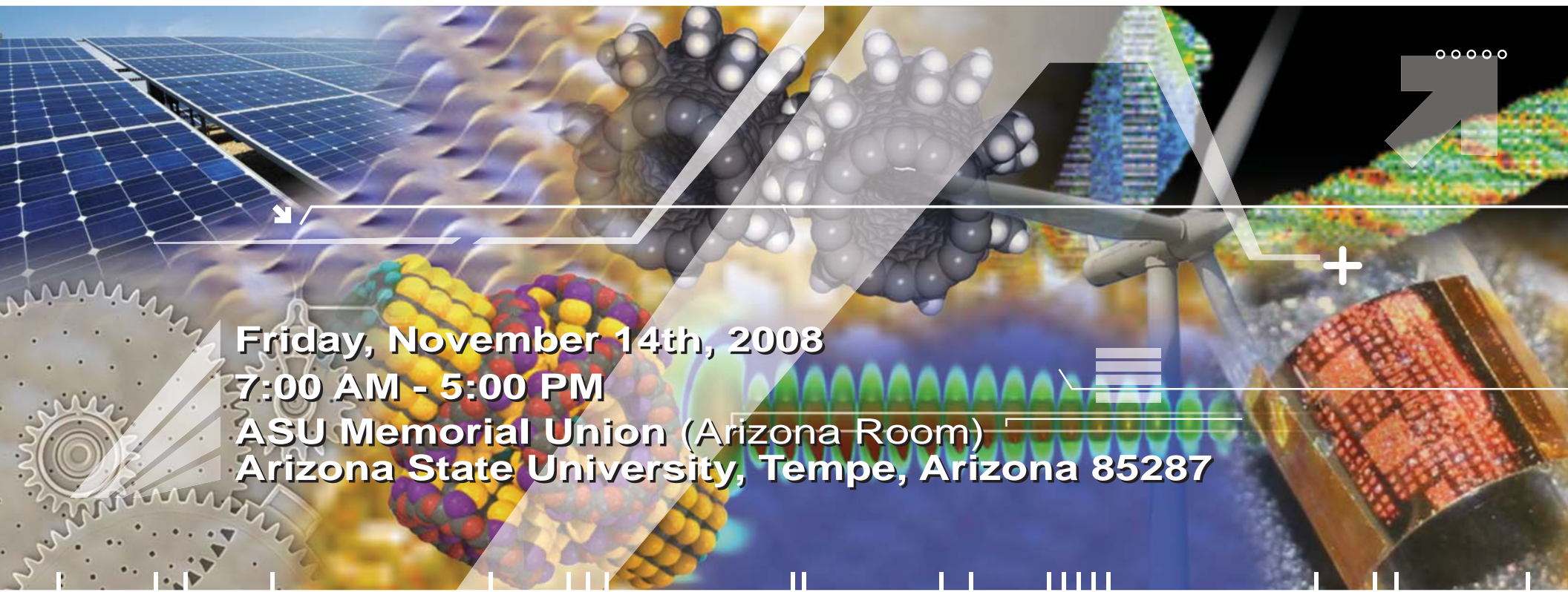




## Phoenix Section

Components, Packaging and Manufacturing Technology Society Chapter  
& Waves and Devices Chapter



Friday, November 14th, 2008

7:00 AM - 5:00 PM

ASU Memorial Union (Arizona Room)

Arizona State University, Tempe, Arizona 85287

Images courtesy of Argonne National Laboratory, NASA Ames Center for Nanotechnology, Stanford University, Sandia National Laboratories (SUMMIT™ Technologies), Nanorex, Inc. and Wikipedia

present an all-day workshop on

## EMERGING DEVICE AND PACKAGING TECHNOLOGIES

### ABSTRACT

The continued scaling of microelectronics for mainstream applications, such as computing and communications, has been enabled by newly developed materials, tools, and techniques. This development of new capabilities has spawned novel applications and market opportunities. This year's one-day Workshop focuses on the topics of nanotechnology, bioelectronics, and energy. Invited experts from industry, academia, research labs, and consortia will share their vision of technical challenges and opportunities in these highly relevant areas.

We are excited to present keynote addresses for each of our three topical sessions. Jerry Hallmark, President of the U.S. Fuel Cell Council and Manager of Energy System Technologies at the Motorola Mobile Devices Technology Office, will open the energy session with the keynote "Emerging Energy Technologies for Mobile Devices." The bioelectronics session features an opening keynote by Dr. Samhita Dasgupta titled "The Impact of Micro and Nano Scale Devices in Chemical and Biological Applications." Dr. Dasgupta is a Device Engineering Manager at GE Global Research. Finally, the nanoelectronics session keynote will be delivered by Dr. Michael Roukes, Co-Director of the Kavli Nanoscience Institute (KNI) and Professor of Physics, Applied Physics, and Bioengineering at the California Institute of Technology. Dr. Roukes' presentation is titled "Nanosystems VLSI: Possibilities, Progress, and Projections."

In addition, this year we feature our first poster session on the broader Workshop topic of emerging device and packaging technologies. Poster presentations will cover a variety of topics from 60 GHz broadband beam-forming arrays and MEMS acoustic devices, to biosensing and biopatterning.

### COMMITTEE MEMBERS

#### Workshop Chair

Dr. Vasudeva P. Atluri  
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#### Technical Program Committee

Chair: Mel Miller  
Co-chair: Debendra Mallik

#### Vendor Committee

Chair: Steve Rockwell  
Co-chair: Dr. Rashaunda Henderson

#### Electronic Media Committee

Chair: Dr. Qing A. Zhou

#### Workshop Co-Chair

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#### Registration Committee

Chair: Dr. Sergio Pacheco  
Co-chair: Surinder Tuli

#### Arrangements Committee

Chair: Dr. Samir Pandey  
Co-chair: Dr. Hugh Barnaby

#### Publicity Committee

Chair: Dr. Ankur Agrawal

### AGENDA

**7:00 AM Registration and Continental Breakfast**

**8:00 AM Workshop Welcome**

Dr. Vasu Atluri, *Workshop Chairman; IEEE Senior Member; Program Manager, Intel Corporation*

**8:15 AM Energy Session**

**8:20 AM Keynote: Emerging Energy Technologies for Mobile Devices**

Jerry Hallmark, *President of the U.S. Fuel Cell Council; Manager, Energy System Technologies, Motorola - Mobile Devices Technology Office*

**8:50 AM Photovoltaics Have Overrun the Silicon Industry**

Lane Garrett, *Founder and CEO, ETA Engineering*

**9:20 AM Energy Harvesting for Microsystems**

Dr. Hanseup Kim, *Research Fellow, Dept. of Electrical Engineering, University of Michigan*

**9:50 AM Break and Poster/Vendor Session**

**10:20 AM Renewable Energies Landscape and Challenges**

Chico Hunter, *Senior Engineer, Sustainability Initiatives and Technologies, Salt River Project*

**10:50 AM Bioelectronics Session**

**10:55 AM Keynote: Impact of Micro and Nano Scale Devices in Chemical and Biological Applications**

Dr. Samhita Dasgupta, *Device Engineering Manager, GE Global Research*

**11:25 AM A Probe-less Miniaturized Protein Sensor**

Dr. Junseok Chae, *Assistant Professor, Dept. of Electrical Engineering, ASU*

**11:55 AM Lunch and Poster/Vendor Session**

**1:25 PM Challenges in Bioelectronic Devices and Packaging**

Celeste Null, *Director of Biomedical Engineering, Digital Health Group, Intel Corporation*

**1:55 PM Advances in Design, Processing and Packaging of Emerging Devices for Molecular Medicine**

Dr. Frederic Zenhausern, *Professor, School of Materials and Dept. of Electrical Engineering; Director, Center for Applied Nanobioscience, Biodesign Institute; Arizona State University*

**2:25 PM Break and Poster/Vendor Session**

**2:55 PM Nanotechnology Session**

**3:00 PM Keynote: Nanosystems VLSI: Possibilities, Progress, and Projections**

Dr. Michael Roukes, *Co-Director, Kavli Nanoscience Institute (KNI), Professor of Physics, Applied Physics, and Bioengineering, California Institute of Technology*

**3:30 PM Nanopackaging: Nanotechnologies and Electronic Packaging**

Dr. James Morris, *IEEE Fellow and Distinguished Lecturer; Professor, Dept. of Electrical and Computer Engineering, Portland State University*

**4:00 PM Computational Challenges for Reliability Assessment of Next-Generation Micro and Nano Systems**

Dr. Abhijit Dasgupta, *Professor, Dept. of Mechanical Engineering, University of Maryland*

**4:30 PM The Making of the GaAs MOSFET**

Dr. Matthias Passlack, *IEEE Senior Member; Visiting Scientist, UCSD*

