

# **iMAPS New England**

**43<sup>rd</sup> Symposium & Expo - Tuesday May 3<sup>th</sup> 2016**  
**Holiday Inn Boxborough Massachusetts**

## **“3D & Beyond”**

### **Advance Program**



### **“Explore the Future of Microelectronics”**

**Dr. John Blum, Chapter President**

**Dmitry Marchenko & Dr. Parshant Kumar**  
**Symposium Technical Chairs**

### **KEYNOTE ADDRESS**

### **“Trillion Sensors for Health Care”**

**Presented by Ahmed A. Busnaina, Ph.D.**

**Director NSF Nano Center, Northeastern University**

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# **iMAPS New England 43rd Symposium**

## **Technical Program**

### **Session A: RF and Microwave - Innovations & Emerging Technologies 8:30-11:30 AM**

**Tom Terlizzi & Dr. Tracey Vincent – Co-Chairs**

**"Investigation of Electromagnetic Field Coupling  
from DC-DC Buck Converters to Automobile AM/FM Antennas"**  
Patrick DeRoy – CST, Framingham, MA

**"ECLIPS: Embedded Cooling Layer – Integrated Power System"**  
Al Wasserzug – Cirexx International, Louisville, KY

**"High Dielectric Constant, Low Loss Additive Manufacturing Materials  
for RF/Microwave Applications"**  
Caprice Gray – Draper, Cambridge, MA

**"How to simulate RF materials considering accuracy and speed"**  
Dr. Tracey Vincent – CST, Framingham, MA

**"Addressing the Design Challenges of RF/Millimeter Wave Semiconductor Packaging"**  
Craig Vieira – Ametek - ECP, New Bedford, MA

**"Future of QML Hermetic ICs"**  
Timothy J. Flaherty - Golden Altos Corporation, Milpitas, CA

### **Session B: High Reliability Interconnects 8:30-11:30 AM**

**Mike McKeown & Bill Boyce – Co-Chairs**

**"Heavy Copper Wire Bonding for Mass Production"**  
Mike McKeown – Hesse Mechatronics, Mineola, NY

**"Understanding the Role of Ultrasonic Welding in Wire Bonding"**  
Lee Levine – Process Solutions Consulting, Inc., New Tripoli, PA

**"Configurations for Robust Gold Stitch-to-Substrate Wire Bond Attachment"**  
William Boyce – Smart Microsystems, Elyria, OH

**"Process Optimization on Advanced AI Wirebond Tools"**  
Matthew Kurtz – Rochester Electronics, Newburyport, MA

**"Submicron Au Particles for Low Temperature Au to Au Bonding"**  
William (Bud) Crockett, Tanaka Kikinzoku Kogyo K.K., San Jose, CA

**"Wire Bonding onto Niobium for Superconducting Applications"**  
Dr. Michael Hamilton, Auburn University, Auburn, AL  
& Mike McKeown, Hesse Mechatronics, Mineola, NY

### **Session C: SMT and Electronics Packaging 8:30-11:30 AM**

**Tina Barclay & Mike Martel – Co-Chairs**

**"Improving Electronics Assembly Process Through Organic-Metal Final Finish"**  
Dr. Rita Mohanty – MacDermid Enthone Electronics Solutions, Waterbury, CT

**"20 Year Shelf Life Study for Surface Finishes"**  
Gerard O'Brien, D. Hillman – STandS Group, Richmond, KY

**"Flexible Electronics – Packaging Design"**  
Tina Barclay – TAS Consulting, Mendon, NY

**"Small Unmanned Aerial Systems & Applications"**  
Brian Pitre – SkyOp, Canandaigua, NY

**"System Level Technical Analysis for EO Sensors"**  
Michael Meier – MJM & Associates, Rochester, NY

**"Applying New Approaches to Emerging SMT PCB Stencil Printing Challenges"**  
Michael L. Martel – MMC Marketing, Bristol, RI

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### **Session D: Printed Electronics 8:30-11:30 AM** **James Zunino III & Katherine Duncan – Co-Chairs**

**“Application of inkjet printing technology”**

**Michael Carr** – New Jersey Institute of Technology, Newark, NJ

**“Electrical Characterization of Traditional and Aerosol Inkjet Printed Conductors under Tensile and Strain”**

**Jake Rabinowitz** – Northeastern University, Boston, MA

**“Fully Printed Conformal Antenna and Sensors on 3D Plastic, Ceramic, and Metallic Substrates”**

**Mike O’Reilly** – Optomec, Inc., Albuquerque, NM

**“Next Flex - Flexible Hybrid Electronics Manufacturing Innovation Institute”**

**James Zunino III** – U.S. Army RDE Command (ARDEC), Picatinny Arsenal, NJ

**“America Makes and Status of Research in Multi-Functional Printing”**

**Dr. Eric MacDonald** – University of Texas, El Paso, TX

**“Title: SuperScript - Next Generation Additive Manufacturing System”**

**Dr. Kenneth Church** – Sciperio / nScript, Orlando, FL

### **Session E: Medical Device Packaging 1:00-3:00 PM**

**Steve LaFerriere & Tom Green – Co-Chairs**

**“Hermetic Packaging of Implantable Devices: How did we get here? And where are we going?”**

**Heather Dunn** – Cirtec Medical, Longmeadow, MA

**“A Transistor-less, Wireless Neural Implant”, Dr. Daniel Freeman** – Draper, Cambridge, MA

**“RF companion chip based on PICS technology for small and reliable medical device packaging: application to Ultra-Low Power RF Implants”, Dr. Mohamed Mehdi Jatlaoui** – IPDiA, Caen Area, France

**“Packaging Architecture for an Implanted System that Monitors Brain Activity and Applies Therapeutic Stimulation”**

**Caroline Bjune** – Draper, Cambridge, MA

**“Electronics Packaging Methods and Materials for Implantable Medical Devices”**

**Susan Bagen** – Micro Systems Technologies, Inc, Mesa, AZ

### **Session F: 3D and Beyond 1:00-3:00 PM**

**Maria Durham & Dr. A.F. M. Anwar – Co-Chairs**

**“Room Temperature Fast Flow Reworkable Underfill for LGA”**

**Dr. Wusheng Yin** – YINCAE Advanced Materials, LLC, Albany, NY

**“Beyond Chip Stacking---Quilt Packaging Enabled 3D Systems”**

**Jason Kulick** – Indiana Integrated Circuits, South Bend, IN

**“Challenges facing electrochemical deposition in wafer level packaging”,**

**Thomas Richardson** – MacDermid Enthone Electronics Solutions, Waterbury, CT

**“Liquid Metal Interconnects for Conformable Sensor Packaging Enabling Inertial Measurements of Animals and Soft Robots”, Nikolas Kastor & R.D. White** – Tufts University, Medford, MA

**“Printed Transceiver Circuit for System-on-chip Sensor and Processor”**

**Peter H Lewis** – Draper, Cambridge, MA

### **Session G: Nanoelectronics & Optoelectronics Packaging 1:00-3:00 PM**

**Dr. Alkim Akyurtlu & Dr. Joey Mead – Co-Chairs**

**“Beyond CMOS: Wafer Scale Heterogeneous Integration of III-Vs and Other Dissimilar Materials with Si CMOS to Create Intelligent Electronics/Micro-systems”, Dr. Thomas Kazior** – Raytheon Integrated Defense Systems, Andover, MA

**“Synthesis and Preparation of Sn/Ag Nanosolder Paste for Micro/Nano-Electronics Assembly and Packaging”**

**Evan Wernicki** – University of MA Lowell, Lowell, MA

**“Printing of Nano and Microscale Heterogenous Electronics and Sensors”**

**Dr. Ahmed Busnaina** – Northeastern University, Boston, MA

**“Packaging of MEMS for Aerodynamic Measurements”, Dr. Robert White** – Tufts University, Medford, MA

**“Thermogravimetric Study of Dicyandiamide for Application in CVD Growth Process of Single Layer Film of Graphitic Carbon Nitride (g-C<sub>3</sub>N<sub>4</sub>)”, Abdul M. Syed** – Univ. of MA Lowell, Lowell, MA

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**Session H: Poster Session 9:00 AM to 4:30 PM**  
**Dr. Zhiyong Gu & Dr. Rita Mohanty – Co-Chairs**

**Authors Review 2:00 PM – 3:30 PM**

**“High-resolution Inkjet and 3D Printing”,**  
**Yang Gou – University of Connecticut, Storrs, CT**

**“Optical Approaches for Glucose Biosensing”**  
**Jun Chen – University of Connecticut, Storrs, CT**

**“Screen-printed Electrode (SPE) based Solid-State pH Sensor”**  
**Qiuchen Dong – University of Connecticut, Storrs, CT**

**“Fluorescent Carbon nano-particles (CNPs) for Explosive Sensing”**  
**Sichen Zhang – University of Connecticut, Storrs, CT**

**“Protein Microspheres with Unique Autofluorescence for Non-invasively Tracking and Modelling of Their In Vivo Biodegradation”, Xiaoyu Ma – University of Connecticut, Storrs, CT**

**“Thermogravimetric Study of Dicyandiamide for Application in CVD Growth Process of Single Layer Film of Graphitic Carbon Nitride (g-C<sub>3</sub>N<sub>4</sub>)”**  
**Michael Masaki – University of MA Lowell, Lowell, MA**

**“Novel 3D Vertically Aligned Platinum Nanowire Array as Electrocatalysts for Direct Methanol Fuel Cells”, Daniel Chuqing Liu – University of MA Lowell, Lowell, MA**

**“Melting Behavior and Morphology Change of Metallic Nanowires Using Femtosecond Laser Irradiation”, Jirui Wang – University of MA Lowell, Lowell, MA**

**“Counterfeit Component Prevention and Detection”**  
**Scott Mazur – Benchmark Electronics, Nashua, NH**

### **EXHIBITORS AS OF March 24, 2016**

**Advance Reproductions**

**AI TECHNOLOGY**

**ATV Technologie GmbH**

**Centerline Technologies**

**Cirexx International**

**CREYR INNOVATION**

**CWI TECHNICAL SALES**

**EMA Sales & Marketing**

**Epoxy Technology**

**Ferro Ceramic Grinding**

**Finetech**

**Geib Refining**

**Golden Altos**

**Good-Ark Semiconductor**

**GOWANDA ELECTRONICS**

**Heraeus Electronics**

**Hesse Mechatronics**

**Innovative Fabrication**

**JEOL USA**

**Kyocera America**

**Laser Services**

**LFG Micro**

**METALLIX REFINING**

**MICRO SYSTEMS TECHNOLOGIES**

**MicroChem**

**Mini-Systems**

**MMS TECHNICAL SALES**

**MRSI Systems**

**MSD MICROELECTRONIC SYSTEMS DISTRIBUTORS**

**P/M INDUSTRIES**

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**Photofabrication Engineering**

**Precision Automation & Assembly**

**PROTON ON SITE**

**Remtec**

**Riv**

**Semiconductor Equipment Corp**

**Sonoscan**

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**TANAKA KIKINZOKU INTERNATIONAL**

**TAS Consulting**

**Ubotic**

**UTZ Technologies**

**Viatec Instruments**

**XYZTEC**

**YINCAE Advanced Materials**