

## **March 2007 GIMS Newsletter**

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## **GIMS Special Events**

*Important Reminders!*

### **Keithley Award Session**

**Kent D. Irwin**

**National Institute of Science & Technology, Boulder**

**The Award Session is Thursday, March 8, 2007 2:30PM - 5:30PM**

**Session W6 GIMS: Keithley Award**

**Colorado Convention Center 207**

*"For the development of SQUID multiplexers used in large-format arrays of superconducting transition-edge sensors that have impacted such fields as particle physics, astronomy, materials analysis, cosmology, and nuclear physics."*

**The award winner will give a talk followed by 4 other presenters on related topics.**

### **GIMS Business Meeting**

**Tuesday, March 6, 2007 5:45PM - 6:45PM —**

**Session M38 GIMS: GIMS Business Meeting Colorado Convention Center 501**

**All GIMS members welcome!**

**Dinner to follow at the *Adam's Mark Hotel***

## Focus Sessions at March Meeting

Special Thanks to the organizers of the GIMS focus sessions for 2007. At last year's business meeting we had volunteers start to develop focus sessions for GIMS to sponsor. Below is the list of GIMS focus sessions at the March Meeting. Particular thanks goes to Andreas Mandelis, Joseph Stroschio, Robert Duncan, and Albert Macrander for leading the focus session committees' efforts. Additional thanks to the focus session chairs: Andreas Mandelis, Carolyn MacDonald, Joseph Stroschio, Andreas Heinrich, Eric Hudson, and J. Geremia.

**Session A38 [Focus Session: Acoustic and Optical Instrumentation](#)** Sponsor: GIMS  
Chair: *Andreas Mandelis, University of Toronto* Room: *Colorado Convention Center 501*  
Invited Speakers: *Diebold*

**Session B38 [Focus Session: Bioinstrumentation and Biophotonic Technologies](#)**  
Sponsor: GIMS DBP Chair: *Andreas Mandelis, University of Toronto* Room: *Colorado Convention Center 501*  
Invited Speakers: *Telenkov*

**Session H38 [Focus Session: X-ray and Neutron Instruments and Sciences I](#)** Sponsor: GIMS  
Chair: *Carolyn MacDonald, State University of New York at Albany* Room: *Colorado Convention Center 501*  
Invited Speakers: *Lang*

**Session J38 [Focus Session: X-ray and Neutron Instruments and Sciences II](#)** Sponsor: GIMS  
Chair: *Carolyn MacDonald, State University of New York at Albany* Room: *Colorado Convention Center 501*

**Session L38 [Focus Session: Advances in Scanned Probe Microscopy I: Low Temperatures, Manipulation, and Optical Methods I](#)** Sponsor: GIMS Chair: *Joseph Stroschio, National Institute of Standards and Technology* Room: *Colorado Convention Center 501* y Room: *Colorado Convention Center 501*

**Session N38 [Focus Session: Advances in Scanned Probe Microscopy II: Force Methods](#)** Sponsor: GIMS Chair: *Andreas Heinrich, IBM-Almaden* Room: *Colorado Convention Center 501*  
Invited Speakers: *Ternes*

**Session U38 [Focus Session: Advances in Scanned Probe Microscopy III: High Frequency and Probe Characterization](#)** Sponsor: GIMS Chair: *Eric Hudson, Massachusetts Institute of Technology* Room: *Colorado Convention Center 501*

**Session V38 [Focus Session: Instrumentation and Metrology for Fundamental Physics](#)** Sponsor: GIMS Chair: *J. Geremia, University of New Mexico* Room: *Colorado Convention Center 501*  
Invited Speakers: *Schwab*

## GIMS March APS Meeting Session Schedule

View the complete GIMS sponsored March meeting schedule, speaker list, and abstracts at:

[http://flux.aps.org/meetings/YR07/MAR07/Unit\\_MAR07\\_GIMS.pdf](http://flux.aps.org/meetings/YR07/MAR07/Unit_MAR07_GIMS.pdf)

The general information for GIMS sponsored sessions:

**Session A38 [Focus Session: Acoustic and Optical Instrumentation](#)** Sponsor: GIMS  
Chair: *Andreas Mandelis, University of Toronto* Room: *Colorado Convention Center 501*  
Invited Speakers: *Diebold*

**Session B38 [Focus Session: Bioinstrumentation and Biophotonic Technologies](#)**  
Sponsor: GIMS DBP Chair: *Andreas Mandelis, University of Toronto* Room: *Colorado Convention Center 501*  
Invited Speakers: *Telenkov*

**Session D38 [Nanoinstrumentation for Biological and Other Applications](#)** Sponsor:  
GIMS Chair: *Karen Waldrip, Sandia National Laboratories* Room: *Colorado Convention Center 501*

**Session H38 [Focus Session: X-ray and Neutron Instruments and Sciences I](#)** Sponsor:  
GIMS Chair: *Carolyn MacDonald, State University of New York at Albany* Room:  
*Colorado Convention Center 501*  
Invited Speakers: *Lang*

**Session J38 [Focus Session: X-ray and Neutron Instruments and Sciences II](#)** Sponsor:  
GIMS Chair: *Carolyn MacDonald, State University of New York at Albany* Room:  
*Colorado Convention Center 501*

**Session L38 [Focus Session: Advances in Scanned Probe Microscopy I: Low Temperatures, Manipulation, and Optical Methods I](#)** Sponsor: GIMS Chair: *Joseph Stroschio, National Institute of Standards and Technology* Room: *Colorado Convention Center 501*

**Session M38 [GIMS Business Meeting](#)** Sponsor: GIMS Chair: *Carolyn MacDonald, State University of New York at Albany* Room: *Colorado Convention Center 501*

**Session N38 [Focus Session: Advances in Scanned Probe Microscopy II: Force Methods](#)** Sponsor: GIMS Chair: *Andreas Heinrich, IBM-Almaden* Room: *Colorado Convention Center 501*  
Invited Speakers: *Ternes*

**Session P38 [Sensors and Signal Analysis](#)** Sponsor: GIMS Chair: *Charles Agosta, Clark University* Room: *Colorado Convention Center 501*

**Session S6 X-ray Synchrotron Instrumentation** Sponsor: GIMS Chair: *Tim Graber, University of Chicago* Room: *Colorado Convention Center 207*  
Invited Speakers: *Maser, Chu, Williams, Macrander*

**Session U38 Focus Session: Advances in Scanned Probe Microscopy III: High Frequency and Probe Characterization** Sponsor: GIMS Chair: *Eric Hudson, Massachusetts Institute of Technology* Room: *Colorado Convention Center 501*

**Session V38 Focus Session: Instrumentation and Metrology for Fundamental Physics** Sponsor: GIMS Chair: *J. Geremia, University of New Mexico* Room: *Colorado Convention Center 501*  
Invited Speakers: *Schwab*

**Session W6 Keithley Award** Sponsor: GIMS Chair: *Stan Tozer, National High Magnetic Field Laboratory, Florida State University* Room: *Colorado Convention Center 207*  
Invited Speakers: *Irwin, Kilbourne, Richards, Cabrera, Zink*

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## 2007 Joseph F. Keithley Award For Advances in Measurement Science Recipient

**Kent D. Irwin**  
National Institute of Science & Technology, Boulder

### Citation:

*"For the development of SQUID multiplexers used in large-format arrays of superconducting transition-edge sensors that have impacted such fields as particle physics, astronomy, materials analysis, cosmology, and nuclear physics."*



### Background:

Kent Irwin leads the quantum sensors project at the National Institute of Standards and Technology in Boulder, Colorado, and is an adjunct professor of astrophysics and planetary science at the University of Colorado. He received a B.S. from the California Institute of Technology in 1988 and a PhD. from Stanford University in 1995. At Stanford, he studied under Blas Cabrera and developed the voltage-biased superconducting transition-edge sensor (TES). These devices are now being actively used for the sensitive measurement of electromagnetic signals from microwaves through gamma rays, and for the detection of dark matter, alpha particles, and neutrons.

At NIST, he and his group have developed multiplexed superconducting quantum interference devices that have made it possible to instrument large TES arrays, significantly enlarging their scope of application. His group is actively developing detector systems based on multiplexed TES arrays for astronomy, nuclear non-proliferation, materials analysis, and homeland defense applications. His research interests include precision measurements of electromagnetic signals for cosmological physics and the fundamental thermodynamic and quantum mechanical limitations of sensors and detectors. His team has received the Department of Commerce gold medal and the NIST applied research award for their work with superconducting detectors.

**The Award Session is Thursday, March 8, 2007 2:30PM - 5:30PM  
Session W6 in Colorado Convention Center 207**

2:30PM W6.00001 Keithley Award Talk , KENT IRWIN, Award Winner

3:06PM W6.00002 Cold Probes of the Hot Universe , CAROLINE KILBOURNE,  
NASA Goddard Space Flight Center

3:42PM W6.00003 The Cosmic Microwave Background , PAUL L. RICHARDS,  
University of California, Berkeley

4:18PM W6.00004 Dark Matter, BLAS CABRERA, Stanford

4:54PM W6.00005 Quantum Calorimeter Gamma-ray Detectors: New Tools for  
Nonproliferation, BARRY ZINK, University of Denver

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## **2006 GIMS Leadership:**

***A special thank you to all who volunteered time and effort this  
year including our 2006 Officers***

**For complete contact information for the 2006 Leadership go to  
the officer's web page at:**

<http://units.aps.org/units/gims/officers.cfm>

### **Chair**

**Karen E. Waldrip, Ph.D.**  
Sandia National Labs

### **Secretary-Treasurer**

**Chris Armstrong**  
Keithley Instruments

### **Chair Elect**

**Carolyn A MacDonald**  
University at Albany, SUNY

### **Vice-Chair**

**Charles Agosta**  
Clark University

### **Past & Nominating Comm. Chair**

**Albert T. Macrander**  
Argonne National Laboratory

### **Fellowship Committee Chair**

**Charles Agosta**  
Clark University

## **Executive Committee**

### **Joseph Stroschio**

NIST

### **Tim Graber**

University of Chicago

### **Adam Daire**

Honeywell

### **Rachael Heron**

Janis Corp.

### **George Srajer**

Argonne National Lab

### **Eric Hudson**

MIT

### **Albert T. Macrander (Ex Officio)**

Editor, Review of Scientific Instruments  
Argonne National Laboratory

## **Keithley Award Committee**

**Stan Tozer**

(Chair)

Florida State University

**Frances Hellman**

(2006 Award Winner)

**Dwight Rickel**

**Art Hebard**

(Vice Chair)

**Charles Agosta**

Clark University

**Vivien Zapf**