

PRESIDENT'S NOTE

Page Baluch, AIMS 2023-2024 President



Welcome to sunny Scottsdale Arizona. This will be the location of our annual **AIMS conference on March 22, 2024**. We have been busy organizing this upcoming meeting and are excited to tell you the details!

This year the 2024 conference is scheduled for **Friday, March 22, 2024** at the **SkySong Pavilion in Scottsdale, Arizona**. 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 success and insight into recent advancements in microscopy techniques and instrumentation.

At the 2024 AIMS conference, we will have many opportunities for student participation. There will be an **Image Analysis Workshop** on Thursday March 21st. On the day of the meeting, there will be a **Student Poster Session** and an **Image Competition**. Undergraduate, graduate and postdoctoral students are encouraged to register and present their work. There will be a **1st (\$200)** and **2nd (\$100)** prize awarded for the best light and EM based posters. For the Image Competition there will be a **1st (\$100)** and **2nd (\$50)** prize for the best microscopy image in both the Scientific and Artistic categories as well as a **People's Choice Award (\$25)** in each category. **Sponsors are welcome 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 have the additional opportunity to engage with attendees.] Details and registration information can be found at <https://azmicroscopy.org/events/>.

We are looking forward to a great meeting and hope you will join us at the 2024 AIMS conference in Scottsdale Arizona!




ATTENTION STUDENTS!

This year we have multiple opportunities for student participation. Information for all these events can be found at

<https://azmicroscopy.org/events/>.

- **Workshop:** On Thursday March 21st there will be a fully catered AIMS workshop focused on Image Analysis. Seating is limited so you must register to attend.
- **Image Competition:** This year we are happy to announce our inaugural Image Competition. There will be two categories: Scientific and Artistic. There will be cash prizes for each category chosen by our judges and by popular vote. Please visit the website for more details.
- **Poster Session:** Students who use microscopy to visualize their research are invited 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



Arizona Imaging and Microanalysis Society presents:

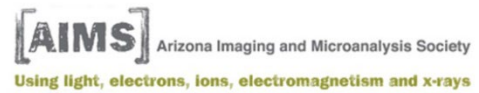
Microscope Image Analysis Workshop

This workshop will introduce researchers to methods in analyzing microscope data using multiple software options. Limitations of image manipulation and ethical responsibility will also be discussed. Anyone working with microscopes is encouraged to attend. Catered event, registration required.

Register at: azmicroscopy.org

Thursday March 21, 2024
9:00AM - 5:00PM
Biosdesign A Lower Level Atrium
Arizona State University

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



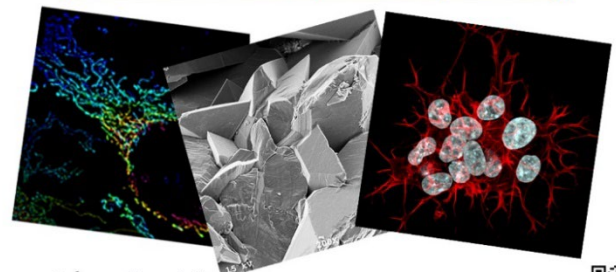
2024 MICROSCOPY IMAGE CONTEST

Join us in celebrating the captivating world of microscopy!

SUBMIT YOUR IMAGE TODAY!

There will be cash prizes for 1st and 2nd place as well as a People's Choice award in the Scientific and Artistic categories.

Deadline: Friday March 8, 2024



For more information visit:

<https://tinyurl.com/AIMS2024ImageContest>



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 8th** to be included in the conference program. **Images must be uploaded by March 8th** to be included in the conference image display for judging. Details regarding the poster guidelines/evaluation criteria and image requirements can be found at <https://azmicroscopy.org/events/>.



Registration

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 or above will have first choice of their table location at the event and will be guaranteed a slot in the lightning rounds.

Traveling to the 2024 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 Element Scottsdale at SkySong [1345 N Scottsdale Rd, Scottsdale, AZ 85257]. Our reduced rate is \$199.00/night and includes the concessions listed below. You must mention the group name: **“ASU Biodesign 2024”** when reserving the room. This block will be no longer available after Monday, February 19, 2024, 5:00PM local time. We have a limited number of rooms in this block, so I encourage you to book soon.

Included Hotel Concessions:

- Complimentary wireless internet access in all guest rooms
- Complimentary daily grab and go breakfast
- Free parking

Book your group rate for ASU Biodesign 2024 [Direct LINK]

You will find the information for the online reservations listed below. Contact Element Scottsdale if you have questions or need help with the link.

Event Summary:

ASU Biodesign 2024 [AIMS Conference]

Start Date: Wednesday, March 20, 2024

End Date: Monday, March 25, 2024

Last Day to Book: Monday, February 19, 2024

Hotel(s) offering your special group rate:

- Element Scottsdale at SkySong for \$199 USD per night



2024 AIMS Conference Program | Arizona State University

SkySong Synergy I & II, Scottsdale, Arizona

March 22, 2024

- | 8:00 - 8:45a.m. | **Check-In**
- | 8:45 – 9:00a.m. | **Opening remarks**
Page Baluch - AIMS President
- | 9:00 -10:00a.m. | **University of Chicago Advanced EM Core Facility**
Tera Lavoie, Assistant Director, University of Chicago, Chicago, IL
- | 10:00 -11:00a.m. | **Morning Break – Visit Sponsor Tables/Poster Session**
- | 11:00 -12:00p.m. | **UWM CryoEM Core**
Elizabeth Wright, CryoEM Core Director, University of Wisconsin-Madison, Wisconsin, IL
MSA Sponsored Speaker
- | 12:00 -1:00p.m. | **Buffet Lunch – Synergy I & II, SkySong Pavilion**
- | 1:00 -2:00p.m. | **CXFEL Project**
Bill Graves, Scientific Director, Arizona State University, Tempe, AZ
- | 2:00 –2:45p.m. | **Cell Profiler**
Beth Cimini, Senior Group Leader, Broad Institute of MIT and Harvard, Cambridge, MA
- | 2:45 –3:45p.m. | **Vanderbilt Microscopy Core**
Matt Tyska, Cornelius Vanderbilt Professor, Department of Cell and Developmental Biology, Scientific Director, Cell Imaging Shared Resource, Vanderbilt University School of Medicine, Nashville, TN
- | 3:45 -4:15p.m. | **Short Talks from Diamond/Platinum Sponsors**
- | 4:15 -4:30p.m. | **Afternoon Break/Vendor Exhibits**
- | 4:30 –5:30p.m. | **OHSU Multiscale Microscopy Core and the Pacific NW CryoEM National Center**
Claudia Lopez, Microscopy Core Director, Oregon Health and Sciences University, Portland, OR
- | 5:30 -5:45p.m. | **Final Announcements/Student Awards**
- | 5:45 –6:15p.m. | **Business Meeting** - Annual Society general meeting – open to the public



SPEAKERS



Elizabeth Wright

CryoEM Core Director, University of Wisconsin-Madison, Wisconsin, IL

Liz received her Ph.D. in Chemistry from Emory University. She engineered elastin-mimetic materials that are used for drug delivery and tissue engineering applications. She was a postdoctoral research associate in materials science at the University of Southern California. She was a postdoctoral scholar with Professor Grant Jensen at Caltech where she developed cryo-ET technologies and used cryo-ET to study HIV-1 maturation. She joined Emory University as an Assistant Professor in 2008 and was promoted to Associate Professor in 2016. She moved to the University of Wisconsin, Madison as a full Professor in 2018. Her research program focuses on the development and use of cryo-EM and correlative light and electron microscopy (CLEM) imaging technologies to determine the native-state structures of several bacterial species, bacteriophages, HIV-1, respiratory syncytial virus (RSV), measles virus (MeV), and other host-pathogen systems.



Tera Lavoie

Technical Director, University of Chicago, Chicago, IL

Tera Lavoie is the Technical Director of the Advanced Electron Microscopy Facility at the University of Chicago. The facility is split into 2 locations, one dedicated to sample preparation, in the Gordon Center for Integrative Sciences, and a newly renovated space dedicated to high resolution cryoEM and volume imaging in the Franklin McLean Research Institute.



Beth Cimini

Senior Group Leader, Broad Institute of MIT and Harvard, Cambridge, MA

Beth Cimini leads the Cimini Lab within the Imaging Platform of the Broad Institute of MIT and Harvard. Her team works with biologists to help them create image analysis workflows and makes the open-source image analysis software CellProfiler. In 2020, she was named a CZI Imaging Scientist for her work on making open-source image analysis tools more accessible to the bioimaging community and for her creation of a postdoctoral training program in bioimage analysis. Cimini's lab started at the Broad in 2021, after 5 years as a postdoc then computational biologist in Anne Carpenter's lab at the Broad Institute. She holds a Ph.D. in biochemistry and molecular biology from the Blackburn Lab at the University of California-San Francisco and a B.A. in biochemistry and molecular biology from Boston University.



William (Bill) Graves

Director (ACD) & Professor, Biodesign Beus CXFEL Lab

William Graves is a professor in the College of Integrative Sciences and Arts and director of accelerator science at The Biodesign Institute. He came to ASU in 2015 from Massachusetts Institute of Technology (MIT) and Brookhaven National Lab, where he spent more than two decades developing novel X-ray light sources that ranged in size from tabletop scale to the largest mile-long devices using giant particle accelerators at national labs.



Matt Tyska

Cornelius Vanderbilt Professor, Department of Cell and Developmental Biology Scientific Director, Cell Imaging Shared Resource, Vanderbilt University School of Medicine, Nashville, TN

The overarching goal of the Tyska Laboratory is to understand how transporting epithelial cells assemble a functional apical surface. Intestinal epithelial cells in particular build one of the most elaborate apical specializations, an array of microvilli known as the brush border. Our current studies are investigating how enterocytes assemble this domain, how the brush border contributes to maintaining physiological homeostasis, and how perturbation of this interface by inherited or

infectious causes leads to human disease. Over the past decade, the Tyska Laboratory has made a number of fundamental and field-leading discoveries on the assembly and function of the brush border interface. Although light and electron microscopy serve as our principle discovery tools, our investigations are decidedly broad in scope, ranging from physiological experiments in mouse model systems to single molecule imaging in live cells.



Claudia Lopez

Microscopy Core Director, Oregon Health and Sciences University, Portland, OR

Claudia López, Ph.D. has extensive experience with electron microscopy research including Transmission Electron Microscopy, Scanning Electron Microscopy, Dual-Beam applications, and Serial Block Face Imaging. Her formal training is in biochemistry, biophysics and molecular biology and she has worked in the biochemistry-biophysics and microbiology fields for the past 22 years. Her expertise includes the analysis of both biological (cells, viruses, bacteria, particles, and tissues) and non-biological materials (hard materials and

fabrics) by TEM, SEM and FIB-SEM and she has routinely performed sample preparation (conventional and cryo-processing), electron microscopy imaging and image analysis. As part of her research interests Dr. López is developing correlative light and electron microscopy techniques for cultured cells and tissues, both for 2D and 3D electron microscopy.



MICROSCOPY & MICROANALYSIS 2024 CONFERENCE



We invite you to join us on July 28 – Aug 1, 2025 at the Milwaukee Convention Center in Milwaukee, Wisconsin for the Microscopy & Microanalysis 2025 Conference. Microscopy and Microanalysis 2024 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:

<https://microscopy.org/m-and-m-meeting>



Microscopy Today Micrograph Awards

Each year *Microscopy Today* has a micrograph competition with 3 prizes given in each of the following categories: Published, Open, and Video. The

goal of this international competition is to identify and showcase scientific micrographs and movie clips. While there must be scientific content in the images, winning entries will also exhibit exceptional composition and other aesthetic qualities. **The next deadline is March 15, 2024. Micrograph submissions begin on January 1, 2024.** For more information go to: [Learn More](#)

CURRENT ARIZONA MICROSCOPY NEWS

ASU researchers pioneer technique to study Brownian motion at micro scale

A group of biophysicists at Arizona State University developed a new, innovative way to study the fundamental properties of the propellers that microscopic organisms use to move.

Peter Brown, Franky Djuanta, Rizal Fajar Hariadi and Douglas Shepherd with the Center for Biological Physics and Department of Physics in The College of Liberal Arts and Sciences pioneered a new approach to studying individual flagella, helical propeller structures used by microscopic organisms, such as bacteria, to move through the natural world. [Full Story](#)

ASU Winter School

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](#)



Advances in X-ray Crystallography Unveil Nature's Tiniest Secrets

A powerful research technique is enabling scientists to peer into the heart of the biological realm with astonishing acuity. Known as serial femtosecond X-ray crystallography, the method is expanding the reach of investigations into how biological molecules interact, yielding insights into the nature of disease and guiding the development of new, smart pharmaceuticals to combat a broad range of ailments. [Full Story](#)

\$22.5M in funding empowers collaboration among partner scientists, NSF's Science and Technology Center for Bright Beams

To make new discoveries, scientists are perpetually in need of shedding just a little bit more light on a given subject. When applied to high energy physics, this becomes a literal endeavor — by making the brightest electron beams possible to aid in discoveries to advance science, medicine and industry.

[Full Story](#)

Kuiper Imaging Core to analyze OSIRIS-REx samples

The Kuiper Materials Imaging and Characterization Facility will be performing extensive analyses on samples from the OSIRIS-REx mission that is due to return (Sept 23, 2023) samples collected from the asteroid Bennu. The facility was highlighted in the [Arizona Daily Star newspaper](#).

2024 AIMS SPONSORS



Diamond/Platinum⁺ Sponsors





Platinum Sponsors



Gold Sponsors

