

OVERVIEW OF PLENARY TALKS

Wednesday, August 17, 2016

Banquet Hall 1 and 2 on 3rd floor

8:30--11:40, Banquet hall 1 and 2 on 3rd floor
Chairs: Prof. Sheng LIU, Wuhan University, China
Prof. Guoqi ZHANG, Delft University of Technology, Netherlands

08:30--09:10	Opening Ceremony
09:10--09:40	Photonics beyond diffraction limit: Plasmon waveguide, cavities and integrated laser circuits <i>Prof. Xiang Zhang</i> University of California, Berkeley, USA
09:40--10:10	Energy Storage for Renewable Energy Sources <i>Prof. C.P. Wong</i> Chinese University of Hong Kong, HK, China
10:10--10:40	<i>Coffee Break</i>
10:40--11:10	Tailoring material properties for 3D microfabrication: in-situ experimentation and multi-scale modelling <i>Prof. Xuejun Fan</i> Lamar University, Beaumont, Texas, USA
11:10--11:40	Frontiers in Material System Reliability for Product Technologies <i>Prof. Ken Reifsnider</i> University of Texas, Arlington, USA
11:40--12:10	Emerging Technology Trends of Light-Emitting Diodes for Non-Lighting Applications <i>Prof. Shi-Wei Ricky Lee</i> Professor of Mechanical & Aerospace Engineering, Hong Kong University of Science & Technology (HKUST)
12:10--13:30	<i>Lunch: Western Restaurant on the 3rd floor</i>
<p>13:10--16:10, Banquet hall 1 and 2 on 3rd floor Chairs: Prof. Johan LIU, Shanghai University, China Prof. Shi-Wei Ricky Lee, Hong Kong University of Science & Technology, Hong Kong</p>	
13:30--14:00	New Era of Automotive Electronics – The Ultimate Electronic System Opportunity <i>Prof. Rao Tummala</i> Georgia Institute of Technology, USA
14:00--14:30	Packaging Surfaces with Desired Electromagnetic Properties <i>Prof. L. Jay Guo</i> The University of Michigan, USA

14:30--15:00	Innovations in Heterogeneous Integration and SiP <i>William Chen</i> ASE Group, USA
15:00--15:30	<i>Coffee Break</i>
15:30--16:00	The Evolution of Multi-Chip Packaging: from MCMs to 2.5/3D to Photonics <i>Dr. David McCann</i> Global Foundries, USA
16:00--16:30	Innovative Interface Bonding Technology for Power Electronics and Polymer/Glass Thin Device Integration <i>Prof. Tadatomo SUGA</i> The University of Tokyo, Japan
16:30--17:00	3D Heterogeneous Integration for on-Chip/in-Package ESD Protection: A Non-Traditional Approach <i>Prof. Albert Wang</i> University of California, Riverside , USA
17:00--17:30	Wafer-to-Wafer Alignment and Bonding for Advanced Wafer-Level Interconnects <i>Dr. Viorel Dragoi</i> EVG, Austria
18:00--20:30	<i>Dinner: Banquet Hall on the 3rd floor</i>

Introduction of Invited Plenary Keynote Speakers



Prof. Xiang Zhang, University of California, Berkeley, USA

Xiang Zhang is the Ernest Kuh Chaired Professor at the University of California, Berkeley and Director of Materials Science Division at Lawrence Berkeley National Laboratory (LBNL). He is also the Director of the NSF Nano-scale Science and Engineering Center (SINAM). He is an elected member of the US National Academy of Engineering (NAE), Academia Sinica and foreign member of Chinese Academy of Sciences. His research in optical metamaterials was selected by Times Magazine as “Top 10 Scientific Discoveries in 2008”. Xiang Zhang was a recipient of many awards including the NSF CAREER Award, Fred Kavli Distinguished Lecturerhip, Fitzroy Medal, Charles Russ Richards Memorial Award, the Max Born Award and the Julius Springer Prize. He received his BS/MS in physics in Nanjing University, China, and Ph.D from UC Berkeley in 1996 and was on faculty at Pennsylvania State University and UCLA prior returning Berkeley faculty in 2004.



Prof. C.P. Wong, Chinese University of Hong Kong, HK, China

Prof. C. P. Wong is currently Dean of the Faculty of Engineering at the Chinese University of Hong Kong. He is also with Georgia Institute of Technology (GT) where he is a Regents’ Professor and the Charles Smithgall Institute Endowed Chair at the School of Materials Science and Engineering. He received his B.S. degree from Purdue University, and his MS. and Ph.D. degrees from the Pennsylvania State University. After his doctoral study, he was awarded a two-year postdoctoral fellowship with Nobel Laureate Professor Henry Taube at Stanford University. Prior to joining GT in 1996, he was with AT&T Bell Laboratories for many years and became an AT&T Bell Laboratories Fellow in 1992 for his seminal contributions to low-cost high-performance packaging of semiconductor devices and components. His research interests lie in the fields of polymeric electronic materials, electronic, photonic and MEMS packaging

and interconnect, interfacial adhesions, nano-functional material syntheses and characterizations, nano-composites, such as well-aligned carbon nanotubes, graphenes, high performance electrical conductive adhesives, ultra high k capacitor composites, lead-free alloys, flip chip underfills, and novel lotus effect coating materials.

He received many awards, among those, the AT&T Bell Labs Fellow Award in 1992(the most prestigious Technical Award bestowed by Bell Labs), the IEEE Components, Packaging and Manufacturing Technology (CPMT) Society Outstanding Sustained Technical Contributions Award in 1995, the IEEE Third Millennium Medal in 2000, the IEEE Educational Activity Board Outstanding Education Award in 2001, the IEEE CPMT Society Exceptional Technical Contributions Award in 2002, the Georgia Tech Class 1934 Distinguished Professor Award(the highest award bestowed by GT to a faculty) in 2004, named holder of the Charles Smithgall Institute-Endowed Chair Professor (holder of one of the two GT Institute-Endowed Chairs) in 2005, the GT Outstanding BS and PhD Thesis Advisor Awards, the IEEE Components, Packaging and Manufacturing Technology Field Award in 2006(hailed by the IEEE as “Father of Modern Semiconductor Packaging”), the Sigma Xi’s Monie Ferst Outstanding Educational Award in 2007, the Society of Manufacturing Engineers’ Total Excellence in Electronic Manufacturing Award in 2008 and the IEEE CPMT David Feldman Award, the Pennsylvania State University Distinguished Alumni Award in 2009. 2012 International Dresden Barkhausen Award(Germany)

He holds over 65 U.S. patents, and has published over 1,000 technical papers, co-authored and edited 12 books and is a member of the National Academy of Engineering of the USA since 2000 and a foreign academician of the Chinese Academy of Engineering in 2013.



Prof. Xuejun Fan, Lamar University, Beaumont, Texas, USA

Xuejun Fan received the B.S. and M.S. degree in Applied Mechanics from Tianjin University, Tianjin, China, in 1984 and 1986, respectively, and the Ph.D. degree in Solid Mechanics from Tsinghua University, Beijing, China, in 1989.

He is a Professor in the Department of Mechanical Engineering at Lamar University, Beaumont, Texas, and also a visiting professor with State Key Lab of Solid State Lighting in China. His current research interests lie in the areas of design, modeling, material characterization, and reliability in heterogeneous electronic systems. He was a Senior Staff Engineer at Intel Cooperation, Chandler, Arizona, from 2004 to 2007, a Senior Member

Research Staff with Philips Research Lab at Briarcliff Manor, New York from 2001 to 2004, and a Member Technical Staff and Group Leader at the Institute of Microelectronics (IME), Singapore from 1997 to 2000. In his earlier career, he was promoted to a full professor at age 27 in 1991 at Taiyuan University of Technology, Shanxi, China, and became one of the youngest full professors in China that time.

He has published over 200 technical papers, many book chapters, and three books, and several patents. Dr. Fan received IEEE Components Packaging and Manufacturing Technology (CPMT) Society Exceptional Technical Achievement Award in 2011, and won the Best Paper Award of IEEE Transactions on Components and Packaging Technologies in 2009. He is an IEEE CPMT Distinguished Lecturer.



Prof. Ken Reifsnider, University of Texas, Arlington, USA

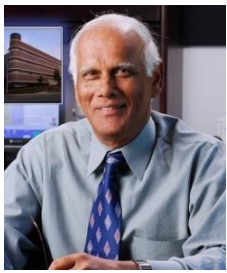
Ken Reifsnider is an expert on advanced material behavior and response, and directs the Institute for Predictive Performance Methodologies at UTARI. He is a recognized expert in high-temperature energy systems and composite materials. Dr. Reifsnider holds the Presidential Distinguished Professorship at UTA. He previously served as director of the Solid Oxide Fuel Cell Center of Excellence at the University of South Carolina, where he led state’s effort to develop solid oxide fuel cells for applications in society. In 2004, he was elected to the National Academy of Engineering for the development of strength-life prediction relationships in composite materials. He also served two terms as a White House appointee to

the U.S. Air Force National Scientific Advisory Board. Before the University of South Carolina, Dr. Reifsnider held chaired positions at the University of Connecticut and Virginia Tech, with visiting positions at Lawrence Livermore National Laboratory and the University of Bristol, England. He earned his doctorate in metallurgy and his master’s degree in engineering from Johns Hopkins University. He also holds a bachelor’s degree in engineering from Johns Hopkins as well as a Bachelor of Arts degree in mathematics from McDaniel College in Westminster, Md.



Prof. Shi-Wei Ricky Lee, Professor of Mechanical & Aerospace Engineering, Hong Kong University of Science & Technology (HKUST)

Ricky Lee received his PhD degree from Purdue University in 1992. He joined the Hong Kong University of Science & Technology (HKUST) in 1993. During his career of tenure-track faculty at HKUST, Dr Lee once was on secondment to serve as Chief Technology Officer of Nano & Advanced Materials Institute (NAMI) for two and a half years. Currently Dr Lee is Professor of Mechanical Engineering and Director of Center for Advanced Microsystems Packaging (CAMP) at HKUST. He also has a concurrent appointment as Director of HKUST LED-FPD Technology R&D Center at Foshan, Guangdong, China. Due to his technical contributions, Dr Lee received many honors and awards over the years. In addition to being the recipient of 12 best/outstanding paper awards and 5 major professional society awards, Dr Lee is Life Fellow of ASME and IMAPS, and Fellow of IEEE and Institute of Physics (UK). He is also a Distinguished Lecturer and the Senior Past-President of the IEEE Components, Packaging, and Manufacturing Technology (CPMT) Society.



Prof. Rao R Tummala, Georgia Institute of Technology, USA

Professor Rao Tummala is a Distinguished and Endowed Chair Professor at Georgia Institute of Technology, USA. He is well known as an industrial technologist, technology pioneer, and educator. Prior to joining Georgia Tech, he was an IBM Fellow, pioneering such major technologies as the industry's first plasma display and the first and next three generations of 100-chip 2.5D like multi-chip packaging. As an educator, Professor Tummala was instrumental in setting up the largest Academic Center in Electronic Systems at Georgia Tech involving more than 200 PhD and MS students, 25 faculty from ECE, ME, MSE and CHE, and 70 companies from the U.S., Europe and Asia, all working together with an integrated approach to research, education and industry collaborations. He received many industries, academic and professional society awards including as Distinguished Alumni from Indian Institute of Science, Bangalore and University of Illinois and Distinguished Faculty of Georgia Tech. He was President of IEEE CPMT and IMAPS. He has published more than 800 papers and holds 99 US patents. He wrote the 1st modern book called "Microelectronics Packaging Handbook" in 1988, 1st undergrad textbook called "Fundamentals of Microsystems Packaging" and 1st graduate book introducing the concept of SOP, System-On-Package Technology. He is an IEEE, IMAPS, American Ceramic Society Fellow and member of National Academy of Engineering.



Prof. L. Jay Guo, The University of Michigan, USA

L. Jay Guo started his academic career at the University of Michigan in 1999, and is currently a professor of Electrical Engineering and Computer Science, with joint appointment in Applied Physics, Mechanical Engineering, Macromolecular Science and Engineering. He has more than 200 refereed journal publications with over 13,500 citations, and more than 12 US patents. Many published work from his lab have been reported by numerous media, and he recently received the Research Excellence Award from the College of Engineering at UM. He served on a number of international conference program committees related to nanotechnologies and photonics. His group's researches include polymer-based photonic devices and sensor applications, organic and hybrid photovoltaics, plasmonic nanophotonics, nanoimprint-based and roll to roll nanomanufacturing technologies.



William Chen, ASE Group, USA

William Chen (Bill) holds the position of ASE Fellow and Senior Technical Advisor at ASE Group. Prior to joining ASE, he was the Director at the Institute of Materials Research & Engineering in Singapore. Bill retired from IBM Corporation after a career spanning over thirty years in various R&D positions. He has held adjunct and visiting faculty positions at Cornell University, Hong Kong University of Science and Technology, and Binghamton University. He was the co-chair of the ITRS Assembly Packaging Technical Working Group. He also chairs SEMI's Advanced Packaging Committee. In 2009, Bill received the InterPACK Excellence Award for his contributions, and in 2010, he was presented with the IEEE CPMT David Feldman Outstanding Contribution Award. He was a past President of the IEEE CPMT Society, and has been elected a Fellow of IEEE and a Fellow of ASME. Bill has served as a member of the Board of iNEMI since 2012. Bill received B. Sc. from London University, M.Sc. from Brown University and Ph.D. from Cornell University.



Dr. David McCann, ASE Assembly and Test in Shanghai, China

David McCann has been at GLOBALFOUNDRIES for five years, where he is Vice President of Packaging R+D and Operations. He is responsible for groups in Dresden Germany, New York, California, and Singapore. He is based at the Fab 8 site, in Malta, New York. David's groups are responsible for Advanced Silicon Packaging development, qualification of GLOBALFOUNDRIES silicon in application representative devices and packages, interconnect development, Post Fab strategy, GLOBALFOUNDRIES's internal bump and probe factories, and external OSAT supply chain development and execution. He also led the

GLOBALFOUNDRIES/IBM post-fab process and business integration.

David's background prior to GLOBALFOUNDRIES was in flip chip technology development and business management in the OSAT industry, and prior to that, flip chip assembly and product development in implantable medical electronics.

David was a member of the ECTC Executive Committee for 10 years.

Prof. Tadatomo SUGA, The University of Tokyo, Japan



Tadatomo SUGA joined the Max-Planck Institut für Metallforschung in 1979, obtained his PhD degree in materials science from University of Stuttgart in 1983. Since 1984 he has been a faculty member of the University of Tokyo, and has been a professor in the Department of Precision Engineering of the School of Engineering since 1993. He was also the director of the Research Group of Interconnect Ecodesign at the National Institute of Materials Science (NIMS), a Member of the Japan Council of Science, the Chair of IEEE CPMT Society Japan Chapter, and the President of the Japan Institute for Electronic Packaging. His research focuses on microelectronics and microsystems packaging, and development of key technologies

related to low temperature bonding and interconnects as well as disassembly concept for EcoDesign. Since 2015, he has been also the Chair of JSPS University - Industry Cooperative Research 191st Committee for Innovative Interface Bonding Technology.



Albert Wang, Electrical and Computer Engineering at University of California, USA

Albert Wang received the BSEE degree from the Tsinghua University, China, and the PhD EE degree from The State University of New York at Buffalo in 1985 and 1996, respectively. He was with the National Semiconductor Corporation from 1995 to 1998. From 1998 to 2007, He was Professor of Electrical and Computer Engineering at the Illinois Institute of Technology. Since 2007, he has been a Professor of Electrical and Computer Engineering at University of California, Riverside, where he directs the Laboratory for Integrated Circuits and Systems. Wang is Director for the University of California System-wide Center for Ubiquitous

Communications by Light (UC-Light) and co-Director for the SMIC-UCR-PKU Joint Center for ESD Protection Design. His research covers Analog/Mixed-Signal/RF ICs, Integrated Design-for-Reliability, 3D Heterogeneous Integration of Devices and ICs, IC CAD and Modelling, and Emerging Devices and Circuits. Wang received the CAREER Award from the National Science Foundation in 2002. He is the author for the book "On-Chip ESD Protection for Integrated Circuits" (Kluwer, 2002). He published more than 230 peer-reviewed papers in the field and holds eleven U.S. patents. Wang was Associated Editor for IEEE Transactions on Circuits and Systems I, Editor for IEEE Electron Device Letters, Associate Editor for IEEE Transactions on Circuits and Systems II, Guest Editor-in-Chief for the IEEE Transactions on Electron Devices and Guest Editor for IEEE Journal of Solid-State Circuits. He has been IEEE Distinguished Lecturer for the Electron Devices Society, the Circuits and Systems Society and the Solid-State Circuits Society. He is Jr. Past President (2016-2017) and was President (2014-2015) for the IEEE Electron Devices Society. He was Chair for the IEEE CAS Analog Signal Processing Technical Committee (ASPTC) and committee member for the SIA International Technology Roadmap for Semiconductor (ITRS). He was TPC Chair (2014-2015) and is General Chair (2016) for IEEE RFIC Symposium. He served as committee member for many IEEE conferences, e.g., IEDM, BCTM, ASICON, IEDST, ICSICT, CICC, RFIC, APC-CAS, ASP-DAC, ISCAS, IPFA, ICEMAC, NewCAS, ISTC, IRPS, AP-RASC, MAPE, EDSSC, MIEL, etc. He is a Fellow of IEEE and a Fellow of AAAS.



Dr. Viorel DRAGOI, EVG, Austria

Dr. Viorel DRAGOI is Chief Scientist for Wafer Bonding at EVG. He graduated Faculty of Physics at University of Bucharest, Romania, in 1995 and received his PhD from Institute of Atomic Physics, Bucharest, in 2000. After working on various thin films deposition and characterization methods applied for sensors manufacturing, in 1998 he started working in wafer bonding in Max Planck Institute of Microstructure Physics, Halle (Saale). Since 2001 he joined EV Group E. Thallner GmbH in Austria. His current activities are focusing in wafer bonding technology development. He published/co-authored over 110 papers in journals and conference proceedings, and is author/co-author of 4 book chapters on wafer bonding applications.