

IMAPS PRESENTS 2 EVENTS - 1 LOCATION: APRIL 29 - MAY 1, 2008

TABLETOP EXHIBITION ON APRIL 29TH & 30TH

**The Conference Center at the Maritime Institute
Linthicum Heights, Maryland - USA**

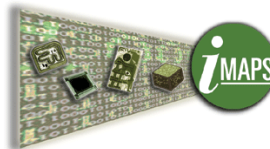
**Advanced Technology Workshop on
Advanced Substrates and Next-Generation Semiconductors
April 30 - May 1, 2008
www.imaps.org/substrates**



Technical Program Co-Chairs:

Sanju Gupta, University of Missouri-Columbia
P: 573-882-0948
gupta@missouri.com

Susan Trulli, Raytheon RF Components
P: 978-684-8667
susan_c_trulli@raytheon.com



Early Registration & Tabletop Booth Discount Ends: April 11, 2008

Hotel Cut-off: April 7, 2008

**Topical Workshop on
Military, Aerospace, Space and Homeland Security:
Packaging Issues and Applications (MASH 2008)
April 29 - 30, 2008
Visit www.imaps.org/mash for more information.**

Message from the **Advanced Substrates Chairs**

This year's Advanced Substrates & Next-Generation Semiconductors ATW (Advanced Substrates 2008) in Linthicum Heights (Baltimore) is promising to be an extremely exciting event as we bring together the divergent technical issues that are before us in the microelectronics community including materials processing and reliability, packaging and applications. This year we're fortunate to have distinguished scientists Rama Venkatasubramanian, RTI International and Nextreme Founder, and Gang Chen, Warren and Towneley Rohsenow Professor in the Department of Mechanical Engineering at MIT as our keynote speakers from industry and academia, respectively.

There are some overwhelming technical challenges in the microelectronics industry that require a serious dialog among engineers, scientists, academe and industry from around the world. As performance needs increase while available volume per function decreases, silicon and traditional III-V compounds such as GaAs are no longer capable of providing the necessary performance. New materials such as GaN have inherently wider band gap to allow higher voltage and power performance over a wide frequency range. Silicon-On-Insulator (SOI) techniques of applying a strain field to the semiconductor active layer to boost the speed at which an electronic signal may be transferred also achieve key performance advantages. This considerably increases the speed of the electronic circuitry by enhancing charge carrier mobility further, while reducing power consumption three or four times. Likewise, smaller chips invariably tend to get much hotter and the challenge is to dissipate that accumulated heat. Silicon-On-Diamond (SOD), silicon carbide, single crystal aluminum nitride and other nanoscale materials offer great alternatives for viable thermal management. With the advent of novel materials and with the enhancement in their device performance either by themselves or in conjunction with other materials (i.e. heterogeneous integration), this ATW on Advanced Substrates/Next-Generation Semiconductors features multiple aspects from basic materials, processing and reliability issues to implications to packaging and leading-edge applications for commercial and defense activities and others with a view to mitigate the limitations posed by conventional substrates and semiconductors.

We've also lined up some excellent talks on new materials and integration for next generation high power and frequency electronics, thermal management and packaging concepts as well as two keynote speakers on the use of integral device level thermoelectric cooling. We expect a reasonable crowd being co-located with MASH, so sign up early! After you've absorbed this wealth of information, make sure to get out and enjoy the famous "Baltimore Inner Harbor," located just a short drive from the workshop site.

See you in Linthicum Heights!

Sanju Gupta & Susan Trulli
Advanced Substrates 2008 Technical Co-Chairs

TABLETOP EXHIBITION
SPACE STILL AVAILABLE! RESERVE YOUR BOOTH TODAY!

www.imaps.org/mash

TUESDAY, APRIL 29, 2008
12:00 PM - 6:30 PM

WEDNESDAY, APRIL 30, 2008
10:00 AM - 3:00 PM

Wednesday, April 30th

Registration: 7:00 am - 5:00 pm
Exhibit Hours: 10:00 am - 3:00 pm

PLENARY TALK (JOINT MASH & ADVANCED SUBSTRATES)

11:30 AM - 12:15 PM

Chair: Sanju Gupta, University of Missouri-Columbia

TITLE: NANOSCALE THERMOELECTRIC MATERIALS AND DEVICES FOR THERMAL MANAGEMENT AND ENERGY HARVESTING



SPEAKER: RAMA VENKATASUBRAMANIAN, RTI INTERNATIONAL AND NEXTRIME INC. FOUNDER

Co-author: Lewis M. Cohn, Program Manager, Defense Threat Reduction Agency

Dr. Rama Venkatasubramanian, Nextreme, Inc. founder, is currently Director of the Center for Thermoelectric Research at RTI International. He served as CTO of Nextreme, Inc. in its first year of founding as it transitioned from RTI labs to the commercial space. Rama is well known for pioneering thermoelectric superlattice materials and device developments over the past decade. He is a recipient of the Allen B. Dumont Prize at Rensselaer Polytechnic Institute, RTI's Margaret Knox Excellence Award in Research (2002), the R&D 100 Award (2002), and the Eastern North Carolina IEEE Inventor of the Year (2003). He has five patents issued in thermoelectrics and has over 100 refereed publications. Rama obtained his PhD in Electrical Engineering from RPI. He is a National Talent Scholar and a graduate of Indian Institute of Technology in Madras, India.

Lunch Break in Exhibit Hall: 12:30 pm - 2:20 pm
(Lunch served from 12:30 pm to 1:30 pm)

Opening Remarks and Introduction: 2:20 pm - 2:30 pm

Technical Co-Chair: Sanju Gupta, University of Missouri-Columbia

Technical Co-Chair: Susan Trulli, Raytheon RF Components

SESSION 1: III-NITRIDES AND SiC SUBSTRATES

Session Chair: Sanju Gupta, University of Missouri-Columbia

2:30 pm - 5:15 pm

Thermal Benefits of Native GaN Substrates

Andrew D. Hanser, E. A. Preble, L. Liu, K. R. Evans, Kyma Technologies, Inc.; B. K. Wagner, H. M. Harris, Georgia Tech Research Institute

Advanced Substrates for AlGaIn/GaN HEMTs

Yvon Cordier, Nicolas Baron, Mohamed Azize, Marc Portail, Marcin Zielinski, Thierry Chassagne, CRHEA-CNRS

Break in the Foyer: 3:30 pm - 3:45 pm

4H-SiC Power Devices - Current Progress and Technical Issues

Sei-Hyung Ryu, Brett A. Hull, Mrinal K. Das, Qingchun Zhang, Sarit Dhar, Sarah K. Haney, Charlotte Jonas, Craig Capell, Len Hall, Jim Richmond, Robert Callanan, Fatima Husna, Anant Agarwal, Cree, Inc.

Current Status of SiC Power Devices and Power ICs

Jian H. Zhao, SiCLAB, Rutgers University

Integration of Vertical and Electrically-Isolated III-V Nanowires on Insulator on Silicon

Shadi A. Dayeh, Yi Jing, Peng Chen, Edward T. Yu, Deli Wang, S. S. Lau, University of California - San Diego

Thursday, May 1st

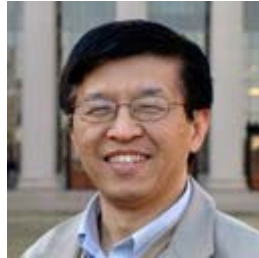
Registration: 7:00 am - 5:00 pm
Continental Breakfast: 7:30 am - 8:00 am

Hotel serves continental breakfast for registered guests at 7:30 am in the cafeteria.

PLENARY TALK: 8:00 AM - 8:45 AM

Chair: Susan Trulli, Raytheon RF Components

TITLE: NANOSTRUCTURED THERMOELECTRIC MATERIALS FOR SOLID-STATE COOLING



SPEAKER: GANG CHEN, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Dr. Gang Chen is currently the Warren and Towneley Rohsenow Professor at Massachusetts Institute of Technology. He obtained his Ph.D. degree from UC Berkeley in 1993. He taught at Duke University (1993-1997) and University of California at Los Angeles (1997-2001) before he moved to MIT in 2001. He is a recipient of the NSF Young Investigator Award, a Guggenheim Fellow, and an ASME fellow. He has published extensively in the areas of nanoscale energy transport and conversion and nanoscale heat transfer. He serves on the editorial boards of five journals in heat transfer and nanotechnology and chairs the ASME Nanotechnology Institute Advisory Board.

SESSION 2: DIAMOND SUBSTRATES

Session Chair: Jerry Zimmer, sp3 Diamond Technologies
8:45 am - 10:15 am

Progress in GaN-on-Diamond Wafer Technology

John Wasserbauer, D. Francis, F. Faili, D. Babic, F. Ejeckam, Group4 Labs

Advances and Challenges in Large Diameter Silicon on Diamond Substrates

Jerry W. Zimmer, sp3 Diamond Technologies

Diamond MEMS

John A. Carlisle, N. Moldovan, N. Neelakantan, C.F. West, Advanced Diamond Technologies, Inc.

Break: 10:15 am - 10:30 am

SESSION 3: PROCESSING/APPLICATIONS

Session Chair: David Saums, DS&A LLC
10:30 am - 12:00 pm

Fabrication of High-Density Substrates for Advanced 3-D Integrated Modules

Michael T. Khbeis, Peter A. DiFonzo, Kevin Moores, John Bolger, US Department of Defense; George Metze, Laboratory for Physical Sciences

Nano-Structured Diamond for DNA Sensing

Nianjun Yang, Hiroshi Uetsuka, Jiahong Yu, Takatoshi Yamada, Christoph E. Nebel, National Institute of Advanced Industrial Science and Technology (AIST)

Heterogeneous Integration of III-V on Silicon Photonic Integrated Circuits

S.J. Ben Yoo, University of California, Davis

Lunch: 12:00 pm - 1:00 pm

SESSION 4: ADVANCED PACKAGING

Session Chair: Susan Trulli, Raytheon RF Components

1:00 pm - 4:45 pm

Challenges in Matching Die to Package CTEs for High Thermal Flux Devices

Jerry W. Zimmer, Gerry Chandler, sp3 Diamond Technologies

Thermal Management and Packaging with Diamond Composites

Ravi Bollina, Sven Knippscheer, Janet Landgraf, Tobias Mrotzek, Hannes Wagner, Plansee SE, Austria

A Local, Reactive Heat Source for Room Temperature Soldering of High Power Devices to Substrates

D. Van Heerden, R. Vincent, Z. He, G. Diaz, Reactive NanoTechnologies, Inc.

Break: 2:30 pm - 2:45 pm

(Served in room and will remain throughout the Panel Discussion.)

Integrated Carbon Nanotube Films in Thermal Management

Robert Vajtai, Xiaohong An, Rensselaer Polytechnic Institute; Géza Tóth, Krisztián Kordás, Infotech/ University of Oulu; Pulickel M. Ajayan, Rice University

Next Level Integration

Andrew Smith, Interconnect Systems Inc.

PANEL DISCUSSION ON EMERGING TRENDS IN ADVANCED SUBSTRATES AND PACKAGING

3:45 PM - 4:45 PM

MODERATOR: JERRY ZIMMER, SP3 DIAMOND TECHNOLOGIES

An expert panel will address global and emerging trends in the areas of advanced substrates and next generation semiconductors as viable platforms for multiple technologies with a concurrent focus on microelectronics and packaging issues. These next-generation semiconductors will have considerable impact on the US and world electronics industries. The panel will discuss key issues including novel substrates and semiconductors, process development, heterogeneous integration, large-scale manufacturing, packaging and novel applications or whatever may come on-site during the questionnaire from attendees, which is at the forefront of the marketplace.

Featured panelists include:

DR. RAMA VENKATASUBRAMANIAN, RTI INTERNATIONAL AND NEXTREME INC. FOUNDER

&

DR. GANG CHEN, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

ADDITIONAL PANELISTS WILL BE INVITED.

Closing Remarks: 4:45 pm

Workshop Chairs

Hotel Information

Hotel Cut-off: April 7, 2008

THE CONFERENCE CENTER AT THE MARITIME INSTITUTE
692 MARITIME BOULEVARD
LINTHICUM HEIGHTS, MD 21090
PHONE: 866-900-3517 OR 443-989-3517

Single: \$130/night Double: \$275/night

Room Rates include Breakfast and Dinner each night.

Please reference International Microelectronics And Packaging Society when making reservations by phone.

Registration Deadlines

Early Registration

&

Tabletop Booth Discounts End

April 11, 2008

All Speakers must register for the workshop(s)
at the reduced speaker rate.

Tabletop Exhibition

“An opportunity to talk to industry leaders”

April 29 - 30, 2008

Tuesday - April 29th

12:00 pm - 6:30 pm (Exhibit Hours)

Lunch, Afternoon Breaks and Reception will be in the Exhibit Area.

Wednesday - April 30th

10:00 am - 3:00 pm (Exhibit Hours)

Refreshment Breaks and Lunch will be in the Exhibit Area.

Tabletop Registration Fees

	On or before 4/11/08	After 4/11/08
IMAPS Corporate/Organizational Member	\$500 per booth	\$550 per booth
IMAPS Non-Corporate/Organizational Member	\$700 per booth	\$750 per booth

Included With Your Registration

- one (1) six foot draped table
 - two (2) chairs
 - carpeting
- one (1) Technical Presentations CD-ROM - post workshop
 - one (1) List of Attendees - post workshop
- Exhibit Hall admission for two (2) booth personnel

Additional booth personnel are welcome at an extra cost of \$50 per person.
Registrations for the full workshop are available at an additional cost.

Shipments are made to the hotel directly. You save money because no service contractor is involved!

The Conference Center at the Maritime Institute

692 Maritime Boulevard

Linthicum Heights, MD 21090

Phone: 866-900-3517 or 443-989-3517

Cancellation Policy

Booth cancellations made on or before 4/16/08 will receive a refund minus \$100 handling fee.
Booths cancelled after 4/16/08 will not be refunded.

For more information, visit www.imaps.org/mash or contact:

Ann Bell, abell@imaps.org; 202-548-8717

Marketing Feature Available for Exhibitors

IMAPS will extend to all exhibitors an opportunity to provide an unlimited amount of pages of company products, services and contact information to be included in the Technical Proceedings CD-ROM. These CD-ROMs are provided to all technical conference attendees and are for sale through IMAPS to all industry professionals.

This unique feature will allow exhibiting companies an unlimited amount of promotional material for their products and services that will go well beyond their exposure at the Workshop.

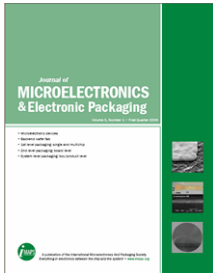
There is no charge for this optional feature. **However, the deadline (4/29/08) must be met in order to be included.**

Submissions should be sent electronically in one (1) file, either PDF or Word, that is easy to open, not password-protected and in a logical format. Any materials not sent in the required format or that arrive after the deadline, may not appear on the CD-ROM. Send files to abell@imaps.org on or before April 29, 2008.

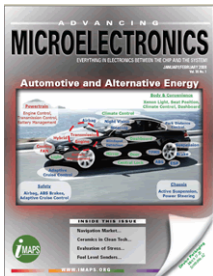


iKnow MICROELECTRONICS

IMAPS On-line Library of Searchable Technical Publications

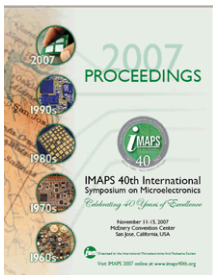


IMAPS on-line library, *iKnow Microelectronics*, provides a centralized, searchable database of the technical papers and slides from IMAPS events and publications offered by the Society.



iKnow Microelectronics currently contains more than 2,700 articles and publications from symposia, conferences, workshops, web meetings and other publications from 2003 through 2008. IMAPS will continue to incrementally load additional historical publications from 2002 and earlier throughout 2008.

iKnow Microelectronics contains the following publications in a Downloadable, CD-rom and/or Printed format:



- **Journal of Microelectronics and Electronic Packaging** (JMEP)
- **Advancing Microelectronics**
- **IMAPS Symposium Proceedings**
- **IMAPS Conference Proceedings**
- **IMAPS Workshop Presentation Slides**
- **Global Business Council Presentations**
- **Podcasts** (archived web meetings)
- **Reference Textbooks**

Using *iKnow's* Advanced Search Engine, you can locate papers by:



- **Keywords**
- **Author**
- **Primary Author Company**
- **Event / Category**
- **Year**
- **Publication Format**

Expand your knowledge and research abilities today!



Log-on to *iKnow Microelectronics* today at www.imaps.org/imapsstore.



REGISTRATION FORM

REGISTER ON-LINE AT WWW.IMAPS.ORG/MASH OR WWW.IMAPS.ORG/SUBSTRATES

MASH & ADVANCED SUBSTRATES WORKSHOPS - APRIL 29 - MAY 1, 2008

Dr. Mr. Ms. IMAPS Member ID# _____
First Name _____ M.I. _____ Last Name _____
Company/Affiliation _____ Job Position _____
Address _____
City _____ State _____ Zip _____ Country _____
Phone _____ Fax _____ Email _____

REGISTRATION FEES: EARLY REGISTRATION ENDS 4/11/08

MASH WORKSHOP FEES

(On or before 4/11) (After 4/11)

<input type="checkbox"/> Member (IMAPS)*	\$625	\$725
<input type="checkbox"/> Non-Member*	\$725	\$825
<input type="checkbox"/> Speaker* <input type="checkbox"/> Chair* <input type="checkbox"/> Chapter Officer*	\$400	\$500
<input type="checkbox"/> Student*	\$275	\$375
<input type="checkbox"/> Exhibits Only (Includes refreshments and food)	\$25	\$25

ADVANCED SUBSTRATES FEES

<input type="checkbox"/> Member (IMAPS)*	\$350	\$450
<input type="checkbox"/> Non-Member*	\$450	\$550
<input type="checkbox"/> Speaker* <input type="checkbox"/> Chair* <input type="checkbox"/> Chapter Officer*	\$250	\$300
<input type="checkbox"/> Student*	\$150	\$200

COMBO FEES (REGISTER FOR BOTH AND SAVE \$100)

MASH & ADVANCED SUBSTRATES:

<input type="checkbox"/> Member (IMAPS)*	\$875	\$1075
<input type="checkbox"/> Non-Member*	\$1075	\$1275
<input type="checkbox"/> Speaker* <input type="checkbox"/> Chair* <input type="checkbox"/> Chapter Officer*	\$550	\$700
<input type="checkbox"/> Student*	\$325	\$475

\$100 savings already calculated into price above.

*Includes one-year IMAPS individual membership or membership renewal at no additional charge. Does not apply to corporate or affiliate memberships. Workshop Fee includes an Abstract book, all meals listed and a CD-ROM of presentations. CD will be mailed 15 business days after the event.

TABLETOP EXHIBIT BOOTH (APRIL 29 - 30, 2008)

<input type="checkbox"/> Member	\$500	\$550
<input type="checkbox"/> Non-Member	\$700	\$750

Yes, I will participate in the CD-ROM

FREE

Tabletop registration fee includes 1-six foot draped table, 2 chairs, carpeting and an Exhibit Hall admission for 2 booth personnel & CD-ROM participation. A CD-ROM of Technical Presentations and 1-list of attendees will be sent to you after the event.

ADDITIONAL PURCHASES

<input type="checkbox"/> Guest/Family Member (meals only)	\$150
MASH CD of Presentations <input type="checkbox"/> Member \$200 <input type="checkbox"/> Non-member \$300	
Substrates CD of Presentations <input type="checkbox"/> Member \$200 <input type="checkbox"/> Non-member \$300	
<input type="checkbox"/> Add to Ship in the US	\$7
<input type="checkbox"/> Add to Ship Overseas	\$25

HOUSING (Hotel Cut-off is April 7, 2008)

The Conference Center at the Maritime Institute
692 Maritime Boulevard
Linthicum Heights, MD 21090
Phone: 866-900-3517 or 443-989-3517

Single: \$130/night Double: \$275/night

Room Rate includes Breakfast and Dinner.

Please reference International Microelectronics And Packaging Society when making reservations by phone.

PAYMENT

MIL/AS 08

MASH Conference Fee:	\$ _____
Advanced Substrates Conference Fee:	\$ _____
Combo Fees: register for both and save	\$ _____
Tabletop Exhibit Booth:	\$ _____
Additional Purchases:	\$ _____
Total Payment Due:	\$ _____

Enclosed is a check payable in US funds to IMAPS

Charge my fees to:

AMEX VISA MC Diners Discover

Card# _____ Exp. _____

Signature _____

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

Email address required to receive confirmation of registration.

For Wire Transfer information call 202-548-4001.

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, April 18, 2008**. No refunds will be issued after that date.

IMAPS Registration
611 2nd Street, NE
Washington, DC 20002-4909

"Return Service Requested"

Presorted
First-Class Mail
U.S. Postage
PAID
Merrifield, VA
Permit No. 6418