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# Instrument and Measurement Science

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## Topical Group of the American Physical Society

### GIMS Newsletter 47, January 2021

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**In this newsletter:** *Honors and awards, GIMS Monthly Seminar Series, GIMS at the 2021 APS March Meeting, GIMS Elections, Call for nominations*

#### Honors and Awards

##### The 2021 Keithley Award

The Joseph F. Keithley Award for Advances in Measurement Science is awarded annually to a physicist who has been instrumental in the development of measurement techniques or equipment that have impact on the physics community by providing better measurements. The award is endowed by Keithley Instruments, Inc. and the Topical Group on Instrument and Measurement Science.

The recipient of the 2021 Keithley Award is **Dr. Irfan Siddiqi** *"for fundamental advances in superconducting parametric amplifiers, including the development of the Josephson traveling wave parametric amplifier, and for their application to quantum measurement and control."* Dr. Siddiqi is a Professor of Physics at the University of California, Berkeley, and a faculty scientist at Lawrence Berkeley National Laboratory (LBNL). Dr. Siddiqi's research has focused on high-fidelity readout of superconducting quantum bits, quantum simulation and computation, quantum feedback, quantum trajectories, squeezing and measurement limits, and near-quantum-limited microwave frequency amplification.

##### 2021 Keithley Award



*Irfan Siddiqi*  
University of California,  
Berkeley

##### 2020 APS Fellowship



*Art J. Nelson*  
Lawrence Livermore  
National Laboratory

##### 2020 APS Fellowship

The APS Fellowship Program was created to recognize members who may have made advances in physics through original research and publication, or made significant innovative contributions in the application of physics to science and technology. They may also have made significant contributions to the teaching of physics or service and participation in the activities of the Society.

The recipient of the 2020 APS Fellowship from the Topical Group on Instrument and Measurement Science is **Dr. Art J. Nelson** *"for outstanding contributions to the development of soft x-ray and free electron laser analytical platforms and pump-probe techniques applied to understanding ultrafast surface phenomena and extreme states of matter."*

Dr. Nelson is a Senior Research Scientist in the Materials Science Division at Lawrence Livermore National Laboratory. His research interests include condensed matter physics, femtosecond chemical dynamics and extreme states of matter, surface analysis using AES, XPS, UPS, SIMS, NEXAFS techniques, synchrotron radiation studies, and x-ray lasers.

We would like to extend our thanks to the members of both selection committees:

**Keithley Award:** Charles Agosta (Chair), Zahid Hussain (2019 Recipient), Fedor Balakirev, Chris Jacobsen, and Zahir Islam

**APS Fellowship:** Joseph Stroschio (Chair), Hans Herrmann (2019 Fellow), Peter Grutter, and James Werner

## GIMS Monthly Seminar Series

In the Fall, GIMS launched a new virtual seminar series, held on the second Friday of each month. These seminars are intended to highlight the diverse research interests of the GIMS membership, and to provide an opportunity to showcase the work of both well-established and early career members. The first two meetings of the seminar series included talks by:

**Mike Martin**, Senior Staff Scientist, Lawrence Berkeley Laboratory –  
“*Synchrotron Infrared Nano Spectroscopy*”

**Jonathan Larson**, Postdoctoral Scholar, Lawrence Berkeley National Laboratory –  
“*Modern History of Nondestructive Nanoscale Exploration of Liquid Environments and Solid-Liquid Interfaces with Infrared Nanospectroscopy*”

**Hans Herrmann**, Los Alamos National Laboratory (2019 APS GIMS Fellow) –  
“*Cherenkov Radiation Techniques for High-Energy, Gamma-ray Spectroscopy*”

*Applications at the Omega Laser and National Ignition Facilities”*

**Hermann Geppert-Kleinrath**, Postdoctoral Scholar, Los Alamos National Laboratory –  
“*The new Pulse Dilation – Photomultiplier Tube (PD-PMT) for Gamma Reaction History measurements at the National Ignition Facility*”

You can find details of upcoming seminars on the GIMS website at:

<https://engage.aps.org/gims/home>.

Nominations for future seminar speakers should be sent to Chris Jacobsen (GIMS Vice Chair).

## GIMS at the APS March Meeting

Due to the ongoing COVID-19 pandemic, the 2021 APS March Meeting will be held online from March 15<sup>th</sup> to 19<sup>th</sup>. GIMS will be holding a total of 11 sessions at the meeting, including 8 FOCUS sessions and 2 INVITED sessions. A list of these sessions is provided below:

Session B53 **FOCUS** – Tools for Exploring Materials Physics at the Frontier of Time and Length Scales

Session B58 **INVITED** – Nanoscale Characterization of Correlated and Entangled Quantum Phenomena

Session J60 **FOCUS** – Detectors, Sensors, and Transducers

Session L60 **FOCUS** – Experimental Optical Spectroscopic Measurements of 2D Materials I

Session M60 – Experimental Optical Spectroscopic Measurements of 2D Materials II

Session P60 **FOCUS** – Innovations in Measurement Science

Session R60 **FOCUS** – Advances in Scanned Probe Microscopy I

Session S09 **INVITED PRIZE/AWARD** –  
Keithley Prize Session

Session S60 **FOCUS** – Advances in  
Scanned Probe Microscopy II

Session V60 **FOCUS** – Machine Learning  
for Correlative and Analytical  
Measurements

Session X60 **FOCUS** – Scattering and  
Diffraction

We would like to extend our thanks to the  
2021 Program Committee Members:  
Jonathan C. Lang (Chair), Joseph Hagmann,  
Angela di Fulvio, Elias Garratt, Michael  
Armstrong, Catherine Pappas, Laurel Winter  
Stritzinger, Alex Frano-Pereira, Jobayer  
Hossain, Stephen Jesse, and Roger Proksch.

You can register for the virtual 2021 APS  
March Meeting at:

<https://march.aps.org/registration/>.

The deadline for early bird registration is  
Monday, January 25<sup>th</sup>.

## GIMS Elections 2021

Each year GIMS holds an election to fill  
vacant offices on the executive committee.  
For more details, please refer to the GIMS  
Bylaws webpage at:

<https://engage.aps.org/gims/governance/bylaws>.

A full list of the current GIMS executive can  
be found at:

<https://engage.aps.org/gims/governance/executive-committee>

In the upcoming 2021 GIMS election, we  
will be looking to fill positions for **one Vice  
Chair** and **two Members-at-Large**. The  
Vice Chair is the entry position for a four  
stage Vice Chair, Chair Elect, Chair, Past  
Chair progression. If you are interested in  
standing for election to any of these  
positions, please contact GIMS Secretary-  
Treasurer. The 2021 election is being  
planned to take place shortly before the

virtual APS March Meeting, with more  
details to be circulated soon.

2021 Nomination Committee Members are:  
**Stefan Zollner** (Chair), New Mexico State  
University

**Roger Proksch**, Oxford Instruments

## Call for Nominations

The GIMS executive is currently seeking  
volunteers and nominations for a variety of  
positions and awards:

**GIMS Executive Committee** – The 2021  
GIMS Election will include votes for **one**  
position as Vice Chair and **two** positions as  
Member-at-Large. The deadline to  
volunteer or suggest a colleague is **31  
January 2021**.

**GIMS Appointed Committee Members** –  
There will also be openings on several  
GIMS committees in the new year,  
including the Keithley Award, Student  
Award, GIMS Fellowship, Nomination,  
Program, and Publication committees.  
Volunteers for committee service are  
welcome at any time.

**Joseph F. Keithley Award for Advances  
in Measurement Science** – The Keithley  
Award is presented annually to one person,  
or a small group of individuals working in  
the same area, for outstanding advances in  
measurement science or instrumentation that  
impact the physics community by providing  
better measurements. Details of the award  
and the nomination process are available at  
<https://www.aps.org/programs/honors/prizes/keithley.cfm>. Nominations for the 2022  
Keithley Award are due by June 1<sup>st</sup>, 2021.

**APS Fellowship** – Each year the GIMS  
Fellowship committee selects nominees for  
APS Fellowships based on proposals  
submitted by the GIMS membership. The  
nomination process is described at:  
<https://www.aps.org/programs/honors/fellow>

[ships/nominations.cfm](#). Nominations for the 2021 GIMS Fellowship are due by June 1<sup>st</sup>.

The APS is diverse and global, so officers, committee members, Prize and Award winners, and Fellows of the APS should reflect that diversity. Nominations of women, members of traditionally under-represented minority groups, and scientists from outside the United States are especially encouraged.

## Advocate for GIMS

The APS Topical Group for Instrument and Measurement Science (GIMS) 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.

GIMS provides services to its membership that include:

- A path to APS fellowship based on work in instrument and measurement science
- The Keithley Award for instrumentation
- Focus sessions at the March Meeting
- Organization of March Meeting sessions
- Student Travel Grants
- A voice in governance of the APS

Please bring GIMS to the attention of your colleagues and encourage them to join as members. GIMS seeks to reflect the society around us, so we would particularly encourage you to reach out to your younger colleagues, and members of traditionally under-represented groups. The success of GIMS depends on your continued enthusiasm and support.

*The articles in this newsletter represent the views of the GIMS Publication Committee and are not necessarily those of individual GIMS members or the APS. Suggestions for future news items or highlights from the membership are strongly encouraged. Any questions, comments or corrections regarding the newsletter should be directed to Zahir Islam (GIMS Secretary-Treasurer).*