Tensor Network States and Applications

April 19 - 23, 2021

Scientific Overview
Due to their high complexity, our understanding of strongly correlated quantum many-body systems is still limited. This concerns, for example, both static and dynamical equilibrium properties of fermionic systems and quantum magnets in condensed matter physics, as well as complex molecules with strong entanglement in quantum chemistry. Other big challenges are the analysis of non-equilibrium dynamics of closed systems, systems interacting with an environment, and transport problems. Tensor network states such as MPS, TTN, PEPS, and MERA are designed to capture the structure of entanglement in quantum systems in compressed representations. They are also particularly well-suited for the study of topological ordered phases of matter which cannot be described within the framework of spontaneous symmetry breaking.

Long Program Schedule
This workshop is part of the long program on “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.

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/tmws2