

# Boulder School for Condensed Matter and Materials Physics

## Topological Phases of Quantum Matter

July 11-August 5, 2016

Topological phases of quantum matter comprise a vibrant research area in condensed matter physics. The field originated with the discovery and explanation of the quantum Hall effects in the early 1980s, and has since vastly expanded to include topological insulators and superconductors, quantum spin liquids, topological semimetals, and more. These systems feature many remarkable properties -- such as anomalous gapless boundary modes and fractionalized excitations with exotic exchange statistics -- of interest both from a fundamental physics and applications viewpoint. The 2016 Boulder School will survey modern efforts to classify, characterize, detect, and manipulate topological phases in a variety of experimentally relevant contexts.

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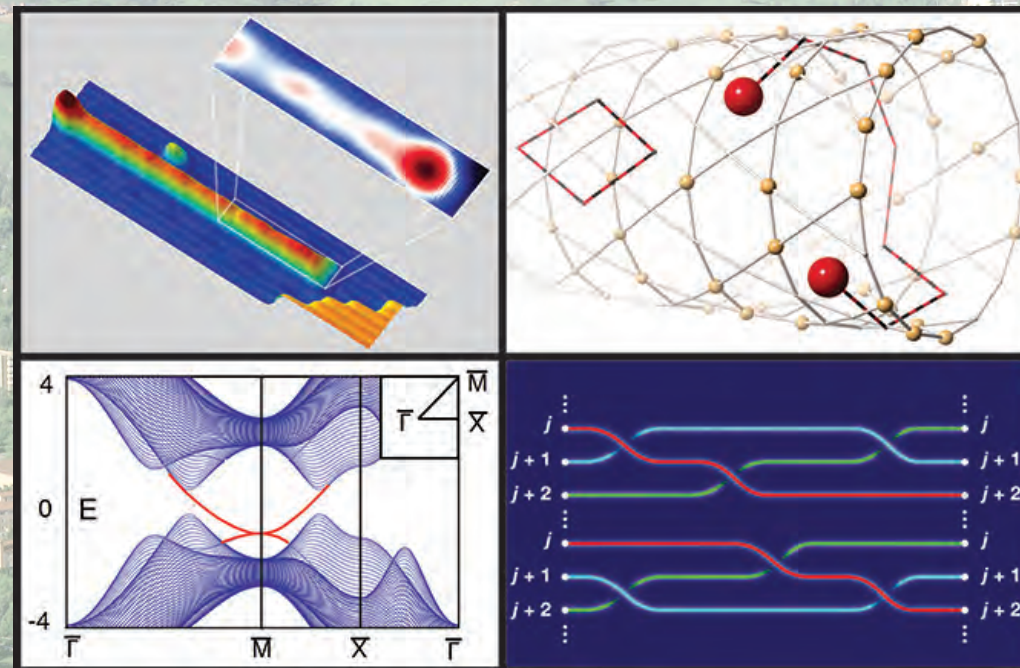


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(bottom left) "Topological Crystalline Insulator," L. Fu, Phys. Rev. Lett. 2011;  
and (bottom right) "Braiding," APS/Alan Stonebraker, F. Wilczek, Physics 2011

### Scientific Organizers:

Jason F. Alicea (Caltech)  
Joseph Checkelsky (MIT)  
Victor Gurarie (Boulder)  
Michael Hermele (Boulder)  
**Director:** Leo Radzihovsky (Boulder)

The school will pay for most local expenses, and there are travel grants available for participants from U.S. universities. Students and postdocs interested in participating should submit an electronic application by the January 15 deadline. The application form, and detailed information regarding housing, travel and financial support are available at

**<http://boulderschool.yale.edu/>**

The Boulder School in Condensed Matter and Materials Physics provides expert training, not usually available within the traditional system of graduate and post-graduate education, for advanced graduate students and postdoctoral researchers working in condensed matter physics, materials science and related fields. The School is supported by the National Science Foundation, with additional funding provided by the University of Colorado, and meets annually during July in Boulder, Colorado.