

# Instrument and Measurement Science

JANUARY 2011

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

The Topical Group on Instrument and Measurement Science (IMSTG/GIMS) of the American Physical Society was formed in 1984 to encourage precision in measurements, to encourage development of instrument and measurement science, to provide a forum for discussions of these topics, and to provide professional recognition of the importance of instrument and measurement science.

The articles in this issue represent the views of the GIMS publication committee and are not necessarily those of individual GIMS members or the APS.

## I. APS Keithley Award for 2010

**Ian Walmsley**

University of Oxford

Citation: *For advances in microwave interferometry, ultra-low phase noise microwave oscillators and high resolution noise measurement and for elucidation of noise mechanisms affecting the fidelity of optical to microwave frequency transfer.*

## II. APS/GIMS Fellows for 2010

**Ade, Harald**

North Carolina State University

Citation: *For the development and incisive use of soft x-ray characterization methods in a wide range of polymeric and organic systems*

**Nugent, Keith**

University of Melbourne

Citation: *For his substantial contributions to the development of novel approaches to experimental measurement techniques, including new approaches to X-ray and neutron phase imaging and the development an understanding of the role of coherence in X-ray science.*

## III. GIMS Selection Committees

**APS Keithley Award**

For awarding at the 2011 March Meeting:

Timothy Graber (Chair), E. Ivanov (2010 Keithley Awardee), A. Macrander, D. Rugar, J.A. Stroschio

For next Keithley Award to be awarded at the 2012 March Meeting:

J. Stroschio (Chair)

**APS/GIMS Fellowship**

For awarding at the 2011 March Meeting:

W. Geerts (Chair), A. Heinrich, R. Floyd, G. Gillies

## IV. GIMS Sessions at March 2011 Meeting in Dallas, Texas

**A. INVITED SYMPOSIA**

**Wednesday March 23, 2:30 PM–5:30 PM**

**Session T4 Keithley Award Session**

Sponsor: GIMS, Chair: Timothy Graber, University of Chicago, Room: Ballroom A4

**2:30PM–3:06PM**

T4.00001: Joseph F. Keithley Award For Advances in Measurement Science Talk: Beyond the Fringe: measuring ultrafast optical pulses using spectral interferometry  
Keithley Award Winner: Ian Walmsley

**3:06PM–3:42PM**

T4.00002: High-Energy Sub-Cycle Waveform Synthesis and Characterization  
Invited Speaker: Franz Kärtner

**3:42PM–4:18PM**

T4.00003: Generation, characterization and spectroscopic use of ultrashort pulses fully tunable from the deep UV to the MIR  
Invited Speaker: Eberhard Riedle

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**GIMS Sessions at March 2011 Meeting in Dalls, Texas** *cont'd***4:18PM–4:54PM**

T4.00004: Probing Electron Correlation with Sequential Laser—Induced Tunnel ionization

Invited Speaker: Paul Corkum

**4:54PM–5:30PM**

T4.00005: Pulse Propagation through Dispersive Optical Materials

Invited Speaker: Robert Boyd

**Thursday, March 24, 8:00 AM–11:00 AM**

Session V7: High Resolution Tunneling Spectroscopy of Dirac Fermions

Sponsor: GIMS, Chair: Eric Hudson, Massachusetts Institute of Technology, Room: Ballroom C3

**8:00AM–8:36AM**

V7.00001: Strain-Induced Pseudo—Magnetic Fields in Graphene: MegaGauss in Nanobubbles;

Invited Speaker: Niv Levy

**8:36AM–9:12AM**

V7.00002: Scanning tunneling microscopy studies of topological insulators grown by molecular beam epitaxy;

Invited Speaker: Xi Chen

**9:12AM–9:48AM**

V7.00003: Spatially Resolved Spectroscopy of Magnetic States in Epitaxial Graphene;

Invited Speaker: David Miller

**9:48AM–10:24AM**

V7.00004: Landau-level spectroscopies of a topological insulator;

Invited Speaker: Tetsuo Hanaguri

**10:24AM–11:00AM**

V7.00005: Scanning Tunneling Spectroscopy of a Gated Single- and Bilayer Graphene Devices in the Quantum Hall Regime;

Invited Speaker: Suyong Jung

**B. FOCUS SESSIONS AND REGULAR SESSIONS (130 talks)****Monday, March 21, 8:00 AM–11:00 AM**

Session A21 Focus Session: Advances in Scanned Probe Microscopy I—Novel Tip and Material Control, Sponsor: GIMS, Chair: Chris Hammel, Ohio State University, Room: D161

Invited Speaker: Jay Gupta; 13 talks

**Monday, March 21, 2:30 PM–5:30 PM**

Session D21 Focus Session: Novel Instrumentation & Measurements for Biomedical Research, Sponsor: GIMS, Chair: Larry Nagahara, National Institutes of Health, Room: D161

Invited Speaker: Vadim Backman; 13 talks

**Tuesday, March 22, 8:00 AM–11:00 AM**

Session H21 Focus Session: Advances in Scanned Probe Microscopy II—High Frequencies and Optical Techniques, Sponsor: GIMS, Chair: Sebastian Loth, IBM Research, Room: D161

Invited Speaker: P. Chris Hammel; 13 talks

**Tuesday, March 22, 11:15 AM–2:15 PM**

Session J21 Focus Session: Imaging and Modifying Materials at the Limits of Space and Time Resolution I, Sponsor: DMP, GIMS, DCP, Chair: Arnaud Delcorte, Universite Catholique de Louvain, Belgium, Room: D161

Invited Speakers: Lukas Novotny, Henry Chapman; 11 talks

**Tuesday, March 22, 2:30 PM–5:30 PM**

Session L21 Focus Session: Imaging and Modifying Materials at the Limits of Space and Time Resolution II, Sponsor: DMP, GIMS, DCP, Chair: Richard Haglund, Vanderbilt University, Room: D161

Invited Speaker: Alexander Tselev; 13 talks

**Wednesday, March 23, 8:00 AM–11:00 AM**

Session P21 Focus Session: Advances in Scanned Probe Microscopy III—Novel SPM of Spin, Force & Conductance, Sponsor: GIMS, Chair: Yukio Hasegawa, University of Tokyo, Room: D161

Invited Speakers: Alexander Khajetoorians; 13 talks

**Wednesday, March 23, 11:15 AM–2:15 PM**

Session Q21 THz and Impedance Spectroscopy, Sponsor: GIMS, Chair: Rachael Floyd, Janis Research Company, Room: D161; 15 talks

**Thursday, March 24, 11:15 AM–2:15 PM**

Session W21 Novel Imaging Techniques and Calorimetry, Sponsor: GIMS, Chair: Susan Mini, Northern Illinois University, Room: D161; 15 talks

**Thursday, March 24, 2:30 PM–5:18 PM**

Session X21 Focus Session: Novel X-Ray Instrumentation and Measurement Techniques, Sponsor: GIMS, Chair: Albert Macrander, Argonne National Laboratory, Room: D161

Invited Speakers: John Hill, Hyon Chol Kang; 10 talks

**Friday, March 25, 8:00 AM–10:48 AM**

Session Y21 High Magnetic Field Measurements, Novel sensors, and Neutron Diffraction Sponsor: GIMS, Chair: Wim Geerts, Texas State University, Room: D161; 14 talks

## V. GIMS Business Meeting

**Tuesday, March 22, 5:45 PM–6:45 PM**  
 Session M21 GIMS Business Meeting,  
 Sponsor: GIMS Room: D161

## VI. Student Travel Awards

Reimbursement of travel expenses to the March meeting are available for student presenters at any GIMS sponsored session. The GIMS secretary-treasurer, A. Macrander, [atmacrander@gmail.com](mailto:atmacrander@gmail.com) should be contacted before the meeting to give advance notice, and all travel receipts should be saved for subsequent submission to the APS for reimbursement.

## VII. Next GIMS Election

An election for Vice-Chair, Secretary-Treasurer, and four Members-at-Large is being planned.

## VIII. Treasurer's Report

As of 11/30/2010

<b>Revenue</b>	
Dues-APS	\$2820.00
March meeting share	\$1907.00
Allocated Investment Income	\$2740.66
<b>Total Revenue</b>	<b>\$7467.66</b>
<b>Expenses</b>	
Reception at business meeting	\$330.00
Overnight mail	\$15.27
Travel <i>(GIMS officers &amp; invited speakers)</i>	\$3682.81
<b>Total Expenses</b>	<b>\$4028.08</b>
<b>Revenue–Expenses</b>	<b>\$3439.58</b>

## IX. Results of GIMS Election Held March-April 2009

Elected to Vice-Chair, to serve March 2010 to March 2011: Wilhelmus Geerts, Department of Physics, Texas State University

## X. Current GIMS Governance

Chair: Joseph Stroschio (3/10 -3/11),  
*Nat. Inst. of Stds & Tech–NIST*

Chair-Elect: Eric Hudson (3/10-3/11),  
*Massachusetts Ins. of Tech –MIT*

Vice Chair: Wilhelmus Geerts (3/10–3/11),  
*Texas State University*

Secretary –Treasurer: Albert Macrander  
 (3/08–3/11), *Argonne Natl Lab*

Member-at-Large: George Gillies (3/08–3/11),  
*Univ. Virginia*

Member-at-Large: Andreas Heinrich  
 (3/08–3/11), *IBM Almaden Res. Ctr.*

Member-at-Large: Daniel Rugar (3/08–3/11),  
*IBM Almaden Res. Ctr.*

Member-at-Large: Keith Schwab (3/08–3/11)  
*Cal. Inst. of Tech–Caltech*

Member-at-Large: Rachael Floyd (3/09–3/12)  
*Janis Research C. Inc.*

Member-at-Large: Susan Mini (3/09–3/12)  
*Northern Illinois Univ.*

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# **GIMS**

**NEWSLETTER**

**AMERICAN PHYSICAL SOCIETY**

Topical Group on Instrument and Measurement Science

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