Mathematical Foundations and Algorithms for Tensor Computations

MAY 3 - 7, 2021

Scientific Overview

Tensors and tensor networks are an important object of study in computational many-body physics and chemistry as well as quantum information theory. With the emergence of big data, methods and theory for tensor decomposition have become important in probability, statistics, and machine learning as well. Tensor methods have also received a fair amount of attention from the mathematical community due to their intriguing algebraic and geometric properties and their relationship to computational complexity. This workshop will feature introductory talks from leading experts in all of these fields and aims to initiate the exchange of ideas between the disciplines in order to foster new interdisciplinary collaborations.

This workshop will include a poster session; a request for posters will be sent to registered participants in advance of the workshop.

Long Program Schedule

This workshop is part of the long program on “Tensor Methods and Emerging Applications to the Physical and Data Sciences.”

- Tensor Methods and Emerging Applications to the Physical and Data Sciences Opening Day: March 8, 2021
- Tensor Methods and Emerging Applications to the Physical and Data Sciences Tutorials: March 9 - 12, 2021
- Workshop I: Tensor Methods and their Applications in the Physical and Data Sciences: March 29 - April 2, 2021
- Workshop II: Tensor Network States and Applications: April 19 - 23, 2021
- Workshop IV: Efficient Tensor Representations for Learning and Computational Complexity: May 17 - 21, 2021
- Tensor Methods and Emerging Applications to the Physical and Data Sciences Culminating Retreat at Lake Arrowhead: June 6 - 11, 2021

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.

For more information, visit the program webpage: www.ipam.ucla.edu/tmws1