

Workshop I: Hyperbolic Structures and Quantum Invariants

October 12-15, 2026

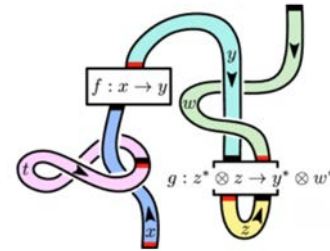


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Scientific Overview

The workshop will focus on the interplay of two approaches to 3-dimensional topology and geometry. The first approach follows Thurston's Geometrization Program (completed by Perelman), and uses rigid homogeneous geometries to address purely topological problems.

In this setting hyperbolic geometry is ubiquitous and important.

The second approach arose with the discovery of the Jones knot polynomial and the 3-manifold Witten-Reshetikhin-Turaev invariants and the related Topological Quantum Field Theory (TQFTs). There are several open conjectures predicting strong relations between the two approaches.

The workshop will bring together experts in quantum topology and in hyperbolic geometry to discuss the latest developments in the area.

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 Quantum Topology, Character Varieties and Low-Dimensional Geometry

- Quantum topology, character varieties and low-dimensional geometry Opening Day : September 23, 2026
- Quantum topology, character varieties and low-dimensional geometry Tutorials : September 24-29, 2026
- **Workshop I: Hyperbolic Structures and Quantum Invariants : October 12-15, 2026**
- Workshop II: Contact Geometry, Cluster Algebras and Skein Theory : October 29, 2026
- Workshop III: Categorification in Quantum Topology : November 16-19, 2026
- Quantum topology, character varieties and low-dimensional geometry Culminating Retreat at Lake Arrowhead : December 13-18, 2026

Participation

Additional information about this workshop including links to register and to apply for funding, can be found on the web page 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

David Futer (Temple University)

Effie Kalfagianni (Michigan State University)

Jessica Purcell (Monash University)

Tian Yang (Texas A&M University - College Station)

Speakers

Rhea Palak Bakshi (University of California, Santa Barbara (UCSB))

Giulio Belletti (Université catholique de Louvain)

Fathi Ben Aribi (Institut de Mathématiques de Jussieu - Paris Rive Gauche)

Francis Bonahon (Michigan State University)

Michelle Chu (University of Minnesota, Twin Cities)

Nathan Dunfield (University of Illinois at Urbana-Champaign)

Nathan Geer (Utah State University)

Dionne Ibarra (Monash University)

Thang Le (Georgia Institute of Technology)

Christine Lee (Texas State University - San Marcos)

Feng Luo (Rutgers University)

Julien Marche (Ecole Normale Supérieure)

Jun Murakami (Waseda University)

Kate Petersen (University of Minnesota Duluth)

Adam Sikora (SUNY Buffalo)

Anastasiia Tsvietkova (Rutgers University-Newark)

Helen Wong (Claremont McKenna College)

Ka Ho Wong (Yale University)

Tian Yang (Texas A&M University - College Station)

Soekbeom Yoon (Chonnam National University)



For more information, visit the program webpage:

www.ipam.ucla.edu/QTWS1