Requirements for Sub-Micron VLSI Production”, ASTM, Symposium on Semiconductor Processing, San Jose, CA, February 7, 1984
- “Automation – The Future of the Future, Hambrecht & Quist, Semiconductor Conference San Francisco, March 8, 1984
- “Conference on Semiconductor Industry Executive Briefing”, Arlee, House, VA, March 29, 1984
- “Technology Trends in the 80’s”, IEEE Device Process Technology Symposium, Palo Alto, CA, May 19, 1984
- “Equipment Requirements for Sub-Micron VLSI Production”, Solid State Technology, August 1984

- “The Role of the Semiconductor Manufacturer in the Development of the Solid State Electronics Industry”, Varian Associates, December 17, 1984
- “Computer Automated Manufacturing of Integrated Circuits”, 1984 IEEE International Electron Device Meeting, December 11, 1984
- “Semiconductor Equipment: Key to Pervasiveness”, 1984 Dataquest Semiconductor Industry Conference, Hotel Del Coronado, San Diego, CA October 15-17, 1984
- “Restructuring the Equipment Industry”, Dynamics of Change – West Coast Industry Dinner Meeting, Semiconductor Equipment and Materials, Inc., October 9, 1985
- “Automation – The Key to Survival for the U.S. Semiconductor Industry”, Keynote Speaker, Consilium, Mountain View, CA, September 17, 1985
- “Semiconductor Equipment: Key to Pervasiveness” W. R. Bottoms, Proceedings of Dataquest Semiconductor Industry Conference, 338, October 1984
- “Technology Status in PRC”, Motorola Executive Briefing on the People’s Republic of China, Harrison Conference Center, Lake Bluff, IL, April 11-12, 1985
- “Interfacing for Automated Wafer Fabrication”, Advanced Semiconductor Equipment Exposition, San Jose, CA, January 22-24, 1985
- “The Role of Technology in the New Industry Structure”, Dataquest Semiconductor Industry Conference 1986, San Diego, CA, October 20-22, 1986
- “Automation – The Future of the Future”, Presentation to Bank of America High Technology Group, May 15, 1986
- “Automation: The Future of the Future”, MCC Manufacturing Technology Workshop, Department of Electrical and Computer Engineering, University of Texas at Austin, April 16-17, 1986
- “New Techniques in Auger Probe Analysis”, Midwest Microbeam Users Group, Michigan Electron Microscopy Forum, Spring, 1986
- “Financial Risks and Opportunities for the Semiconductor Equipment and Materials Industry”, Semiconductor Equipment and Materials International West Coast Forecast Meeting, San Francisco, CA, December 9, 1987
- “Venture Capital: Investing For Growth”, Information Exchange Forum for Windsor Venture Lease Partners, San Francisco, CA, November 6, 1987
- “Capital Formation for U.S. Semiconductor Manufacturing in the 1990s”, Dataquest Semiconductor Industry Conference, Phoenix, AZ, October 21, 1987
- “Japanese Venture Capital Market and Opportunities for U.S. Firms”, Competition and Cooperation in the U.S., Japan High Technology Relationship”, Austin, TX, February 11, 1987
- “Financial Multinational Technology Corporations”, Panel Chairman, Bank of America High Technology Conference, San Francisco, CA, May 19, 1988
- “Financial Risks and Opportunities for the Semiconductor Equipment and Materials Industry”, SEMI East Coast Industry Meeting, New York, NY, April 14, 1988

- “A Model for Evaluating Industrial Competitiveness for Technology Based Companies”, Briefing to NIST Visiting Committee on Advanced Technology, NIST, Gaithersburg, MD, December 11-12, 1989
- Capital Sources Conference, AEA, Woodland Hills, CA, September 21, 1989
- “Venture Capital – Part II, AEA Capital Sources Conference, Los Angeles, CA, September 27, 1990
- “Testimony Before The Subcommittee on Science” , Research & Technology, U.S. House of Representatives, February 21, 1990
- “Test Challenges For The Third Millennium”, The Second International SMT Conference, San Francisco, CA, December, 1998
- “Trends in the Semiconductor Industry”, Southwest Test Workshop, San Diego, CA, June 6 – 9, 1999.
- “Wafer Level Packaging: Why and Why Not”, Keynote Address at the International Wafer Level Packaging Congress, San Jose, Ca. October 2004.
- “Packaging Trends and Challenges: Design, Materials, Assembly & Test”, Singapore December 8, 2004.
- “Test Challenges for Systems in a Package”, IEEE-CPMT 5th Electronic Packaging Conference, Tokyo, Japan, December 2004.
- “The 2005 ITRS Assembly and Packaging Roadmap”, ITRS Workshop, HsinChu Taiwan, August 2005.
- “Assembly and Packaging Roadmap 2005.” Semicon, July 2005.
- “Packaging Innovation on the Rise.” Electronic Components and Technology Conference, May 2006.
- “Assembly and Packaging 2006.” Materials Research Society, November 2006.
- “A Prospective on System and Package.” Fabless Semiconductor Association, January 2007.
- “Roadmaps Make a Difference.” International Conference on Electronic Packaging and Technology, August 2007.
- ITRS White Paper, “The next Step in Assembly and Packaging: System Level Integration in the package (SiP),” www.itrs.net, 2007
- “Known Good Die Enter the Mainstream.” KGD Packaging and Test Workshop, September 2007.
- “Assembly and Packaging 2007.” Japan ITRS Publication Meeting, December 2007.
- “Materials Required for Devices and Packaging.” Strategic Materials Conference New, January 2008.
- “10th Anniversary Edition of International Technology Roadmap for Semiconductors.” IMAPs Global Business Council Meeting, March 2008.
- “Advanced Manufacturing Technology for Semiconductors,” Meeting at the International Electronics Manufacturing Initiative, July 2008.

- “3D ITRS Packaging Roadmap and Opportunities” IEEE Workshop on 3D Packaging, March 27, 2009
- “Packaging Roadmap and Opportunities.” Workshop on 3D Packaging Keynote, March 2009.
- “3D Electronics and System Package Integration Where It’s at and Where It’s Going.” Global Business Council, March 2009.
- “Advanced Packaging and 3D IC Technologies.” VLSI Symposium, June 2009.
- “3D Integration and TSV” ISMI Reliability Council, July 2009
- “Interconnect Solutions for Tera-Scale Computing” Keynote lecture at SLIP session in the Design Automation conference, July 2009
- “What enables 3D System Level Integration in a Package” Semicon West Packaging Summit, July 2009
- “Multi-core SiP Design and Packaging” MIT Microphotonics Center, August 2009.
- “The next Step in Assembly and Packaging: System Level Integration in the package (SiP)” White Paper published on ITRS website, Contributing author and editor, September 2009.
- “The Dawn of a New Era in Component Test” Test in Tray Users Group, September 2009.
- “The Third Dimension in Wafer-Level Packaging” Plenary speaker. International Wafer Level Packaging Conference, October 2009.
- “ITRS Chapter: Assembly & Packaging” Future Fab International Volume 32, December 2009.
- “3D IC Integration: The next generation of electronics” IEEE CPMT, March 2010.
- “Communications Technology Roadmap Prospectives from iNEMI and ITRS” MIT, May 2010.
- “Complex Challenges and Innovative Solutions for Deep Submicron” SEMICON Texpot, July 2010.
- “Wafer Level Packaging from WLCSP to 3D Integration” International Conference on Electronic Packaging Technology & High Density Packaging Xian China, August 2010
- “Difficult Challenges and Potential Solutions for Advanced Packaging” Plenary presentation at IEEE CPMT Symposium Japan, August 2010.
- “3D Integration Infrastructure: Requirements to support high volume Production”, IEEE Custom Integrated Circuits Conference Proceedings, September 2010
- “Test Challenges for 3D Integration” IEEE Custom Integrated Circuits Conference Proceedings, September 2010.
- “Known Good Die in the Era of Deep Submicron and 3D Integration” Keynote address at Known Good Die Conference, October 2010
- “Manufacturing challenges: Readiness beyond 45nm from Packaging to PCB to Platform” AMD Technical Forum Taiwan, October 2010.

- “The Revolution in Packaging” Meptec Roadmaps Symposium, November 2010.
- “ITRS Chapter: Assembly & Packaging” Future Fab International Volume 36, December 2010.
- “Packaging: The key to 3D Integration “ IMAPS Global Business Council, March 2011.
- “Assembly & Packaging Challenges for the Next Decade” with Dr. W. Chen, Minapad Conference Grenoble, May 2011.
- “Advanced Technology for Optoelectronic Packaging” IMAPS/IEEE-CPMT, June 2011.
- “The Driving Force for ICT Development in this Decade: Power Consumption” Greentouch Open Forum, November 2011.
- “ITRS Chapter: Assembly & Packaging” Future Fab International Volume 40, December 2011.
- “Changes in Packaging Materials and Architectures for 2012”, IEEE CMPT meeting, May 9, 2012
- “2013 Roadmap Packaging & Component Substrates”, iNEMI Roadmap Workshop, San Diego, CA, May 29, 2012
- “What has Changed in the Last 12 months in Assembly and Packaging”, ITRS Public Conference, San Francisco, CA, July 10, 2012
- “Ensuring Reliability when everything is changing”, Keynote Address at IEEE Test Vision 2020 Conference, San Francisco, Ca, July 11, 2012.
- “MEMS Packaging: Transforming Challenges into Solutions”, Invited Presentation to iNEMI and MEMS Industry Group, August 21, 2012.
- “Assembly and Packaging of Optoelectronics”, IEEE/IMAPS Workshop, Anaheim, CA, September 7, 2012.
- “Entrepreneurship in the ATE Industry”, International Test Conference, Anaheim, CA, September 10, 2012.
- “Optical Interconnection Needs and Solutions for Performance, Assembly and Packaging”, MIT MircoPhotonics Center Fall Meeting, Cambridge, MA, October 16, 2012.
- “Challenges for Known Good Die in the era Of 3D Integration”, MEPTEC Known Good Die Conference, Santa Clara, CA, November 15, 2012.
- “Assembly and Packaging Roadmap 2012”, Public ITRS Roadmap Conference, HsinChu, Taiwan, December 5, 2012.
- “ITRS Chapter: Assembly & Packaging”, Future Fab International, Issue 44, January 10, 2013.
- “Overview of Advanced Packaging Materials: Status and Needs”, invited lecture opening the IEEE International Symposium on Advanced Packaging Materials, Irvine, Ca., February 27, 2013.

- “Thermal Management in the “3D-SiP” world of the Future”, Invited paper for the MEPTEC Thermal Management Market Visions & Strategies Meeting, San Jose, CA, March 18, 2013.
- “Moving Photonics Closer to the Transistors: The Key to lower power and higher bandwidth”, Invited Paper presented at the MIT MicroPhotonics Center Spring Meeting, Cambridge, MA, April 16, 2013.
- “The ATE Industry In 2013: Wafer, die and package level test for complex electronics products: 10 year time capsule presentation” Invited presentation to the IEEE Test Vision 2020 Conference, San Francisco, CA, July 11, 2013.
- “Packaging Solutions Maintain the pace of Progress as traditional Scaling slows: The key to the Next Cycle of Innovation”, invited paper for the ASME 2013 International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK 2013), Burlingame, CA, July 17, 2013.
- “Thermal Management for 3D Integration”, Invited Presentation to the High Density Packaging Users Group (HDPUG), July 25, 2013.
- “New Technology for Packaging of Electronic Components and Systems”, 2013 ITRS AP Roadmap & 3D IC Technology Development workshop, HsinChu, Taiwan, August 9, 2013.
- “Difficult Challenges and Potential Solutions in LED Packaging”, IEEE/ICEPT Meeting, Dalian, China, August 11, 2013.
- “The Continuing Revolution in Automotive Electronics”, Invited Presentation at the Automotive Electronics Workshop, Grenoble, France, September 9, 2013.
- “Packaging Requirements for MEMS, Sensors and Medical Devices”, Organizer and Chair of Workshop, European Microelectronics Packaging Conference, Grenoble, France, September 10, 2013.
- “Thermal Management for 3D Electronics from Specification through Design and Manufacturing “, Guest Presentation at the fall meeting of the High Density Packaging User Group, Bennington, Vermont, September 25, 2013.
- “Internet of Thing’s as the Industry’s Technology Driver and it’s Impact on Packaging”, invited lecture at IMAPS Global Business Council Conference, March 9, 2014.
- “Integrating 3D-TSV and Photonics for System in Package Products”, invited Lecture at the Optical Fiber Communications Conference, San Francisco, Ca., March 12, 2014.
- “Challenges for Future Electronics”, invited presentation for Intel, Chandler, Az., March 18, 2014.
- “The ITRS Roadmap on Packaging and Assembly”, invited lecture Delft University of Technology, Delft, Netherlands, April 10, 2014.
- “Difficult Challenges in the Era of “More than Moore” and Beyond”, invited lecture at the Electrochemical Society Meeting, Orlando, Fl., May 12, 2014.
- “Packaging Challenges Driven by IoT and Migration to the Cloud”, IEEE CPMT Webinar, June 25, 2014.

- “Assembly and Packaging in the ERA of the Cloud and IoT”, invited lecture at Semicon West meeting, July 7, 2014.
- “Advanced Packaging in the Era of the Internet of Things and Migration to the Cloud”, invited lecture for the Advanced Packaging Program, Changzhou, China, August 6, 2014.
- “The Future of Electronics and the Role of Roadmaps” IEEE ICEPT meeting, Chengdu, China, August 12, 2014.
- “Challenges for Future Electronics”, Electronics System-Integration Technology Conference, Helsinki, Finland, September 16, 2014.
- “A Revolution in Packaging”, invited presentation at the Electronics Packaging Symposium, Binghamton, New York, October 8, 2014.
- “Testing- Then, Now and Tomorrow”, invited Plenary Session Lecture at The International Test Conference, Seattle, Wa., October 22, 2014.
- “Packaging Challenges Driven by IoT and Migration to the Cloud”. Invited presentation at IEEE CPMT Internet of Things Workshop, University of California, Irvine, Ca., December 5, 2014.