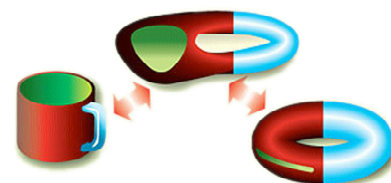


# TOPOLOGICAL QUANTUM COMPUTING

• february 26 – march 2, 2007



**ORGANIZING COMMITTEE: MICHAEL FREEDMAN** (MICROSOFT RESEARCH, MATHEMATICS),  
**CHETAN NAYAK** (UCLA, PHYSICS), **ZHENGHAN WANG** (INDIANA UNIVERSITY)

## • scientific overview

The existence of topological phases, in which insensitivity to all local perturbations emerges at low-temperatures, is one of the remarkable occurrences in nature. Their mathematical description by topological quantum field theories and their connections knot theory and low-dimensional topology is an equally remarkable mathematical development. Yet another motivation for their study stems from the promise which they hold for scalable fault-tolerant quantum computing. The goal of this program is to explore the mathematical and physical issues associated with discovering or engineering a topological state of matter which can be used for universal quantum computation.

## • speakers

**Almut Beige** (University of Leeds), **Nicholas Bonesteel** (Florida State University), **Sankar Das Sarma** (University of Maryland), **Paul Fendley** (University of Virginia), **Matthew Fisher** (UC Santa Barbara), **Eduardo Fradkin** (University of Illinois at Urbana-Champaign), **Louis Kauffman** (University of Chicago), **Alexei Kitaev** (Caltech), **Michael Levin** (MIT), **Chetan Nayak** (UCLA), **Nick Read** (Yale University), **Kareljan Schoutens** (Universiteit van Amsterdam), **Kirill Shtengel** (UC Riverside), **Steve Simon** (Lucent Technologies Bell Laboratories), **Ady Stern** (Weizmann Institute of Science), **Kevin Walker** (Microsoft Research), **Zhenghan Wang** (Indiana University), **Birgitta Whaley** (UC Berkeley).

## • 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.

• [www.ipam.ucla.edu/programs/tqc2007](http://www.ipam.ucla.edu/programs/tqc2007)



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