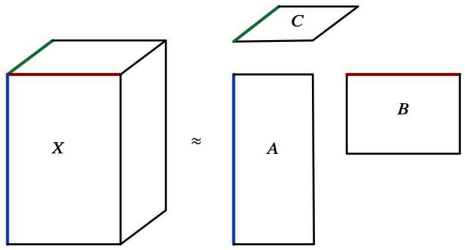
institute for pure & applied mathematics

Workshop II: Mathematical Advances for Multi-Dimensional Microscopy

October 24 - 28, 2022



Scientific Overview

Developing multi-dimensional electron microscopy would have transformative impact in physics, chemistry, materials science, nanoscience and other fields. Advancing the field requires integration of state-of-the-art atomic electron tomography, ptychography, 4D scanning transmission electron microscopy and spectroscopic techniques as well as powerful computational algorithms and mathematical modeling. This workshop will provide the opportunity to present and exchange ideas, share data, and introduce new tools and develop new imaging paradigms needed in a variety of fields.

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.

Organizers

Peter Ercius (Lawrence Berkeley Laboratory), **Angus Kirkland** (University of Oxford), **Andy Minor** (UC Berkeley), **Deanna Needell** (UCLA), **Paul Voyles** (University of Wisconsin-Madison), **Yimei Zhu** (Brookhaven National Laboratory)

Speakers

Benjamin Berkels (RWTH Aachen University)
Nigel Browning (University of Liverpool)
Wolfgang Dahmen (University of South Carolina)
Yonina Eldar (Weizmann Institute of Science)
Anna Gilbert (Yale University)
Yimo Han (Rice University)
Juan-Carlos Idrobo (Oak Ridge National Laboratory)
Emily King (Colorado State University)
Christoph Koch (Humboldt-Universität)
Gitta Kutyniok (Ludwig-Maximilians-Universität München)
James LeBeau (North Carolina State University)
Ivan Pedro Lobato Hoyos (University of Antwerp)
Andrew Maiden (University of Sheffield)
Claudio Mazzoli (Brookhaven National Laboratory)
Colin Ophus (Lawrence Berkeley Laboratory)
Bryan Reed (Integrated Dynamic Electron Solutions)
Emilie Ringe (University of Cambridge)
Eric Stach (University of Pennsylvania)
Susanne Stemmer (University of California, Santa Barbara)
Sandra van Aert (University of Antwerp)
Soledad Villar (Johns Hopkins University)
Peng Wang (University of Warwick)
Masashi Watanabe (Lehigh University)
Huolin Xin (University of California, Irvine)
Yongsoo Yang (Korea Advanced Institute of Science and Technology)

NSF UCLA

For more information, visit the program webpage:
www.ipam.ucla.edu/CMSWS2