

Symposium's Technical Chairs Welcome Letter



We'd like to welcome everyone to the 44th Annual New England MAPS Symposium! Thanks to all the Session Chairs we've compiled an engaging program of technical talks on many of today's hot topics that will peak the interest of every Attendee. We hope you take full advantage of the opportunity to interact with the speakers and each other in a learning environment that's only available at this unique one day symposium. Below is a brief summary to help you on your way and don't forget to spend time in the exhibit hall, because after all, without the support of the exhibitors, this day wouldn't be possible. Enjoy!!!



Dmitry Marchenko

Dr. Parshant Kumar

Nanoelectronics & Optoelectronics Packaging: The session will include a presentation by MIT about grand challenges and timelines for electronic-photonics integration efforts. UMass Lowell will present their latest work on standoff chemical sensing wireless networks. Forward Photonics will discuss their quantum cascade laser power scaling developments. Packaging of Micro-Concentrating Photovoltaics is being presented by MIT. Analog Devices will discuss challenges in optical sensor module packaging - evolving from past into future, and MRSI will show case their discussion on the automated die bonding for high volume Optoelectronics manufacturing.

MEMS & Nano Systems: This session covers the latest advancements in MEMS and Nano System packaging. Draper's latest development on Miniature Multiwire Systems will be discussed on rapid prototyping of new designs. Flex's new manufacturing process for Fabricating 3D Interconnects for MEMS and ICs will be a really hard to miss talk. Sensata's development on MEMS packaging for reliable, low pressure sensing in automotive applications is really worth looking at. A Draper talk will elaborate on low temperature, hermetic packaging of a MEMS electric field sensor. The work on advanced integration program at BRIDG and the reliability issues will shed the light on packaging challenges in 2.5D/3D integration. Vesper MEMS talk discussing their latest development on tuning the resonance frequency of piezoelectric MEMS microphones by sizing acoustic ports will be a new insight in fine acoustic sensors.

RF & Microwave - Innovations and Emerging Technologies: This session is all about the technologies that are driving the RF and microwave packaging industry. HXI will discuss their latest work on the microwave and millimeter wave multichip module manufacturing. Agile will explain more on the challenges of microwave assembly. Computer Simulation technologies will demonstrate work on multifaceted simulation for the design of a smartwatch. BAE Systems will discuss their work on the detection of contamination in microwave and RF electronics. Meino Micro will elaborate on hermetic system-in-package for high power RF switches, and Communications & Power Industries will be talking about device physics matters in RF & microwave design.

Medical Device Packaging: Miniaturized medical electronics is becoming more and more widespread. To learn more about unique challenges of packaging medical devices, please attend this session. MST will detail embedding of active components in LCP for implantable devices and MIT/Draper explores Low-cost electronically controlled prostheses for transfemoral amputees. AEMtek will discuss the use of advanced microelectronic packaging techniques to miniaturize implantable neuro stimulators, WPI will talk about TMD based nanocomposites, and Draper's work on the Dragonfleye - ultraminiature cybernetic insect control using optogenetics will be presented. Tufts University will reveal their work on thread based sensors and interconnects for medical diagnostics. This session is too good to miss!

Thermal Management: This session provides an opportunity to learn, understand, and interact with the folks who bring the thermal management for advanced packaging in microelectronics. Materion will discuss their work on automation of die attach of Si on Cu which is still evolving. DS&A will present an overview of thermal Issues for handheld, mobile, and medical implantable devices and Laird Technologies will discuss thermal & EMI solutions for mobile devices. Berliner Nanotest will show their work on a test chip for thermal characterization and qualification of materials, packages and systems. Kuprion, a spin off from Raytheon, will discuss their latest development on improved heat dissipation for high-power systems via nanocopper-based metal SMT, followed by an interesting talk on traditional electronic coolants and rack mount vapor cycle chillers by K-O concepts.

Printed Electronics: This session is a set of printing methods used to create electrical devices on various substrates. This disruptive technology is being adopted by many different industries, with strong leaders right in our region. The session includes a presentation by Flex Boston Innovation Center on printing 2D and 3D nanostructures for electronics and sensors. Dow Electronic Materials will cover inkjet printable etching and plating resists. Optomec will present their latest work on the 3d printing of flexible and stretchable interconnects. ANSYS will discuss their work on 3D printed antennas for RF energy harvesting. Wrapping up this session will be the MIT Nano Center introduction where the cleanroom technology makes all these devices possible.

Poster Session: This year the competition in the poster session is really heating up. \$500 dollars to the first place winner! The posters will be covering micro coax for power distribution, design of drone delivery containers for vaccine distribution, optimizing longitudinal-fin heat sink designs, and verifying electronic component cleanliness using Ion Chromatography! Tufts will be presenting Packaging with Microfluidic Eutectic Metal Interconnects. The students and experts are our future, so please set aside some time to go and talk with each of them to learn what's new on the horizon.

Kind Regards, Dr. Parshant Kumar

Dmitry Marchenko