

PRESIDENT'S NOTE

Page Baluch, AIMS 2019-2020 President



Welcome to the New Year from sunny Scottsdale Arizona. This will be the location of our annual **AIMS conference** on **March 20, 2020**. We have been busy organizing this upcoming meeting and are excited to tell you the details!

Many thanks to Tom Tomasiak, Tarjani Thaker, Doug Cromey and Patty Jansma for organizing and hosting the 2019 AIMS conference at the University of Arizona!

This year the 2020 conference is scheduled for **Friday, March 20, 2020** at the **SkySong Pavilion** in **Scottsdale, Arizona, Building 3, Synergy I & II**. We are excited to announce that our speakers include core facility directors from some of the most well-established microscopy labs in the country. Our speakers are leaders in microscopy education, development and research and are coming to Arizona to share their successes and insight into recent and anticipated advancements in microscopy techniques and instrumentation.

At the 2020 AIMS conference, we will have many opportunities for students to participate. There will be an ImageJ workshop on Thursday March 19th. Details and registration information can be found on the AIMS website. On the day of the meeting, there will be a **Student Poster Session** and an **Art Exhibit Competition**. Undergraduate and graduate students as well as postdoctoral students are encouraged to register and present their work. There will be **4 prizes** awarded for the best light and EM based posters and 2 prizes for the best microscopy inspired artwork. We also welcome **sponsors to present a poster** during the vendor exhibits/poster session if they are interested. Vendor posters will not be judged as part of the poster competition but will provide an opportunity to engage with meeting attendees.

Registration for the conference is a two-step process. We encourage all those working with microscopy within Arizona to support AIMS by registering as a member online at www.azmicroscopy.org at the student or individual level. Conference registration is separate and must be submitted through the website. Corporate members have the option to register at various sponsorship levels. Gold level and above include a table at the conference. Sponsors at the Platinum level will have first choice of their table location at the event and will be guaranteed a slot in the lightning rounds.

We are looking forward to a great meeting and hope you will join us at the 2020 AIMS conference in Scottsdale Arizona!



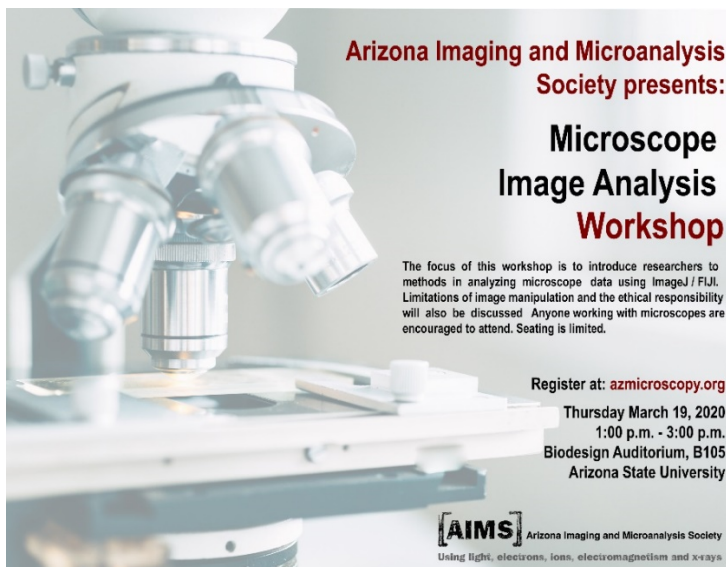
ATTENTION STUDENTS: Scientific Poster Competition

We invite any undergraduate or graduate student who uses microscopy to visualize their research to present a poster at the conference. There will be **2 poster awards (\$100 each) for the best light and EM based posters at the undergraduate and graduate level**. You can register and submit your abstracts online at <http://azmicroscopy.org>. You must be a student member of AIMS to register your poster. Once you have signed up there is a separate registration for the conference and to submit your poster abstract. You must **register in advance** to enter the poster competition. Your **poster abstract must be submitted by March 16th** to be included in the conference program. Details regarding the poster guidelines and evaluation criteria can be found on the AIMS website. Please contact page.baluch@asu.edu if you have any questions.

ATTENTION STUDENTS: Art Exhibit Competition

We invite any undergraduate or graduate student who has created an original piece of art that was inspired by microscopy to present their art at the conference. There will be **2 awards (\$100 each) for the artwork that is uniquely inspired by microscopy in the undergraduate and graduate category**. You can register and submit your abstracts (art summary) online at <http://azmicroscopy.org>. You must be a student member of AIMS to register your artwork. Once you have signed up there is a separate registration for the conference and to submit your poster abstract or art summary. You must **register in advance** to enter the art exhibit competition. Your **artwork abstract must be submitted by March 16th** to be included in the conference program. Details regarding the artwork guidelines and evaluation criteria can be found on the AIMS website. Please contact page.baluch@asu.edu or rkupferer@live.com if you have any questions.

ImageJ Workshop: March 19, 2020



Arizona Imaging and Microanalysis Society presents:

Microscope Image Analysis Workshop

The focus of this workshop is to introduce researchers to methods in analyzing microscope data using ImageJ / Fiji. Limitations of image manipulation and the ethical responsibility will also be discussed. Anyone working with microscopes are encouraged to attend. Seating is limited.

Register at: azmicroscopy.org
Thursday March 19, 2020
1:00 p.m. - 3:00 p.m.
Biodesign Auditorium, B105
Arizona State University

AIMS Arizona Imaging and Microanalysis Society
Using light, electrons, ions, electromagnetism and x-rays



2020 AIMS SPONSORS

Academic & Society Sponsors

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Traveling to the 2020 Conference?

For those who have registered and are coming in from out of town, we have secured a block of hotel rooms that will be available at a reduced cost. The hotel is called The **Graduate Tempe** [225 E. Apache Boulevard, Tempe Az 85281, <http://graduatetempe.com>]. Our reduced rate is \$172.00/night and includes the concessions listed below. You must mention the group name: **“2020 Arizona Imaging and Microanalysis Society Conference”** when reserving the room. This block will be no longer available after Tuesday, February 18, 2020, 5:00PM local time. We have a limited number of rooms in this block, so I encourage you to book soon. Next week I will be sending the first newsletter to our membership and contacts which will announce the meeting and provide information about the hotel room discount.

Included Hotel Concessions:

- Complimentary wireless internet access in guest rooms, meeting space and public spaces
- 15% discount at onsite restaurant, excluding alcohol
- Complimentary airport transportation
- Complimentary use of onsite fitness club and access to ASU Co-Re facility



2020 AIMS Conference Program | Arizona State University

Scottsdale, Arizona

SkySong Synergy I & II

| 8:00 - 8:45a.m. | **Check-in**

- | 8:45 – 9:00a.m. | **Opening remarks**
Page Baluch - AIMS President
- | 9:00 -10:00a.m. | **Biosciences: Advanced Light Microscopy Core Labs at ASU**
Jason Steel, Director of the Biosciences Division,
Emmanuel Soignard, Director of the Eyring Materials Center,
Knowledge Enterprise Development, Arizona State University, Tempe AZ
- | 10:00 -10:50a.m. | **Vendor Lightening Rounds**
5-minute presentations from select sponsors highlighting new technologies.
- | 10:50 -11:30a.m. | **Morning Break – Visit Sponsor Tables/Poster Session**
| 11:30 -12:30p.m. | **Scripps Core Microscopy Facility**
Scott Henderson, Professor Director, Core Microscopy Facility
Department of Molecular Medicine California Campus, La Jolla, CA
- | 12:30 -1:15p.m. | **Buffet Lunch – Synergy I & II, SkySong Pavilion**
- | 1:20 -1:55p.m. | **Jeopardy – Interactive Event**
- | 2:00 –3:00p.m. | **Center of Biologic Imaging at the University of Pittsburgh**
Simon Watkins, Professor and Director of the Center of Biologic Imaging,
University of Pittsburgh, PA.
- | 3:00 –4:00p.m. | **Live Cell Imaging and Electron Microscopy Core Facilities at UT Southwestern Medical Center**
Kate Luby-Phelps, Professor and Director of the Live Cell Imaging and
Electron Microscopy Core Facilities, UT Southwestern Medical Center
- | 4:00 -4:15p.m. | **Afternoon Break/Vendor Exhibits**
- | 4:15 –5:15p.m. | **Research Electron Microscopy at Duke University**
Sara Miller, Professor and Director, Research Electron Microscopy Service,
Duke University, NC
MSA Sponsored Speaker
- | 5:15 -5:30p.m. | **Final Announcements/Student Awards**
- | 5:45 –6:15p.m. | **Business Meeting**
Annual Society general meeting – open to the public



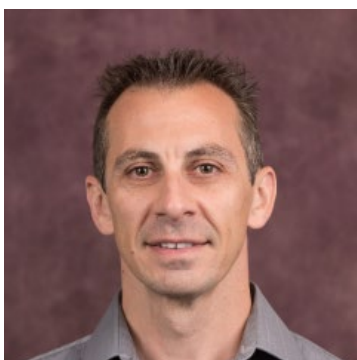
SPEAKERS



Jason Steel

Director of the Biosciences Division, Knowledge Enterprise Development, Arizona State University, Tempe, AZ

Jason Steel is the Director of the KED Biosciences Core. He was trained as a molecular biologist at Johns Hopkins University as a member of the Howard Hughes Medical Institute. His research experience includes identification and characterization of novel photoreceptor specific genes and cloning and characterization of peroxisomal membrane proteins. Jason has over 12 years of sales and project management experience with companies such as Silicon Genetics and Agencourt Bioscience.



Emmanuel Soignard

Eyring Materials Center Director, Knowledge Enterprise Development, Arizona State University, Tempe, Az

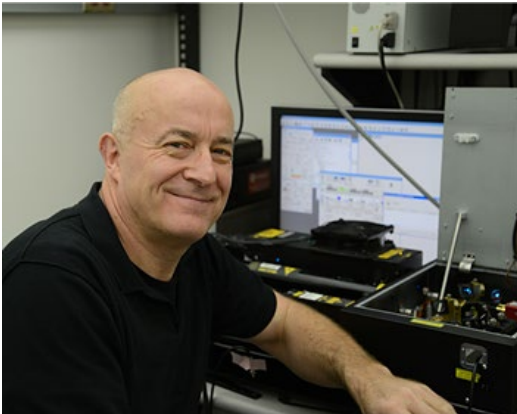
Emmanuel Soignard is the Eyring Materials Center (EMC) operations director. The EMC is a multidisciplinary core facility initially established in 1974 focusing on materials analysis, including biological samples, as well as materials synthesis, processing, and even high-pressure synthesis. Dr. Soignard's 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.



Scott Henderson

Professor Director, Core Microscopy Facility Department of Molecular Medicine California Campus [Scripps], La Jolla CA

In 2017 Scott Henderson became director of The Scripps Research Institute [TSRI] Microscopy Core Facility. Previously he had over 30 years directing core microscopy facilities from leading institutions such as Virginia Commonwealth University and Mount Sinai School of Medicine in New York. TSRI's Microscopy Core Facility offers electron microscopy (TEM and SEM), confocal microscopy (both laser scanning and spinning disc) multi-photon, total internal reflection fluorescence (TIRF) and 'super-resolution' stochastic optical reconstruction microscopy (STORM) along with a full range of technical services.



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 Medical 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.



Sara Miller, Professor and Director, Research Electron Microscopy Service, Duke University, NC

Sara Miller is a professor at the Duke University School of Medicine and Director of the Research Electron Microscopy Service. The EM facility includes many electron-based microscope systems, such as a serial block face scanning electron microscope, as well as equipment for sample preparation and histology. Dr. Miller's research specializes in infectious diseases, particularly viral diseases, and ultrastructure-function relationships.



MICROSCOPY & MICROANALYSIS 2020 CONFERENCE



We invite you to join us on August 2-6, 2020 at the Milwaukee Convention Center in Milwaukee, Wisconsin for the Microscopy & Microanalysis 2020 Conference. Microscopy and Microanalysis 2020 provides scientific diversity, spanning disciplines from life to the physical sciences, all unified by the tools of our trade. The program committee has developed a

strong program Highlighting the latest microscopic and micro analytical advances in the three primary fields of Biological sciences, Materials science, and Analytical sciences. Many interdisciplinary symposia have been organized, reflecting the current environment of collaboration between scientists in different disciplines. The exhibits will demonstrate state-of-the-art equipment, and the vendor tutorials will continue to be a significant part of the meeting. The meeting will also feature tutorials and workshops to be held during the meeting in addition to the traditional short courses. For more information, go to:

<http://www.microscopy.org/MandM/2020/>.

Submit your images!

**2020 Microscopy
TODAY
Micrograph Awards
Competition**

The submission site is open now
until February 21, 2020.

<http://www.microscopy.org/MTMA>

The 2020 Microscopy Today Micrograph Awards Competition is now accepting entries! The competition, open to all types of microscopy, is divided into three categories:

- **Published micrograph category:** static/still images first published within the calendar year prior to the contest.
- **Open micrograph category:** unpublished static/still images acquired by any microscopist.
- **Video micrograph category:** movie/streaming data clips up to 15 seconds in length, or up to 60 seconds in length with the proviso that only 10-15 seconds will be used, acquired directly with a microscope or generated as a video reconstruction from microscopy data. Confocal light microscopy image stacks that create 3-D images may be submitted as a still or as an animated sequence exhibiting 3-D characteristics.

To see the rules and submit your entry, visit: www.microscopy.org/MTMA.

The submission site, now open, closes on February 21, 2020.



CURRENT ARIZONA MICROSCOPY NEWS

Dancing Atoms Reveal Potential Capabilities of Materials

An important part of Peter Crozier's job involves watching dances. He views these intricate performances through state-of-the-art, high-powered microscopes because the dancers are atoms. Crozier is a materials scientist at Arizona State University who studies how the underlying principles of nature can be applied to pursuits in materials science and engineering. To do that, he examines the choreographed ways in which materials form at the atomic level and how those materials develop various functionalities.

Full Story: <https://graduate.asu.edu/news/dancing-atoms-reveal-potential-capabilities-materials>

ASU Winter School is Back again

Offered each year in January, The Center for Solid State Science hosts its annual EM training program. The aim of Winter School is to introduce the theory and practice of high-resolution electron microscopy to scientists currently using transmission electron microscopes for materials science studies. It is expected that people taking the course will have some familiarity with basic crystallography, diffraction contrast, and routine microscope operation. More Information: <https://le-csss.asu.edu/winterschool>

Imaging at the speed of life

To study the swiftness of biology - the protein chemistry behind every life function - scientists need to see molecules changing and interacting in unimaginably rapid time increments: trillionths of a second or shorter. Imaging equipment with that kind of speed was finally tested last year at the European X-ray Free-Electron Laser, or EuXFEL.

Full Story: <https://asunow.asu.edu/20191118-imaging-speed-life-euxfel-first-molecular-movie>

Scientific digital imaging workshop presented at Virginia Tech

On October 4, 2019 Cellular Imaging Facility Core manager Doug Cromey, MS was the invited speaker for a half-day workshop at Virginia Polytechnic Institute and State University entitled Introduction to Scientific Digital Images: Avoiding Twisted Pixels.

Full Story: <http://swehsc.pharmacy.arizona.edu/digital-imaging-workshop-VT>

Busy Workshop Season at the University of Arizona

During the last few months the University of Arizona hosted many microscopy-based workshops. Check out the Microscopy Alliance website [<http://microscopy.arizona.edu/events>] for a list of upcoming workshops.

Past Workshop Highlights:

Digital Images Workshop <http://microscopy.arizona.edu/event/aug-2019-introduction-scientific-digital-images-workshop>

Biological TEM Workshop <http://microscopy.arizona.edu/event/bio-tem-workshop-Oct2019>

Raman Spectroscopy Workshop <http://microscopy.arizona.edu/event/raman-workshop-july-2019>



AFM Workshop <http://microscopy.arizona.edu/event/2019-afm-workshop>

New Equipment at NAU's Imaging and Histology Core Facility

The IHCF received a Leica EM UC7 ultramicrotome and a Leica Aperio CS2 slide scanner this year thanks to funding from the State of Arizona Technology and Research Initiative Fund (TRIF) administered by the Arizona Board of Regents.