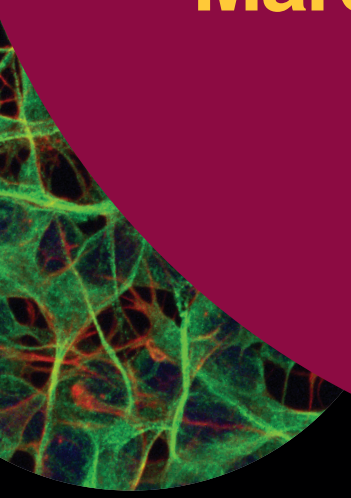
Arizona Imaging and Microanalysis Society presents

Microscopy Conference Program

March 22, 2024



[AIMS]

Arizona Imaging and Microanalysis Society

azmicroscopy.org

President's Note

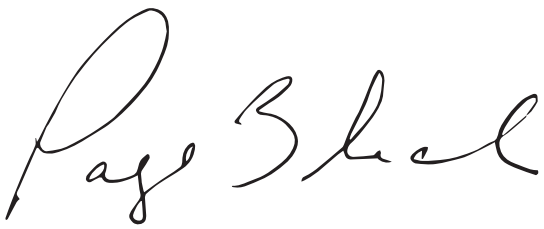
Dear Conference Attendees,

We welcome you to the 2024 Arizona Imaging and Microanalysis Society Conference. We have a great set of speakers from across the Nation who direct some of the leading microscopy core facilities. They will describe their core's organizational strategies, services, instruments and cutting edge research as well as what they envision for future expansion and instrument development.

On Thursday March 21, 2024, we hosted the "Image Analysis Workshop" with a focus of introducing methods in analyzing microscope data. This multi-speaker symposium focused on methods in analyzing microscope data using multiple tools such as Cell Profiler, ImageJ/FIJI, Elements and the VS200 software. Limitations of image manipulation and ethical responsibility was also discussed.

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 and Grant in Aid Programs to help offset costs. We also wish to thank the Arizona Biomedical Research Centre for their generous support which allowed us to provide a whole day image analysis workshop and cover travel costs to our nationally recognized speakers. Last, but not least, we want to thank all of our sponsors for their generous support that allows us to provide poster awards, catering, host the Image Analysis 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!



Best Regards,

Page Baluch, PhD
AIMS 2023-2024 President

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AIMS Arizona Imaging and Microanalysis Society
azmicroscopy.org

MSA Microscopy Society of America

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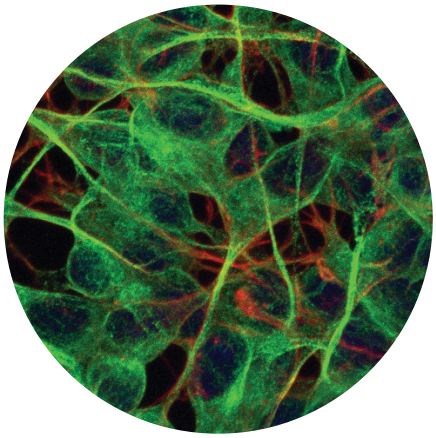


AIMS 2024 Conference Program

March 22, 2024

8:00-8:45 AM **Check-In**

8:45-9:00 AM **Opening Remarks**
Page Baluch – AIMS President

9:00-10:00 AM **Tera Lavoie,** *UC Advanced EM Core Assistant Director, University of Chicago, Chicago, IL*
Building a State-of-the-Art Electron Microscopy Facility on the Bones of the Past

10:00-11:00 PM **Moring Break – Vendor Demonstrations/Student Poster Session**

11:00-12:00 PM **Elizabeth Wright,** *CryoEM Core Director, University of Wisconsin-Madison, Wisconsin, IL*
Developing correlative cryo-EM imaging workflows and building two new cryo-EM centers at UW-Madison

12:00-1:00 PM **Buffet Lunch – sponsored by ThermoFisher and Protochips**

1:00-2:00 PM **Bill Graves,** *CXFEL Project Scientific Director, Arizona State University, Tempe, Az*
CXFEL Project

2:00-2:45 PM **Beth Cimini,** *Cell Profiler Senior Group Leader, Broad Institute of MIT and Harvard, Cambridge, MA*
Cell Profiler

2:45-3:45 PM **Matt Tyska,** *Cornelius Vanderbilt Professor, Dept of Cell and Dev Bio, Scientific Director, Cell Imaging Shared Resource, Vanderbilt University School of Medicine, Nashville, TN*
Imaging the Dynamics of Epithelial Differentiation
Vanderbilt Microscopy Core

3:45-4:20 PM **Lightening Talks from Diamond/Platinum Sponsors**

4:20-4:30 PM **Afternoon Break**

4:30-5:30 PM **Claudia Lopez,** *OHSU Multiscale Microscopy Core and the Pacific NW CryoEM National Center Microscopy Core Director, Oregon Health and Sciences University, Portland, OR*
Effectively navigating the challenges of building and running Electron Microscopy facilities at all scales, from University Core facility to National Center

5:30-5:45 PM **Awards and Closing Remarks**

5:45-6:15 PM **AIMS Business Meeting – open to the public**

Speaker Biographies

Beth Cimini

Associate Director for Bioimage Analysis

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 Graves

Professor of Applied Physics at ASU

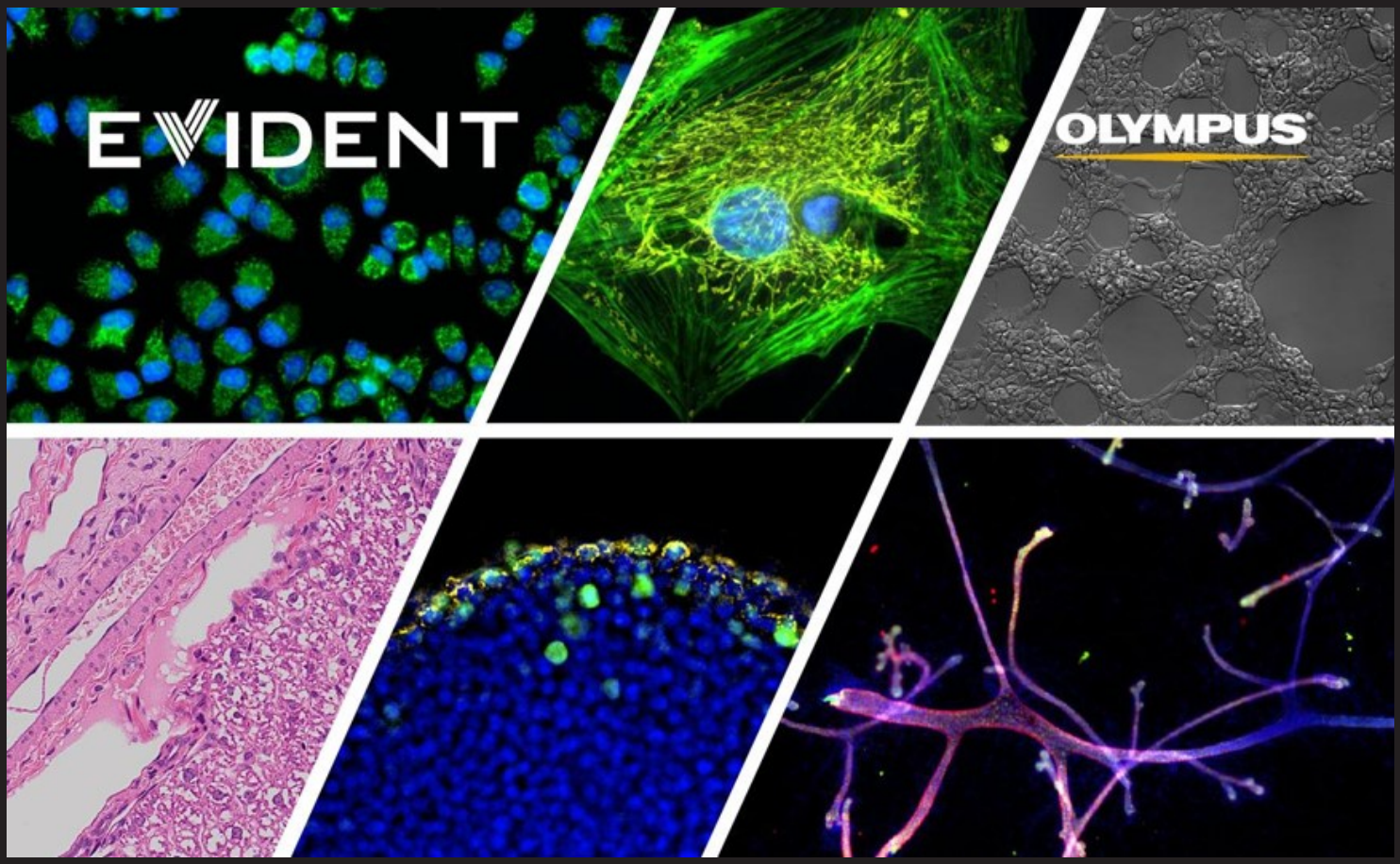
Professor Graves joined ASU in 2015 to pursue research in novel compact x-ray light sources. He is now Director of the CXFEL Project at ASU, an NSF midscale infrastructure RI-2 project to construct a compact x-ray free-electron laser with a diverse team of 80 biologists, chemists, physicists and engineers from 10 universities and 3 national labs. CXFEL is a new type of compact x-ray light source based on the collision of extremely short electron and laser pulses to produce fully coherent x-rays. This new source brings the ultrafast science capabilities of the large facilities into medical, scientific, and industrial labs at relatively low cost.

Professor Graves earned a PhD in physics from the University of Wisconsin-Madison studying accelerator physics. His career splits into thirds with the first portion at Brookhaven National Lab where he built and commissioned several novel free-electron lasers in the infrared to UV. He then spent over a decade at MIT where he began developing compact x-ray sources after working on the large LCLS and FERMI@Trieste XFEL projects. Finally at ASU he concentrates on novel compact x-ray sources culminating in CXFEL.

Tera Lavoie

Technical Director, Advanced Electron Microscopy, University of Chicago

Tera joined the Advanced Electron Microscopy in 2017 as Technical Director. Currently, she serves as both Technical Director and Assistant Facility Director of the facility. She has more than 18 years of experience in electron microscopy techniques. She completed her Masters in Biotechnology at Johns Hopkins University and her PhD in Molecular Pathogenesis and Molecular Medicine from the University of Chicago. Tera oversees diverse EM techniques, such as classical chemical fixation, large volume imaging of cells/tissues (both serial block face imaging and array tomography), correlative microscopy, cryo-preservation of cells or tissues for tomography (both plastic and cryo) and proteins/small particles for cryo-SPA imaging. She has worked with numerous researchers at the University of Chicago and many other external universities and companies. She was also involved in the planning of the expansion of the facility, which recently doubled in size.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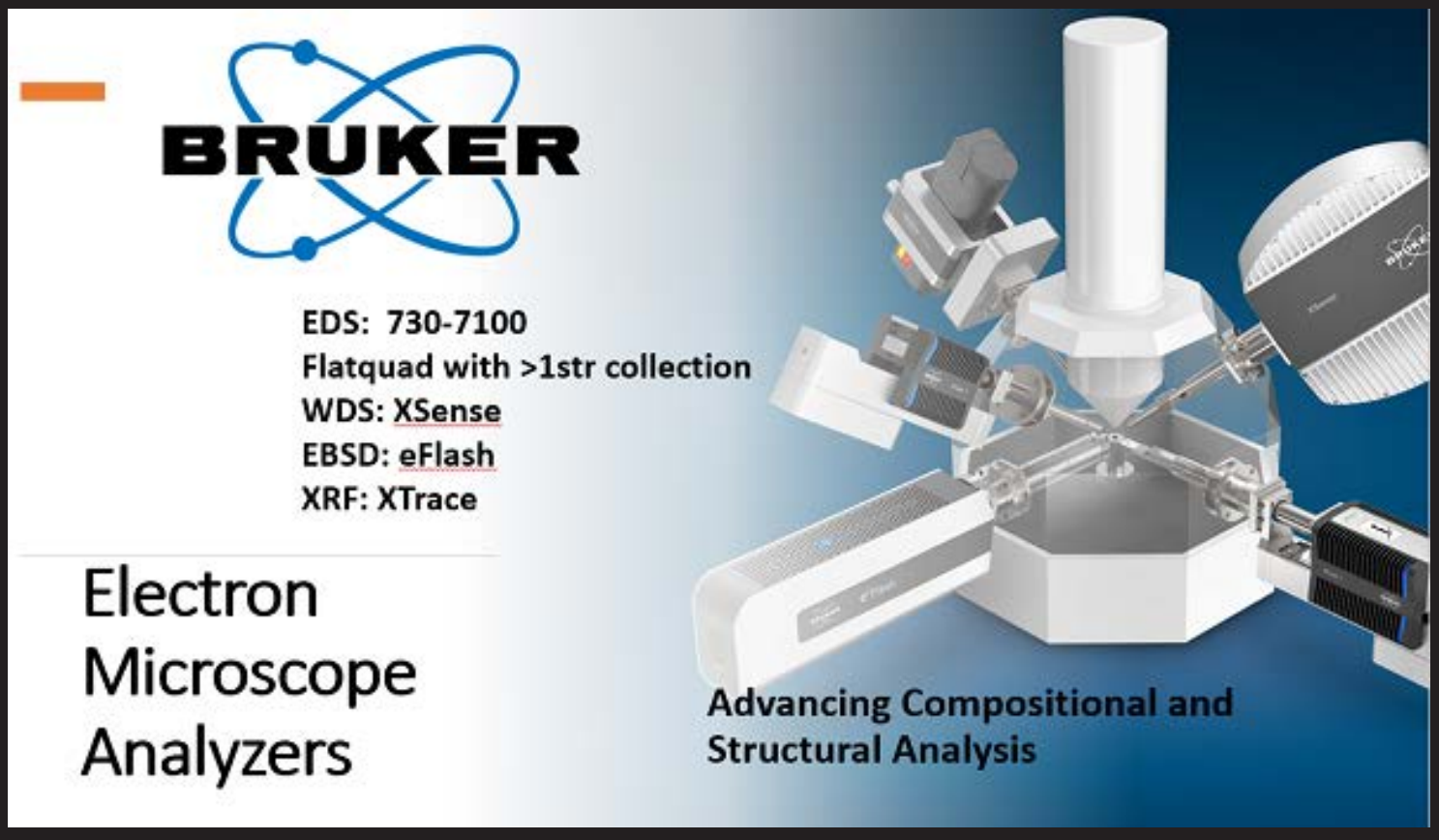
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Speaker Biographies

Claudia Lopez

Associate Professor, OHSU

Dr. López is the director of the Multiscale Microscopy Core Electron Microscopy facility at OHSU, since 2013 and Co-Director of the Pacific Northwest Center for cryo-EM since 2018. She is a trained biochemist and obtained her PhD at the University of Buenos Aires, Argentina where she had the opportunity to be trained in Transmission Electron Microscopy as part of her academic education. Claudia has extensive experience with TEM both room temperature and cryo, SEM, Dual-Beam applications and Serial Block Face Imaging. In her role as director of the two Electron Microscopy facilities, she is responsible for day-to-day operations, instrument maintenance, meeting with investigators to advise, plan and schedule new experiments; providing sample preparation and imaging services; create and coordinate training workshops and discuss results with researchers. Her research interests focus on methods and workflow development for correlative microscopy techniques. Outside of work, Claudia enjoys experimenting with BBQ recipes and growing orchids.

Matt Tyska

Cornelius Vanderbilt Professor of Cell and Developmental Biology, Scientific Director of the Vanderbilt Cell Imaging Shared Resource

Following graduate studies with Dr. David Warshaw at the University of Vermont and postdoctoral training with Dr. Mark Mooseker at Yale University, Dr. Tyska joined the Department of Cell and Developmental Biology at Vanderbilt University as an Assistant Professor in December of 2004. He is currently the Cornelius Vanderbilt Professor of Cell and Developmental Biology and Scientific Director of the Vanderbilt Cell Imaging Shared Resource. Dr. Tyska's research program focuses on understanding how the cytoskeleton controls cell shape and function, specifically in the context of the transporting epithelial cells that line the intestinal tract. Over the past 20 years, the Tyska Laboratory has made a number of fundamental and field-leading discoveries on the assembly and function of the enterocyte brush border, the apical specialization responsible for intestinal nutrient uptake. Although light and electron microscopy serve as principal discovery tools, investigations are decidedly broad in scope, ranging from studies in mouse model systems to single molecule imaging in live cells. Given the critical physiological role of the brush border, discoveries from the Tyska laboratory hold direct relevance for understanding human intestinal disease.

Elizabeth Wright

Professor, Director Cryo-EM Research Center, UWM

Dr. Wright is a Professor in the Biochemistry Department and Director of the Cryo-EM Research Center and Midwest Center for Cryo-ET at the University of Wisconsin, Madison. She obtained her BS in Biology and BS in Chemistry at Columbus State University, Columbus, GA. She received her PhD in Chemistry from Emory University and was a postdoctoral scholar at the University of Southern California and at Caltech. 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 correlative light and electron microscopy (CLEM) and cryo-EM imaging technologies to determine the native-state structures of bacteria, bacteriophages, HIV-1, respiratory syncytial virus (RSV), measles virus (MeV), and other host-pathogen systems.

Notes

Notes

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