Arizona Imaging and Microanalysis Society presents

# March 3, 2017



Arizona Imaging and Microanalysis Society azmicroscopy.org

### **President's Note**

# Table of contents

#### **Dear Conference Attendees,**

We welcome you to the 2017 Arizona Imaging and Microanalysis Society Conference. We have recruited an excellent group of speakers who are core directors of some of the leading microscopy labs in the country. This year we will again host the "Digital Images and their Ethical Use in Science Workshop" that was developed at the University of Arizona by our colleagues Doug Cromey, David Elliott and Brook Beam-Massani, to address the need of training scientists of the acceptable techniques and limits of image manipulation. Another addition to the program is the special seminar presented by Teng-Leong Chew, who will provide information about the Advanced Imaging Center at Janelia and how to prepare a competitive proposal so your team can use this innovative microscopy in their research. In addition to this impressive list of events, we again have expanded our poster session to include categories and prizes for undergraduate, graduate and post-doctoral students.

Our conference would not be possible if it were not for the in kind support and sponsorship that we receive each year to host this annual event. AIMS is a Local Affiliate Society [LAS] of the national Microscopy Society of America [MSA] and each year we receive funding through the Tour Speaker Program to help offset costs. We also wish to thank our hosting institution, Arizona State University for providing the excellent venue and to the School of Life Sciences, Undergraduate Student Government and Graduate and Professional Student Association for their sponsorship. Lastly, we want to thank our vendors for their generous support that allows us to provide poster awards, catering, host the ethics workshop and cover other associated conference expenses. Please take a moment during the conference to stop by their tables to say Hi and check out their microscopy related products.

Thank you for being a part of the AIMS community and I hope you enjoy the meeting!

Jage Shal

Best Regards,

Page Baluch, PhD AIMS 2016-2017 President



President's Note
Conference Schedule
Speaker Biographies
Student Abstracts
Vendor Advertisements .

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•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	2
•			•		•	•	•	•	•	•			•	•	3	-	4
•								•	•	•	-	•	•		4	-	5
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# AIMS 2017 Conference Program

# March 3, 2017

All sessions will be held in the Carson Ballroom in ASU's Old Main building.

Check-In	.8 - 8:45 a.m.
Opening remarks.	.8:45 - 9 a.m.
Page Baluch, AIMS President	

Thomas Sharp, Director CSSS and NASA Space Grant Program, School of Earth and Space Exploration, Arizona State University, Tempe, AZ

Morning Break – Vendor Demonstrations/Student Poster Session . . 10 - 11:20 a.m. Vendor Demonstrations and Student Poster Session

Harshad Vishwasrao, NIH/NIBIB AIMR Director, Bethesda, MA

#### Buffet Lunch

Advanced Imaging Center at the HHMI Janelia Research Campus . . . . . 2 - 3 p.m. Teng-Leong Chew, AIC Director, HHMI/Janelia, Ashburn, VA

Alison North, BRC Senior Director, Rockefeller University, New York, NY

Afternoon Break .	 	•	•	 	•					•	•	•				•	.4 - 4:15	p.m.
Vendor Exhibits																		

#### University of South Carolina School of Medicine

Robert Price, IRC Director, Professor of Cell Biology & Anatomy, University of South Carolina, SC Microscopy Society of America Tour Speaker

Page Baluch, AIMS President

# **Speaker Biographies**

#### Harshad Vishwasrao

NIH/NIBIB Advanced Imaging and Microscopy Resource Center Director, Bethesda, MA

Harshad Vishwasrao did his Ph.D. in physics with Watt Webb at Cornell University where his research utilized multi-photon imaging and ultrafast spectroscopy of intrinsic NADH fluorescence to study energy metabolism in the brain. He then moved to Columbia University to pursue post-doctoral research in neuroscience with Eric Kandel - developing novel fluorescence based approaches to study actin dynamics and the actin interaction network.

Harshad joined the National Institutes of Health as the inaugu-A native of Yorkshire, UK, she was an undergraduate at the ral director of the Advanced Imaging and Microscopy (AIM) Resource. AIM is a trans-NIH initiative to make next generation University of Cambridge and received her doctorate from Oxford University. She undertook postdoctoral research in Salzburg and microscopes available to the entire NIH research community. then Manchester, where she was later awarded a Wellcome Trust This facility will house, operate, develop, and improve prototype, Career Development fellowship. Dr. North's images and movies non-commercial microscopes that are of demonstrated interest to the biological research community. have been exhibited worldwide, including in science exhibits at the International Center of Photography in New York and on the public television science series Nova. She has also acted as judge for both the Olympus BioScapes and Nikon Small World photomicrography competitions.

#### **Teng-Leong Chew**

AIC Director, HHMI/Janelia, Ashburn, VA.

After obtaining a BS in Biochemistry at the University of Wisconsin-Madison, Chew went to St. Louis University to pursue his PhD, where he worked to understand the role of myosin II regulation in endothelial cells. Realizing that conventional

Dr. Price is the Director of the University of South Carolina Instrumentation Resource Facility (IRF) which is a biotechnolbiochemical methods could not address the spatial and temporal regulation of signaling pathways inside the cell, Chew embarked ogy core that houses a wide range of instrumentation including on his postdoctoral research in the laboratory of Rex Chisholm confocal and electron microscopes, cell sorters, and small animal imaging systems. Dr. Price's primary expertise is in confocal by developing fluorescent biosensor to simultaneously monitor the enzymatic activity and localization pattern of myosin light and electron microscopy. He has received several awards from local and national microscopy societies including the Southchain kinase in vivo. east Microscopy Society Distinguished Scientist Award and the In 2002, Chew became the director of the Center for Advanced Microscopy Society of America Distinguished Service Award. He Microscopy at Feinberg School of Medicine, Northwestern Uniis currently the Editor-in-Chief of Microscopy and Microanalysis versity in 2002, and led the facility to be recognized as one of the which is the journal of the Microscopy Society of America and is few selected Nikon Imaging Centers of Excellence in the world. President Elect 2017. He has also organized and taught numer-At the same time, his lab began devising methods to engineer ous national and international confocal microscopy workshops three-dimensional, lumenized vascular network capable of dyand Springer recently published a book by Dr. Price and Dr. Jay namic signaling read-out. Jerome of Vanderbilt University entitled "Basic Confocal Microscopy" based on these workshops.

In 2009, Chew was further appointed to the position of Director for University Imaging Resources at Northwestern, overseeing the overarching strategy in building integrated imaging infrastructure across all seven imaging centers and cores within the university.

Chew joined Janelia in 2014 to serve as the Director for the Advanced Imaging Center. Here, he leads the effort in building the unique collaborative imaging center that serves as the gateway through which the wider scientific world can access Janelia's cutting-edge microscopy capabilities.

#### **Alison North**

BRC Senior Director, Rockefeller University, New York, NY.

Dr. North joined The Rockefeller University in 2000 to establish and direct its Bio-Imaging Resource Center, one of the world's most comprehensive facilities for state-of-the-art microscopy and scientific imaging. Dr. North, a cell biologist whose research has included using immunoelectron microscopy to study muscle defects caused by Duchenne muscular dystrophy and ultrastructural studies of the cellular organization of epidermal cell-cell junctions, advises and trains hundreds of researchers from Rockefeller and other institutions in a wide variety of optical microscopy techniques.

#### **Robert Price**

IRC Director, Professor of Cell Biology & Anatomy, University of South Carolina, SC. Microscopy Society of America Tour Speaker

The Instrumentation Resource Facility (IRF) is an integral component of the research and teaching mission of the University of South Carolina School of Medicine (USC SOM). Located within the facility are several major pieces of state-of-the-art biomedical research equipment that provide techniques ranging from whole animal through single cell imaging to analysis at the molecular level. The IRF also houses a full range of ancillary equipment that is available for sample preparation. In addition to serving as a resource for acquisition of primary data, the IRF also has the capacity for image enhancement and related data analysis.

#### **Tom Sharp**

Director LeRoy Eyring Center for Solid State Science, School of Earth and Space Exploration, Arizona State Univ., Tempe, AZ.

As the director of Arizona State University's (ASU) LeRoy Eyring Center for Solid State Science, Sharp oversees a world class environment for advanced materials research and training that has defined the LeRoy Eyring Center for almost five decades. Formed in 1974, the center houses one of the country's most comprehensive collections of high-end tools for the characterization of solid materials. It supports materials research activities across a broad range of disciplines, including solid-state physics and chemistry; Earth and planetary science; materials science and engineering; life sciences; electrical engineering. The center's instruments and expertise are available to researchers not just within ASU but across an expanding industrial community.

# **Student Abstracts**

#### The Characterization of the GABAa (Rdl) Receptor in the Antennal Lobe of Honey bee Apis mellifera. Behavioral and Immunofluorescence Analyses.

**Agabitini, G., Kang, J., Sinakevitch, I. and Smith, B.H.** School of Life Sciences, Arizona State University, Tempe Az

#### Investigation of nanoparticle accumulation after experimental brain injury

Bharadwaj, V.N.<sup>1</sup>, Rowe, R.K.<sup>3</sup>, Harrison, J.<sup>3</sup>, Lifshitz, J.<sup>2,3</sup>, Adelson, P.D.<sup>2</sup>, Kodibagkar, V.D.<sup>1</sup>, Stabenfeldt, S.E.<sup>1</sup> <sup>1</sup>School of Biological and Health Systems Engineering, Arizona State University, Tempe, AZ

<sup>2</sup>Barrow Neurological Institute at Phoenix Children's Hospital, Phoenix, AZ

<sup>3</sup>Department of Child Health, University of Arizona, College of Medicine-Phoenix, Phoenix, AZ

#### Exploring Vibrational and Electronic Structure of Carbon Nitride Powders Using Monochromated Electron Energy-Loss Spectroscopy

**Haiber, D., Aoki, T., and Crozier, P.A.** School for the Engineering of Matter, Transport and Energy, Arizona State University, Tempe AZ

#### In situ Imaging and Spectroscopy of the Carbon Deposition Mechanism on Ni/CeO2 Solid Oxide Fuel Cell Anode Catalyst

Lawrence, E.L. and Crozier, P.A. Arizona State University, School for Engineering of Matter, Transport and Energy, Tempe, Az

#### Nano-level Structure-Reactivity Relations of Co-catalysts for Solar Water Splitting

Liua, Q, Zhanga, L., and Crozier, P.A. School for the Engineering of Matter, Transport and Energy, Arizona State University, Tempe AZ

# Tyramine Function within the Mouse Uterus

**Obayomi, S.M.B., Peck, S. and Baluch, D. P.** *Arizona State University, School of Life Science, Tempe, AZ* 

#### Evaluating the Effectiveness of Alternative FBS on Neuroblastoma Cells

**Peck, S. and Baluch, D.P.** *Arizona State University, School of Life Science, Tempe, AZ* 

# Three-dimensional morphology of plasmodesmata in rice leaf minor vein revealed by electron microscopy

**Regmi, K. and Gaxiola, R.A.** *Arizona State University, School of Life Science, Tempe, AZ* 

#### O-Myo! An O-shaped myosin gliding assay for characterizing long-term actin-myosin behaviors

**Shetty, R.M. and Hariadi, R.** *Biodesign Institute, Arizona State University, Tempe, AZ* 

#### Evaluating the Effect of Alcohol on Burkholderia spp. Biofilm Formation

Valenzuela, D.A., Funke, A.L., Jimenez, V., and Monroy, F.P. Northern Arizona University

#### Investigating the Spatial Resolution of Vibrational Electron Energy Loss Spectroscopy

Venkatraman, K.<sup>1</sup>, Liu, Q.1, Aoki, T.<sup>2</sup>, Rez, P.<sup>3</sup>, and Crozier, P.<sup>1</sup> <sup>1</sup> SEMTE, <sup>2</sup> LE CSSS, <sup>3</sup> Department of Physics, Arizona State University



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