

# iMAPS New England

40<sup>th</sup> Symposium & Expo  
Tuesday May 7<sup>th</sup>, 2013

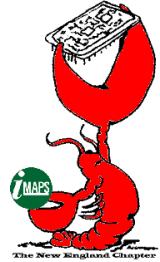
Holiday Inn Boxborough Woods Conference Center

## Final Program

2013 Theme:

## ROBOTS & ROBOTICS

Mike Gervais, Chapter President  
Jim McLenaghan, Technical Program Chair



## Featuring

44 Papers 8 Sessions

**Microwave Packaging Technology Course May 8-10 Conducted by TJ Green**

**Robotics Demonstrations by New England FIRST Student Teams**

**Full Poster Session Open to All Attendees**

**Cash Prizes for Best Student Paper & Poster**

**On-Site Employment Center**

**Exhibit Hall with 60 Booths**

**Games, Raffles & Prizes**

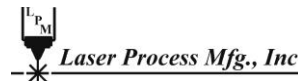
**Buffet Luncheon**

On-Site Registration Opens at 7:30 a.m.      Technical Sessions Open 8:30 a.m. to 3:30 p.m.  
Exhibit Hall is Open 9:00 a.m. to 5:00 p.m.

## Our 2013 Symposium Gold Sponsors



## Our 2013 Symposium Silver Sponsors



## 2013 Media Sponsors





## Session A: LED Applications 8:30 – 11:45 AM

Co-Chairs: George Hwang & Madis Raukas

**"SSL Lighting: Application Trends"**

*Nadya Piskun, Philips Color Kinetics, MA*

**"Recent Trends in Spot Light Engine"**

*Ralph Wirth, OSRAM, Germany*

**"Thermal and Electronic Interconnects in LED Packaging and Assembly"**

*Ravi M. Bhatkal, Ph.D., Alpha, NJ*

**"A Solder Joint Reliability Model for the Philips Lumileds LUXEON Rebel LED Carrier Using Physics of Failure Method"**

*Greg Caswell, DfR Solutions, MD*

**"Prognostics for LED Light and Color Degradation by Encapsulant Degradation"**

*Diganta Das, University of Maryland - MD*

**"Smart Lighting – More than Just Illumination"**

*Robert F. Karlicek, Jr., RPI, NY*

## Session B: SMT 8:30 – 11:45 AM

Co-Chairs: Jeff Anweiler & Ray Whittier

**"SMT Stencil Technology Evaluation"**

*Chrys Shea, Shea Engineering Services, NJ*

**"Stencil Guideline"**

*Kon Akbar, Stentech, Inc., NH*

**"Accurate In-Line 3D Measurement for Process Control"**

*Thorsten Niermeyer, Koh Young, Ireland*

**"Minimizing Voids for Quad Flat-Pack No-Lead in Lead-Free Assembly"**

*Ed Briggs, Indium Corporation, NY*

**"Closing the Loop between the Printer and Solder Paste Inspection"**

*Edward Nauss, Speedline, MA*

**"Influence of Printer Settings on Step Stencil Design"**

*Eric Moen, LaserJob GmbH, GA*

## Session C: Packaging 8:30 – 11:45 AM

Co-Chairs: Bill Boyce & Mike McKeown

**"Configurations for Robust Gold Stitch-to-Substrate Wire Bond Attachment"**

*Matt Apanius, Desich SMART Center, OH*

**"Electrical Current Capabilities of Aluminum Inlay"**

*Mike McKeown, Materion Technical Materials, RI*

**"RF/Microwave Die Attach of GaN Devices Achieving Less Than 1% Void Free in a Flux Free Environment"**

*Bruce Wilson, SST International, CA*

**"High Performance Conformal Coatings for Innovative Technologies"**

*Dr. Rakesh Kumar, Specialty Coating Systems, IN*

**"Laser Cutting of Epoxy Film"**

*Misha Shklyar, Bonding Source, NH*

**"Applicability of Non-Hermetic Packaging for Military and Space Applications"**

*Thomas J Green, TJ Green Associates LLC, PA*

continued on next page

### **PLUS... Microwave Packaging Technology**

A Professional Course Offered by **TJ Green Associates**

**May 8-10, 2013** at The Holiday Inn Boxborough Woods

An introductory/intermediate level course for process engineers, designers, quality engineers, and managers responsible for design and manufacture of microwave microelectronic circuits. **Contact TJ Green: Phone: 610-625-2158**



Email: [info@tjgreenllc.com](mailto:info@tjgreenllc.com)

[www.tjgreenllc.com](http://www.tjgreenllc.com)

Skype: [thomas.j.green](https://www.skype.com/people/thomas.j.green)



## Session D: DFR, DFM, & Readiness Assessment 8:30 – 11:45 AM

Co-Chairs: Greg Caswell & Cynthia Hay

**"Using Physics of Failure to Predict System Level Reliability for Avionics"**

*Greg Caswell, DfR Solutions LLC, MD*

**"Solidworks – Analysis DFM Tool"**

*Tina Barclay, TAS Consulting, NY*

**"DNA Marking to Assure Product Authenticity"**

*Janice Meraglia, Applied DNA Sciences, NY*

**"SAC-M® Solder A Low Cost, High Reliability Alternative to SAC305"**

*Timothy Jensen, Indium Corporation, NY*

**"Excellence in Supplier Management"**

*Richard Share, Share Consulting, NY*

**"Robotics Assembly From Design to Steady State"**

*Scott Mazur, Benchmark, NH*



## Session E: Cleaning – Necessity, Process ID, & Assessment 1:00 – 3:30 PM

Co-Chairs: Terry Munson & Paco Solis

**"3 Case Studies on Process Residues Causing Failures in TestField"**

*Paco Solis, Foresite, IN*

**"Cleaning Today's Electronic Assemblies"**

*Doug Winther, Technical Devices, CA*

**"Lessons from Manufacturing of Regulated Electronic Products"**

*Jason Clevenger, Exponent, MA*

**"Contamination-Related Failures in Printed Circuit Board Assemblies: Case Studies and Remedies"**

*Todd MacFadden, Bose Corporation, MA*

**"Removal of Flux Residues From Highly Dense Assemblies"**

*Debbie Carboni, Kyzen, TN*

## Session F: Thermal Management 1:00 – 3:30 PM

Co-Chairs: David Saums & Glenn Sundberg

**"A Review of Kinetic Heat Sinks as a Compact and Efficient Fan-Cooled Heat Sink for Server Cooling Applications"**

*Pramod Chamarthy, CoolChip, MA*

**"Application Requirements and Developments for Thermal Core PCBs"**

*David Saums, DS&A LLC, MA*

**"Novel Packaging Materials for Moisture Control for Electronics Systems"**

*Sam Incorvia, Multisorb Technologies, NY*

**"Thermal Degradation of Type K Thermocouples at 850°C and 225°C"**

*Fred Dimock, BTU International, MA*

**"Thermal Conductivity Measurements of Multi-Chip-Module Re-distribution Layers"**

*Brian R. Smith, Draper Laboratory, MA*

## Session G: MEMS 1:00 – 3:30 PM

Co-Chairs: Jacob Trevino & Tina Prevost

**"Survivability of MEMS Packages at Loads up to 60,000 g"**

*R. J. Pryputniewicz (Rich), Worcester Polytechnic Institute, MA*

**"A Microfluidic Wireless Read-out Platform for Miniaturized RFID Tags"**

*Huseyin R. Seren, Boston University, MA*

**"MEMS Sensors for Surface Flow Sensing in Aerospace Applications"**

*Zhengxin Zhao, Tufts University, MA*

**"Process for Selecting Optimum Wafer Bonding Process"**

*Eric F. Pabo, EV Group, AZ*

**"Trends in MEMS and Wafer Bonding"**

*Eric F. Pabo, EV Group, AZ*

## iMAPS New England - Employment Center

**Potential Applicants** - Please bring 5-10 copies of your résumés with you to the Symposium

**Potential Employers** - Please provide job postings as follows:

- In Microsoft Office or .pdf compatible format 1 posting per page
- Provide contact info on each posting to which the applicants may respond directly
- Provide a regular mailing address for forwarding the résumés we receive for your position
- Submit postings **by May 3<sup>rd</sup>** via E-mail to: [jblblum1@gmail.com](mailto:jblblum1@gmail.com) for Questions call John Blum - (802) 289-2986



## Session H: Everything Nano 1:00 – 3:30 PM

Co-Chairs: Dr. Alan Rae & Dr. Siva Somu

"Inking Money The Prospects for Materials and Investments in Printed Electronics"

*Jonathan Melnick, Lux Research, MA*

"Digital fabrication of flexible circuits with Thermal Transfer Printing"

*Daniel J. Harrison, IIMAK, NY*

"Toward Understanding Charge Flow in PbS Quantum Dot (sub) Monolayers"

*Jason Moscatello, Mount Holyoke College, MA*

"Synthesis and Reflow Property of Low Melting Point Tin Indium (SnIn) Nanosolder Particles"

*Yang Shu, University Of Massachusetts Lowell, MA*

"New Nanomaterials and Structures with Electronic Potential"

*Alan Rae Ph.D., Nanomaterials Innovation Center, NY*



## Session I: Poster Session - Viewing All Day in Exhibit Hall

Authors Review 2:00– 4:00 PM

Co-Chairs: Ron Lasky & Daryl Santos

"Organic Analysis of Flux Residues by IC/MS"

*Terry Munson, and Kirk Davis, Foresite, IN*

"Analysis of the Thermo-Mechanical Reliability of an SMT Attachment"

*Michael Bartlett, Worcester Polytechnic Institute, MA*

"Effects of Carbon Coating Cathode Materials for Thin-Film Lithium-ion Batteries with Graphene"

*Peter Tuma, Worcester Polytechnic Institute, MA*

"Minimizing Voiding in QFN Packages Using Solder Preforms"

*Seth Homer, Indium Corporation, NY*

"Material and Process Optimization for Head-in-Pillow Minimization"

*Tim Jensen, Indium Corporation, NY*

"A Focus on Productivity"

*Ron Lasky, Indium Corporation, NY*

"Thin Film CZTS Solar Cell Using Sputtering Method"

*Dasharathy Ramash, Binghamton University, NY*

"Polarization Selection and the Optimization of Surface Plasmon Enhanced Quantum Dot Infrared Photodetector"

*Puminun Vasinajindakaw, University Of Massachusetts Lowell, MA*

"Low Volume Dispensing with High Speed Dispensers"

*Sunny Agarwal, Binghamton University & Speedline Technologies, NY*

"Lead-free Nanosolders and their Application for Nanowire Assembly and Nano-Joining"

*Fan Gao, University Of Massachusetts Lowell, MA*

"New Electrochemical Sensor Based on Surface Roughed Pt Nanowires Modified Electrode for HP Detection"

*Fan Gao, University Of Massachusetts Lowell, MA*

"Synthesis and Reflow Property of Low Melting Point Tin Indium (SnIn) Nanosolder Particles"

*Yang Shu, University Of Massachusetts Lowell, MA*

"Low Area Ratio Solder Printing with an Enclosed Pump"

*Aditya Kulkarni, Binghamton University & Speedline Technologies, NY*

## 40<sup>th</sup> Symposium & Expo Exhibitors as of April 2, 2013

Accumet	Henkel Electronic Materials	Mini-Systems
AdTech Ceramics	Hesse Mechatronics	MSD Sales
AI Technology	iMAPS	Newport Corporation
Angstrom Scientific	IMI, Inc	NTK Technologies
Centerline	Innovative Fabrication	Palomar Technologies
CPS	Janus Tech	Proton On Site
Creyr Innovation	Koh Young America	Remtec
CST of America	Laser Process Manufacturing	RIV
Custom Analytical Services	Laser Services	Specialty Coating Systems
EMA Sales & Marketing	LFG Micro	Stellar Industries
Epoxy Technology	Metallix	TAS Consulting
Geib Refining	Metrigraphics, LLC	UTZ Technologies

**[Click Here to Register On-Line](#) -OR- Submit the Form Below** (Type or Print Clearly or attach business card)

√	Please register me for:	Pre-Registration	Fee At-Door
	Full Symposium – Member [includes Luncheon and Proceedings]	\$45.00	\$60.00
	Full Symposium - Non-Member [includes Luncheon and Proceedings]	\$55.00	\$70.00
	Full Symposium - New Member [also includes iMAPS Membership dues \$75]	\$115.00	\$130.00
	Full Symposium - Student	\$15.00	\$25.00
	Proceedings Only (limited availability)	\$25.00	\$25.00
	Exhibits Only with Lunch	\$25.00	\$25.00
	Exhibits Only	<b>Free</b>	<b>Free</b>
Name		Member Number	E-mail
Company		Phone	FAX
Street		City	State & Zip
Check # or Card Type	Card Number	Expiration & Security Code	
Name on Card	Billing Address		
City		State	Zip

Completed form with check payable to iMAPS New England or credit card payment must be received by **May 2, 2013**  
 mail to: Minh Tran, Mini-Systems, 168 East Bacon Street, Plainville, MA 02762, e-mail: [mtran@mini-systemsinc.com](mailto:mtran@mini-systemsinc.com)  
 or call: (508) 695-6076 Pre-Registrations must be received by May 2, 2013, after that register At-Door.

**[Click Here to Register On-Line](#) -OR- Submit the EXHIBITOR REGISTRATION FORM Below**

**Booth rental fee is \$625 Until May 2, 2013**

Company Name _____	
Company Sign in Booth [if different] _____	
Your Website URL _____	May we put a link on the chapter website _____
Exhibits Coordinator _____	
Address _____	
City _____	State _____ Zip _____
Phone _____	FAX _____ E-Mail _____
Business or Product[s] _____	Check if Manufacturer's Rep <input type="checkbox"/>
Person registering with booth [One Only] _____	
iMAPS Individual Member Yes <input type="checkbox"/> No <input type="checkbox"/> [instructions will be provided later for registering additional personnel]	
Address _____	
City _____	State _____ Zip _____
Phone _____	Fax _____ E-Mail _____
Number of Booths _____ @ \$625.00 each Total for Exhibit Space \$ _____	
Credit Card Number _____	Expiration _____ Security Code _____
Name on Card _____	Billing Address _____
City _____	State _____ Zip _____
Communications, Flyers, Exhibits Passes and Raffle information will be e-mailed to both persons listed above unless otherwise instructed.	
Comments or requests: _____	

Completed form with check payable to iMAPS New England or credit card payment must be received by **May 2, 2013**  
 Mail to: Harvey Smith, 19 Red Coat Lane, Plainville, MA 02762-2207 or FAX to 508-695-6447  
 or e-mail completed form to [harveys@imapsne.org](mailto:harveys@imapsne.org)  
 For more information E-Mail: [harveys@imapsne.org](mailto:harveys@imapsne.org) - or - Phone: 508-699-4767 [Harvey Smith or Judi Eicher]  
 and make frequent visits to our website: [www.IMAPSNE.ORG](http://www.IMAPSNE.ORG)