

Workshop III: Cryo-Electron Microscopy and Beyond

November 14-18, 2022

Scientific Overview

Cryogenic electron microscopy (cryo-EM) has revolutionized biology and life science as a powerful alternative to X-ray crystallography or NMR spectroscopy for macromolecular structure determination. Advances in algorithms for data and image processing and in hardware for image acquisition have made cryo-EM a routine method to determine the 3D structure of suitable macromolecules with identical or similar conformations at near-atomic resolution. This workshop will bring together leading experts in cryo-EM, biologists, applied mathematicians and physicists to discuss and debate the current challenges and future perspectives of this very exciting cross-disciplinary field.

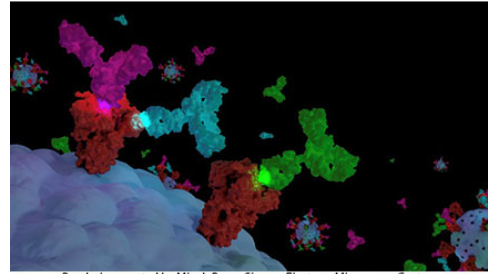
Long Program Schedule

This workshop is part of the long program on "Computational Microscopy"

- Computational Microscopy Opening Day : September 12, 2022
- Computational Microscopy Tutorials : September 13-16, 2022
- Workshop I: Diffractive Imaging with Phase Retrieval : October 10-14, 2022
- Workshop II: Mathematical Advances for Multi-Dimensional Microscopy : October 24-28, 2022
- **Workshop III: Cryo-Electron Microscopy and Beyond : November 14-18, 2022**
- Workshop IV: Multi-Modal Imaging with Deep Learning and Modeling : November 28 - December 2, 2022
- Computational Microscopy Culminating Retreat at Lake Arrowhead : December 11-16, 2022

Participation

Additional information about this workshop including links to register and to apply for funding, can be found on the webpage listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.



Rendering created by Micah Rapp, Simons Electron Microscopy Center

Organizers

Bridget Carragher (New York Structural Biology Center), **Wah Chiu** (Stanford), **Amit Singer** (Princeton), **Sriram Subramaniam** (Univ. British Columbia), **Hong Zhou** (UCLA)

Speakers

Alberto Bartesaghi (Duke), Tamir Bendory (Tel Aviv), Tristan Bepler (NYSBC), Pilar Cossio (Flatiron Inst.), Khanh Dao Duc (JBC), Bob Glaeser (Lawrence Berkeley Laboratory), Nikolaus Grigorieff (U Mass), Yuehaw Khoo (U Chicago), Joe Kileel (UT Austin), Mikhail Kudryashev (MDC), Roy Lederman (Yale), Steven Ludtke (Baylor), Katerina Naydenova (Cambridge), Frederic Poitevin (SLAC National Accelerator Laboratory), Chris Russo (Cambridge), Sjors Scheres (Cambridge), Frederick Sigworth (University), Amit Singer (Princeton), Abhishek Singharoy (Arizona State), Carlos Oscar Sorzano (CSIC), Dmitry Tegunov (Genentec), Maya Topf (Hamburg), and Serena Yeung (University)



For more information, visit the program webpage:

www.ipam.ucla.edu/CMSWS3