About the Symposium

The Electronic Materials Symposium (EMS) is an interdisciplinary conference that presents a broad spectrum of expert views on problems at the intersection of electronic materials and devices. The one-day symposium seeks to inform participants about challenges that excite today's materials scientists through a series of invited talks by experts in their respective fields. The program features presentations on advanced electronic materials processing techniques and devices, and analytical techniques by outstanding speakers who have made significant contributions to their respective fields.

Symposium Committee

Dr. James Spallas, Symposium Chair, KLA-Tencor
Prof. Dragoslav Grbovic, Naval Postgraduate School
Prof. Alberto Salleo, Stanford University
Dr. Jeongwon Park, Applied Materials
Prof. Toshishige Yamada, Santa Clara University
Prof. Ernesto E. Marinero, Purdue University
Prof. Jie Yao, U.C. Berkeley
Prof. Johnathan Fan, Stanford University
Dr. Ning Cheng, Intel

Awards

Ross Tucker Award: Given each year to a pair of graduate students at UC Berkeley and Stanford. This award is in honor of Ross Tucker, who contributed significantly to the advancement of the technology of materials used in semiconductor electronics.

Ralph Krause Award: To recognize leaders even earlier in their careers, EMS awards the NPS Ralph Krause Award to an outstanding student at Naval Postgraduate School to recognize his/her contribution to scientific field.

Best Poster Award: Poster exhibitors present research to symposium participants from academia, government, and industry. One poster will be chosen as a leader in research that provides a significant contribution to the field.

Symposium Sponsor

KLA-Tencor
The 46th Annual Electronic Material Symposium
Invited Speakers

Dr. Andreja Jovic is a Research Scientist at the biotech startup Levitas Bio based in Menlo Park, CA, developing a label-free platform for cell separation using magnetic levitation. He earned his Bachelor's degree in Bioengineering from UC Berkeley, and his Ph.D. in Biomedical Engineering from University of Michigan in the lab of Shuichi Takayama. Andreja conducted post doctoral research in cancer biology at Memorial Sloan Kettering in NYC. His research interests include cancer diagnostics and cellular signaling analysis.

Dr. Kathryn Loving is currently Director of Informatics at Caribou Biosciences in Berkeley, CA, where she creates computational tools that make scientific data more accessible and works strategically with scientific teams. Her previous roles include Senior Scientist, Bioinformatics at AbbVie and Stemcentrx, Research Leader at Schrodinger, Research Assistant at Pfizer, and Adjunct Faculty at Brandeis University. Kathryn holds Bachelor's degrees in both Biology and Computer Science, and a Ph.D. in Biological Engineering from the Massachusetts Institute of Technology.

Professor Adam Abate graduated from Harvard College in 2002 with an A.B. in Physics. He then received a M.S. in Physics from UCLA in 2004, before moving to the University of Pennsylvania where, in 2006, he received his Ph.D. in Physics studying the physics of soft materials with Douglas Durian. He returned to Harvard for a postdoc in Physics and Engineering in the lab of David Weitz, working on a variety of projects in soft matter physics, chemical and microparticle synthesis, and biological applications of microfluidics. While a postdoc, he developed a droplet-based microfluidic sequencer that became the foundation for the sequencing company GnuBIO. He is now an Assistant Professor at the University of California, San Francisco in the Department of Bioengineering and Therapeutic Sciences (BTS) in the Schools of Medicine and Pharmacy. He is in QBS and part of the joint Berkeley-UCSF bioengineering graduate program, PSPG, and iPQB. He has won the NSF CAREER Award, NIH New Innovator Award, the Presidential Early Career Award, and was recently selected as a Chan-Zuckerberg Investigator at the Biohub. His research interests are in high-throughput biology with microfluidics, protein engineering through directed evolution, and biophysics.

Professor Hartmut Haefner likes to experiment with the quantum information stored in trapped ions. He leads now a group sharing the same passion. In his previous life he measured how strong electric fields change the magnetic moment of the electron, studied quantum chaos, ran quantum gates, characterized entangled states, and teleported quantum information over 10 micrometers. Notable current achievements of his group are ultralow noise ion traps and a Michelson-Morley test for electrons. When not behind a keyboard, he loves being outside, in particular windsurfing on the San Francisco Bay.

Professor Michel Maharbiz is a faculty member in the Department of Electrical Engineering and Computer Science at the U.C. Berkeley. His research focuses on the extreme miniaturization of technology focused on building synthetic interfaces to cells and organs. He is known as one of the co-inventors of "neural dust", an ultrasone interface for vanishingly small implants in the body. His group is also known for developing the world’s first remotely radio-controlled cyborg beetles. This was named one of the top ten emerging technologies of 2009 by MIT’s Technology Review (TR10) and was in Time Magazine’s Top 50 Inventions of 2009. Prof. Maharbiz received his B.S. from Cornell University and his Ph.D. from U.C. Berkeley under nanotechnologist Professor Roger Howe (EECS) and synthetic biologist Professor Jay Keasling (ChemE); his thesis work led to the foundation of Microreactor Technologies, Inc. which was acquired in 2009 by Pall Corporation. He is a Senior Member of the IEEE (Engineering in Medicine and Biology Society) and a member of the Society for Neuroscience. Prof. Maharbiz is a recipient of the McKnight Foundation's Technological Innovations in Neuroscience Award (2017), a Chan-Zuckerberg (CZ) Biohub Investigator (2017), a Bakar Fellow (2014), recipient of a National Science Foundation CAREER Award (2009), a GE Scholar and an Intel IMAP Fellow. Michel’s long-term goal is understanding developmental mechanisms as a way to engineer and fabricate machines.

Professor Evan Reed is a faculty member in the Materials Science and Engineering Department at Stanford University. He received a B.S. in Applied Physics from Caltech (1998) and Ph.D. in Physics from MIT (2003). In 2004, he was an E.O. Lawrence Fellow and staff scientist at Lawrence Livermore National Laboratory before moving to Stanford in 2010. Evan Reed’s work to date has focused on theory and modeling of 2D materials, machine learning approaches to materials properties and synthesis, structural phase transformations, high pressure shock wave problems, energetic materials, and photonic crystals.

Professor Mary Scott is a faculty in the Department of Material Science and Engineering at University of California, Berkeley. She received a B.S. in aerospace engineering and a B.S. in physics from North Carolina State University (2007), an M.S. in physics from North Carolina State University (2009), and a Ph.D. in physics from UCLA (2015). Mary’s research focuses on using aberration-corrected electron microscopy to characterize materials in two and three dimensions. She is interested in measuring disorder and defects in nanomaterials and connecting these features to the material’s overall functionality. Current topics of study include: Interfaces and grain boundaries, Chemical disorder and strain in nanomaterials, and amorphous metals.

Dr. John Randall is President of Zyvex Labs, Executive VP at NanoRetina, Adjunct Professor at UT Dallas, and Fellow of the AVS and IEEE, has over 30 years of experience in Micro- and Nano- Fabrication. He has attracted over $50M in research contracts to Zyvex and resulting products have grossed over $80M. He joined Zyvex in March of 2001 after 15 years at Texas Instruments where he was a distinguished Member of the Technical Staff and worked in high resolution processing for integrated circuits, MEMS, quantum effect devices and advanced lithograph at IMEC in Belgium for two years. Prior to working at TI, John worked at MIT’s Lincoln Laboratory on ion beam and x-ray lithography. He has B.S., M.S. and Ph.D. Degrees all in Electrical Engineering, from the University of Houston. He received from UH a Distinguished Engineering Alumni Award. He has 107 articles published in refereed journals, more than 50 conference proceedings and other publications with > 3500 citations and 30 issued US Patents with > 700 citations.