

The background of the cover features three circular inset images: a grayscale micrograph of a porous material in the top right, a fluorescence micrograph of a network of green and red fibers in the bottom left, and a close-up of a microscope's objective lens and stage in the bottom right. A large, solid maroon circle is positioned on the left side, serving as a backdrop for the main text.

*Arizona Imaging and Microanalysis Society presents*

# Microscopy Conference Program

**March 19, 2021**

***[AIMS2021.vfairs.com](https://aims2021.vfairs.com)***



Arizona Imaging and  
Microanalysis Society  
**[azmicroscopy.org](https://azmicroscopy.org)**

# President's Note

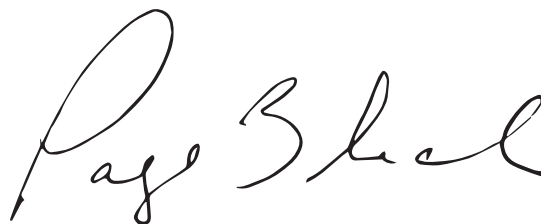
## Dear Conference Attendees,

We welcome you to the 2021 Arizona Imaging and Microanalysis Society Conference. We have a great set of speakers who are Microscopy Core Directors who will describe their core's organizational strategies, services, instruments and research coming from their facilities as well as what they envision for future expansion and instrument development.

This year we also hosted the "ImageJ/FIJI Workshop" with a focus of introducing methods in analyzing microscope data. This two-part seminar started with a beginners review of fundamental tools then switched to an advanced session covering macro writing, batch processing, and automated analysis routines.

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 the Arizona Biomedical Research Centre for their additional support which allowed us to use the vFairs virtual meeting platform. Lastly, we want to thank our vendors for their generous support that allows us to provide poster awards, catering, host the ImageJ/FIJI 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!

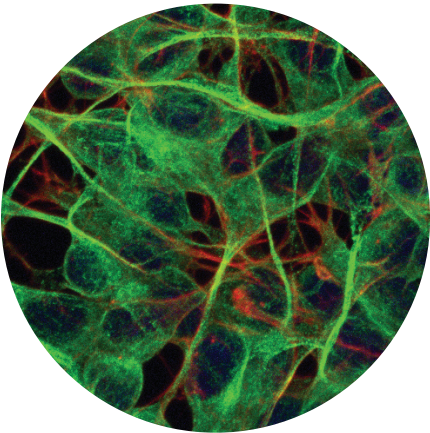
A handwritten signature in black ink that reads "Page Baluch". The signature is fluid and cursive, with the first name "Page" and last name "Baluch" clearly distinguishable.

Best Regards,

**Page Baluch, PhD**

*AIMS 2019-2021 President*

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# AIMS 2021 Conference Program

## March 19, 2021

*The conference web address is [AIMS2021.vfairs.com](https://aims2021.vfairs.com)*

**Exhibitor Hall . . . . . 8:30 a.m - 4:30 p.m.**

**Poster Hall. . . . . 8:30 a.m. - 4:30 p.m.**

**Advanced Microscopy Core Labs at ASU . . . . . 9:00 - 10 a.m.**

**Emmanuel Soignard**, Eyring Materials Center Operations Director

**Honor Glenn**, Biodesign Imaging Facility Director

**Florida Research and Innovation Center . . . . . 10:00 - 11:00 a.m.**

**John Heddleston**, Director of Microscopy in the Florida Research and Innovation Center

**CRL Molecular Imaging Center at Berkeley . . . . . 11:00 a.m. - 12:00 p.m.**

**Holly L. Aaron**, Director of the CRL Molecular Imaging Center

**Lunch/Exhibit Hall/Poster Hall . . . . . 12:00 - 1:30 p.m.**

**Center of Biologic Imaging at the University of Pittsburgh . . . . . 1:30 - 2:30 p.m.**

**Simon Watkins**, Professor and Director of the Center of Biologic Imaging, University of Pittsburgh, PA

**Live Cell Imaging and Electron Microscopy Core Facilities at UT Southwestern Medical Center . . . . . 2:30 - 3:30 p.m.**

**Kate Luby-Phelps**, Professor and Director of the Live Cell Imaging and Electron Microscopy Core Facilities, UT Southwestern Medical Center, TX

**Denise Ramirez**, Ph.D., Director, UTSW Whole Brain Imaging Facility

**Hu Zhao**, DDS, Texas A&M Department of Restorative Sciences

**Kevin Dean**, Ph.D., Director, UTSW Microscopy Innovation Lab

**Center for Advanced Microscopy & Nikon Imaging Center at Northwestern University . . . . . 3:30 - 4:30 p.m.**

**Constadina 'Dina' Arvanitis**, Director of the Center for Advanced Microscopy & Nikon Imaging Center, Northwestern University, IL

**Student Awards Announcement. . . . . 4:30 - 5:00 p.m.**

**Page Baluch**, AIMS President



# Speaker Biographies

## Emmanuel Soignard

Eyring Materials Center Director, Knowledge Enterprise Development, Arizona State University, Tempe, AZ  
Emmanuel Soignard is the Eyring Materials Center (EMC) operations director. The EMC is a multidisciplinary core facility initially established in 1974 focusing on materials analysis, including biological samples, as well as materials synthesis, processing, and even high-pressure synthesis. Dr. Soignard's has been using a wide range of X-ray diffraction techniques since 1999, including synchrotron radiation-based instruments. He also has built several Raman spectroscopy instruments. Dr. Soignard's research interest is in the area of materials under extreme conditions and in particular high pressure. He is interested in understanding the structural changes occurring in a material compressed to several 10s of gigapascals in a diamond anvil cell or a large volume press.

## Honor Glenn

Director of the Biodesign Imaging Facility, Arizona State University, Tempe, AZ  
Honor Glenn manages the Biodesign Imaging Facility (BIF), part of the Advanced Light Microscopy Core in the Biosciences division of ASU Core Facilities. The BIF is a full service, state of the art light microscopy facility serving ASU researchers as well as the surrounding academic and non-academic research communities. This core is customized for live cell imaging and offers modalities such as confocal, super-resolution, and total internal reflection fluorescence (TIRF) microscopy. Dr. Glenn has over 20 years of experience in confocal and other optical microscopy techniques. She has applied these approaches to numerous research areas such as cancer physiology, muscle development, extra-cellular matrix related signaling, cell motility, inflammation, materials science, and virology.

## John Heddleston

Director of Microscopy in the Florida Research and Innovation Center [BSL2 and BSL3], Port St Lucie, FL.  
In 2020, Dr. Heddleston became the founding director of the Florida Research and Innovation Center. This state-of-the-art facility is under development and will contain the infrastructure for BSL3 viral imaging. Previously, John worked at the Advanced Imaging Center at Janelia and has over a decade of experience at the interdisciplinary boundary of engineering, physics, and biology. Prior to joining the AIC, he was a National Research Council postdoctoral fellow at the National Institute of Standards and Technology (NIST) in Gaithersburg, MD. At NIST, John leveraged his expertise in cancer biology to adapt optical spectroscopy techniques for use in biological systems, including using coherent anti-stokes Raman spectroscopy (CARS) as a method of unbiased chemical analysis of normal and pathologic tissue specimens.

## Simon Watkins

Professor and Director of the Center of Biologic Imaging, University of Pittsburgh, Pittsburgh, PA  
Dr. Simon Watkins is the Founder and Director of the Center for Biologic Imaging at the University of Pittsburgh and a member of the Pittsburgh Cancer Institute. He is also a

Distinguished Professor and Vice Chairman within the Department of Cell Biology. The CBI builds, tests, and uses cutting edge optical tools for all types of research microscopic imaging in cells, tissues and animals from the single molecule to the whole animal, the goal being to build highly flexible, maximally effective imaging solutions, to be used by academic researchers. Most recently he has been developing very high-speed deep tissue imaging solutions to collect quantitative images at the diffraction limit of entire tissues including brain. The devices being worked on are effectively 20-30 times faster than a conventional confocal microscope making truly massive scale imaging a possibility. These studies are performed in both living and fixed systems.

## Kate Luby-Phelps

Professor and Director of the Live Cell Imaging and Electron Microscopy Core Facilities, UT Southwestern Med Center, TX  
Kate Luby-Phelps is director of the Live Cell Imaging and Electron Microscopy core Facilities. The core facility offers a variety of microscope imaging modalities including laser-scanning confocal, multiphoton, spinning-disk confocal, wide-field deconvolution, TIRF, and single-molecule imaging. It also has workstations for offline image processing and analysis, including volume rendering, neuron tracing, 3D measurement, and 3D particle tracking. The EM Facility includes a variety of TEM and SEM instruments and provides services for correlative LM and EM imaging, negative staining and immunogold labeling.

## Holly Aaron

Director of the CRL Molecular Imaging Center, Berkeley, CA  
Holly has been in charge of the MIC since its inception in 2001, expanding it from an initial two instruments to nearly 20 today. She enjoys learning about exciting new technology and customizing instruments to meet the unique research demands at UC Berkeley. She is still actively involved in training new and experienced users. Prior to the MIC, she worked in the research core at Genentech and in the lab of neuroscientist Carla Shatz (while at UC Berkeley). Studying biomedical engineering and electrical engineering, she received her undergraduate degree from the University of Southern California, and graduate degree from Drexel University in Philadelphia

## Constadina 'Dina' Arvanitis

Director of the Center for Advanced Microscopy & Nikon Imaging Center, Northwestern University IL  
Constadina Arvanitis, PhD, research associate professor of Cell and Developmental Biology, is director of the Center for Advanced Microscopy and Nikon Imaging Center at Northwestern University in Illinois. Arvanitis received her PhD in chemical and systems biology from Stanford University. Her research focused on mechanisms of tumor regression upon oncogene inactivation. She was a postdoctoral fellow in the laboratory of Leong Chew (now director at Janelia), where she studied the cytoskeletal rearrangements that occur in endothelial cells when cancer cells breach the endothelium during tumor cell extravasation. The Center for Advanced Microscopy is equipped with over 20 instruments dedicated towards light and electron imaging. The CAM also houses a Nikon Imaging Center (NIC) that further compliments the core resources available to users.

## Additional Speakers:

**Denise Ramirez, Ph.D.,** Director, UTSW Whole Brain Imaging Facility

**Hu Zhao, DDS,** Texas A&M Department of Restorative Sciences

**Kevin Dean, Ph.D.,** Director, UTSW Microscopy Innovation Lab

## Student Abstracts

### ART ABSTRACTS

#### SEM Insects

**Bannard, M.**

*School of Arts, Media and Engineering, Arizona State University, Tempe, Az*

#### Mancer and the Leukocytes

**Vance, L.**

*School of Arts, Media and Engineering, Arizona State University, Tempe, Az.*

#### Baby Phage is a Killer

**Vance, L.**

*School of Arts, Media and Engineering, Arizona State University, Tempe, Az.*

#### The Beauty of Mushrooms

**Baker, N.**

*School of Arts, Media and Engineering, Arizona State University, Tempe, Az.*

#### Dawn of the Organoids

**Srinivasan, G.**

*SBHSE Arizona State University, Tempe, Az.*

#### Eye of the Fly

**Shimoni, M.**

*Dept of Biological Sciences, Northern Arizona University, Flagstaff, Az.*

### LIGHT MICROSCOPY ABSTRACTS

#### Obstacle Induced Branching in Filamentous Fungi

**Gonzalez, B., Roberson, R.W., and Baluch, D.P.**

*Arizona State University, School of Life Sciences, Tempe, Az*

#### Vaping: Is It Addictive?

**Mohseni, T. and Baluch, D.P.**

*School for the Engineering of Matter, Transport and Energy, Arizona State University, Tempe AZ*

#### Tyramine Localization Closely Correlates to Circular Vesicles within the Mouse Uterine Horn using Correlational Fluorescence and Scanning Electron Microscopy

**Obayomi, S.M.B. and Baluch, D. P.**

*Arizona State University, School of Life Science, Tempe, AZ*

#### Transition of Podosomes into Zipper-like Structures in Macrophast-Derived Multinucleated Giant Cells

**Arnat Balabiyev, Nataly P. Podolnikova, Aibek**

**Mursalimov, David Lowry, Jason M. Newbern, Robert W.**

**Roberson and Tatiana P. Ugarova**

*School of Life Sciences, Arizona State University, Tempe AZ*

## ELECTRON MICROSCOPY ABSTRACTS

### **Cryo-EM reveals conformational flexibility in apo DNA polymerase Zeta**

Truong, C.D., Craig, T.A., Cui, G., Botuyan, M.V.,  
Serkasevich, R.A., Chan, K.Y., Mer, G., Chiu, P.L., and  
Kumar, R.,

*Biodesign Institute, Arizona State University, Tempe, AZ*

### **Structural Studies of the Neuronal Apoptotic Complex of the proNGF-p75NTR-sortilin**

Nandi, P., Poh, Y.P., and Chiu, P.L.

*Biodesign Institute, Arizona State University, Tempe, AZ*



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