

ADVANCE PROGRAM AND REGISTRATION ON-LINE: WWW.IMAPS.ORG/LEDS

IMAPS Advanced Technology Workshop on **Packaging & Assembly of Power LEDs**

**DINAH'S GARDEN HOTEL
PALO ALTO, CA 94306
SEPTEMBER 13 - 15, 2006**

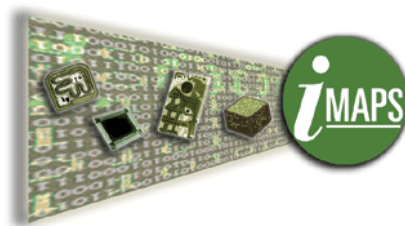
General Co-Chairs:

Frank Wall, Philips Lumileds Lighting
P: 408-964-5212
frank.wall@philips.com

Dave Saums, DS&A LLC
P: 978-499-4990
dsaums@dsa-thermal.com

Program Committee:

Barbara Landini, FlipChip International
Anwar Mohammed, EoPlex Technologies, Inc.
Doug Hopkins, University of Buffalo
Patrick Durand, Future Electronics
Samuel Graham, Georgia Institute of Technology



Sponsored by:

International Microelectronics And Packaging Society (IMAPS)
"Everything in electronics between the chip and the system"

in conjunction with the Thermal Management ATW • September 10-13*
*Visit www.imaps.org/thermal for more information!

Early-Bird Registration & Hotel Discount End: August 18, 2006

TUESDAY, SEPTEMBER 12

Registration: 4:30 pm – 6:00 pm

Opening Reception: 5:30 pm – 6:00 pm

WEDNESDAY, SEPTEMBER 13

Registration: 7:30 am – 7:00 pm

Lunch: 12:15 pm – 1:30 pm

OPENING REMARKS: 1:45 PM – 2:00 PM
Frank Wall, General Co-Chair

SESSION 1: MARKET DRIVERS AND EMERGING ISSUES

2:00 pm – 5:40 pm

Chair: Frank Wall, Philips Lumileds Lighting LLC

Determining Usable Light from High-Power LEDs
Patrick Durand, Future Electronics

Integrating Thermal Characterization with Optometric/Radiometric Measurements for Power LEDs
Yan Zhang, Gabor Farkas, Andras Poppe, Andy Manning, Flomerics Inc.

Break: 3:30 pm – 4:00 pm

Efficient Illumination Design with LEDs
Mark Kaminski, Michael Frate, Breault Research Organization

IMAPS Global Business Council Roadmapping for Packaging Materials: The Roadmapping Purpose and Process
David L. Saums, DS&A LLC

Reception: 5:00 pm – 5:30 pm
Dinner: 5:30 pm – 7:00 pm

THURSDAY, SEPTEMBER 14

Registration: 7:00 am – 5:30 pm

Continental Breakfast: 7:00 am – 8:00 am

SESSION 2: SUBSTRATES AND HEAT SPREADING MATERIALS I

8:00 am – 9:30 am

Chair: Barbara Landini, FlipChip International

Thermal Management Considerations in the Design of High Power LED Products
Henrick Zabawski, Rich Giardina, Heatron, Inc.

Employment of “ALOX” – Aluminum Based Substrate Technology for High Brightness LED (HBL) Packaging
Uri Mirsky, Shimon Neftin, Lev Furer, Micro Components Ltd. (MCL)

Improved Thermal Performance with Polyimide Based Laminate Substrates

Daniel Amey, Gary Briney, David Sutton, DuPont Electronic Technologies

Break: 9:30 am – 10:00 am

SESSION 3: POWER CONVERSION AND CONTROL

10:00 am – 12:00 pm

Chair: Patrick Durand, Future Electronics

Consideration of Semiconductor Technologies and Packaging Options for Cost-Performance Optimization of Simple Power LED Electrical Drive Solutions
Neil Chadderton, Zetex Semiconductors Inc.

Cypress PSoC: Giving Designers the Flexibility and Configurability to Handle Unique Situations in the Volatile LED Marketplace
Gavin Hesse, Patrick Prendergast, Cypress Semiconductor

The Art of Driving High Power LEDs
Neeraj Lal, Chris Richardson, Craig Varga, National Semiconductor

Lunch: 12:00 pm – 1:30 pm

SESSION 4: ACTIVE COOLING

1:30 pm – 3:00 pm

Chair: Anwar Mohammed, EoPlex Technologies, Inc.

Liquid Cooling Enables High-Brightness LED Performance in Projection Applications
Fred Rebarber, Girish Uphadhyia, Peng Zhou, Cooligy, Inc. Division of Emerson Network Power

High Heat Flux Dissipation Technologies
Nelson J. Gernert, Mark North, Kevin Wert, Thermacore, Inc.

Embedded Thermoelectric Coolers for Cooling of High Heat Flux LEDs
P. Crocco, Robert Conner, Randal Alley, David Koester, Nextreme Thermal Solutions, Inc.

Break: 3:00 pm – 3:30 pm

SESSION 5: SUBSTRATES AND HEAT SPREADING MATERIALS II

3:30 pm – 5:00 pm

Chair: David Saums, DS&A LLC

All New NRK's Metal Base CCL for LED
Hiroshi Onodera, Nippon Rika Kogyosho Co., Ltd.

Thermal Modeling of a Refractory Metal Substrate with Improved Thermal Conductivity
Jonathan Margalit, Dincer Bozkaya, Baerbel Kloss, Jonathan Tuck, H.C.Stark Inc.

Optimized Heat Transfer and Homogeneous Color Converting for Ultra High Brightness LED Package
Rafael C. Jordan, Jörg Bauer, Hermann Oppermann, Fraunhofer IZM

Reception: 5:00 pm – 5:30 pm
Dinner: 5:30 pm – 7:00 pm

FRIDAY, SEPTEMBER 15

Registration: 7:00 am – 12:00 pm

Continental Breakfast: 7:00 am – 8:00 am

SESSION 6: MANUFACTURING CONCEPTS

8:00 am – 10:00 am

Chair: Barbara Landini, FlipChip International

Design and Thermal Performance of a High Power LED Assembly Process

Roy Harvey, Ray Dietz, Diemat, Inc.; Justin Kolbe, The Bergquist Company

High Volume Print Forming for Manufacturing Semiconductor Modules and Packages that Require High Thermal Performance
Philip Rogren, EoPlex Technologies, Inc.

How Temperature Effects Transmission of Silicone Encapsulants
Randall Elgin, Bill Riegler, Rob Thomaier, NuSil Technology LLC

Active Solder: A Route to Higher Thermal Performance
Randall Redd, S-Bond Technologies LLC

Break: 10:00 am – 10:30 am

SESSION 7: SUBSTRATES AND HEAT SPREADING MATERIALS III

10:30 am – 12:00 pm

Chair: Frank Wall, Philips Lumileds Lighting LLC

Designing a Circuit Board Thermal Solution for High Power LEDs using a zSPREADER™ Natural Graphite Heat Spreader
Matt Getz, Advanced Energy Technology Inc.

Temperature Assessment on Natural Convection Assisted High Power LED Array Mounted on Multi Layer Ceramic Metal Package

Jung Kyu Park, Tae Hong Lee, Ki Pyo Hong, Sung Yeol Park, Byeung Gyu Chang, Sun Goo Lee, Samsung Electro-Mechanics

High Performance Ceramic Packaging Solutions for High Brightness LEDs
Steven Gauthier, Kyocera America, Inc.

Workshop Closing Remarks: 12:00 pm
Frank Wall, General Co-Chair

DON'T MISS THE....

IMAPS Advanced Technology Workshop on

THERMAL MANAGEMENT

**Dinah's Garden Hotel
Palo Alto, CA**

SEPTEMBER 10 - 13, 2006

www.imaps.org/thermal

TRANSIT INFORMATION

Dinah's Garden Hotel is locally owned and operated and is a very unique hotel property. The rooms are rather unique and the hotel management has offered a great hotel room price for the IMAPS events during the week of September 10-15. For those attending either of the two IMAPS Advanced Technology Workshops who require a hotel room, Dinah's Garden Hotel will offer a rather unusual and pleasant change from the usual business hotel. There is a Trader Vic's Restaurant on the property, as well as a pool and shaded walkways and outdoor terraces.

Dinah's can be reached by car or by public transportation. If driving from San Francisco International Airport (airport code SFO), take US 101 (Bayshore Freeway) south to the San Antonio Road West Exit. Follow the ramp to the right off of US 101 onto San Antonio Road and follow San Antonio Road west to the intersection of San Antonio Road with El Camino Real. At this intersection, there is a traffic light and the San Antonio Shopping Center is on the left hand side. Turn right (north) onto El Camino Real, which is also California Highway 82; it is all a 30 MPH area with many intersections.

If you are arriving at San Jose Airport (SJC), take US 101 (Bayshore Freeway) north to San Antonio Road Exit. Note that there is currently only one exit and there is heavy highway construction in the area. There is no exit that will take you directly west on San Antonio Road, so you must exit onto San Antonio Road and go one block east to a point where you can safely turn left and reverse direction, to go west on San Antonio Road. Follow San Antonio Road west to the intersection of San Antonio Road with El Camino Real. This is a distance of approximately 1.8 miles (2800m) to the El Camino Real intersection. Turn right and proceed not more than one-half mile or approximately 800m to Dinah's Garden Hotel, on the right hand side.

There is public bus service from San Jose Airport (SJC), offered by Santa Clara Valley Transit (Website: www.vta.org), to the San Antonio Transit Center on San Antonio Road, where you can take a taxi to the hotel. This is VTA bus route 22, from San Jose Airport (about 45 minutes, \$1.75 per trip); ask the route bus driver if there will be a stop at Dinah's Garden Hotel, which would be simpler. There is also private shuttle van service available at San Jose Airport, such as SuperShuttle. The cost of a shuttle van may be approximately \$25-30 per trip. Taxis from San Jose Airport will charge a one-way fare of approximately \$60. Other services include Caltrain, the heavy rail commuter service; from SJC, a VTA bus is required to the Santa Clara Transit Center, then Caltrain to either San Antonio station or to California Avenue station (downtown Palo Alto), and a taxi from either station to the hotel.

The hotel website is: www.dinahshotel.com. The hotel direct telephone from overseas or within the U.S. is: +1 650 493 2844. The address is: Dinah's Garden Hotel, 4261 El Camino Real, Palo Alto, CA 94306 - USA.

REGISTRATION FORM

REGISTER ON-LINE AT WWW.IMAPS.ORG/LEDS

PACKAGING & ASSEMBLY OF POWER LEDS ATW: SEPTEMBER 13 - 15, 2006

Dr. Mr. Ms.

Member ID# _____

First Name _____ M.I. _____ Last Name _____

Company/Affiliation _____ Job Position _____

Address _____

City _____ State _____ Zip _____ Country _____

Phone _____ Fax _____ Email _____

REGISTRATION FEES: EARLY-BIRD REGISTRATION ENDS 8/18/06

LEDs WORKSHOP FEES

(On or before 8/18) (After 8/18)

- Member (IMAPS) \$615 \$715
 Non-member* \$715 \$815

*Includes one-year individual membership in IMAPS

- Speaker/Chair/Student/Chapter Officer \$350 \$450

Workshop Fees include an Abstract Book, all meals listed and a CD of Presentations. CD of Presentations will be mailed 10 business days after the event.

LEDs & THERMAL (REGISTER FOR BOTH ATWs AND SAVE)

- Member (IMAPS) \$1180 \$1380
 Non-member* \$1380 \$1580

*Includes one-year individual membership in IMAPS

- Speaker/Chair/Student/Chapter Officer \$650 \$850

ADDITIONAL PURCHASES

- Spouse/Guest (meals only) \$160 \$160
 CD of Presentations (Member Rate) \$150 \$150
 CD of Presentations (Non-Member Rate) \$275 \$275
 Add to Ship in the US \$7 \$7
 Add to Ship Overseas \$25 \$25

HOW DID YOU HEAR ABOUT THIS EVENT?

- Direct Mail Website E-Mail
 Advancing Microelectronics Colleague
 IMAPS Weekly E-mail Bulletin Personal Phone Call
 Industry/Trade Magazine Other _____

HOUSING (Hotel Cut-off is August 18, 2006)

Housing Accommodations **must** be made directly to:

Dinah's Garden Hotel

4261 El Camino Real

Palo Alto, CA 94306

P: 650-493-2844 or 800-227-8220

Please reference **IMAPS Conference 2006-Group#42610701494** when making reservations by phone.

Room Rate: \$140/night

On-line reservations: www.dinahshotel.com; click on Reserve Online at bottom right; click on Group Reservations at bottom; enter IMAPS2006 in the Attendee Code box and follow prompts to complete reservation.

Dinah's Garden Hotel requires a deposit for the first night's room and tax to hold your room. Deposit refunded if reservation is cancelled fourteen (14) days prior to arrival.

**Two Workshops - One Location
Register for both ATWs and Save!**

LEDs (Light Emitting Diodes): September 13 - 15, 2006
www.imaps.org/leds

Thermal Management: September 10 - 13, 2006
www.imaps.org/thermal

PAYMENT

LEDATW06PROG

LEDs Workshop Fees: \$ _____

LEDs & Thermal: \$ _____

Additional Purchases: \$ _____

Total Payment Due: \$ _____

A \$25 fee must be added to all Wire Transfers.

For wire transfer information, email Rick Mohn - rmohn@imaps.org.

Enclosed is a check payable in US funds to IMAPS

Charge my fees to:

Visa MasterCard Discover Amex Diners Club

Card# _____ Exp. _____

Signature _____

Card billing address, if different from above: (required)

Mail this form with payment to: IMAPS * 611 2nd Street, NE * Washington, DC 20002-4909. For credit card transactions, register on-line: www.imaps.org; or register by phone with your credit card by calling 202-548-4001; Fax: 202-548-6115. Additional information? E-mail: IMAPS@imaps.org, or visit our web site: <http://www.imaps.org>. Cancellations will be refunded (less a \$50 processing fee) only if written notice is postmarked on or before **Friday, August 25, 2006**. No refunds will be issued after that date.

IMAPS Registration

611 2nd Street, NE

Washington, DC 20002-4909

"Address Service Requested"

Presorted
First-Class Mail
U.S. Postage
PAID
Merrifield, VA
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