

# Boulder School for Condensed Matter and Materials Physics

## Quantum Information

### July 2-27, 2018

Quantum information science has made significant progress in recent decades, with many promising applications including efficient quantum algorithms, secure quantum communication protocols, and ultra-sensitive quantum sensors. Besides practical applications, quantum information science also sheds light on fundamental physics questions, including tensor network descriptions of many-body systems, entanglement characterization of topological quantum systems, and information aspects of black holes. As a relatively new research field, quantum information science builds on important concepts usually not introduced in the standard physics curriculum, which poses a barrier for young researchers to get into this active research field. The 2018 Boulder school will provide young researchers expert training on quantum information science usually not available within the traditional system of graduate education and postdoctoral apprenticeship.

**Scott Aaronson (Austin)**  
**Jason Alicea (Caltech)**  
**John Bollinger (NIST)**  
**Fernando Brandão (Caltech)**  
**David DiVincenzo (Aachen)**  
**Daniel Gottesman (Perimeter)**  
**Jeongwan Haah (Microsoft)**  
**John Martinis (Google)**  
**Cindy Regal (JILA)**  
**Renato Renner (ETH)**  
**Brian Swingle (Maryland)**  
**Barbara Terhal (Aachen)**  
**Matthias Troyer (Microsoft)**  
**Frank Verstraete (Vienna)**  
**Jun Ye (JILA)**

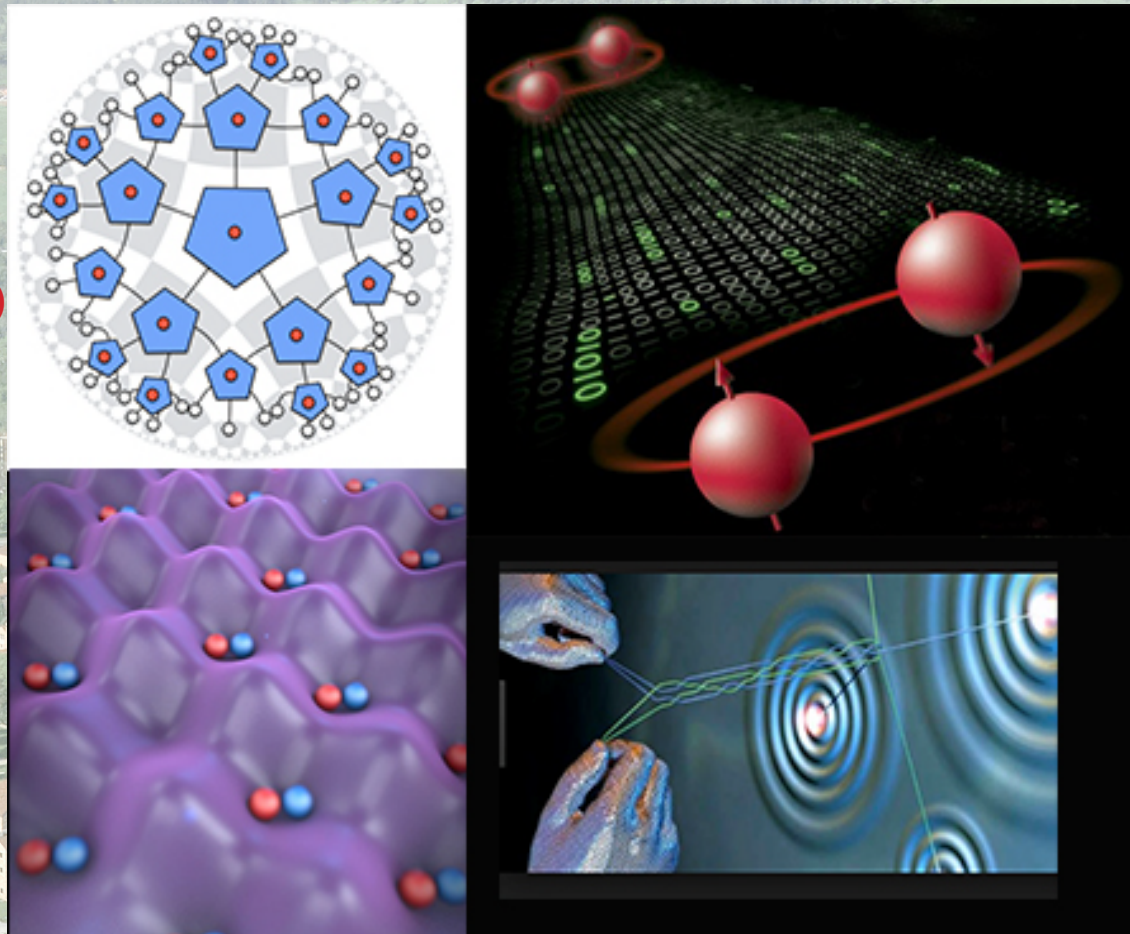


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#### Scientific Organizers:

Liang Jiang (Yale)  
David Poulin (Sherbrooke)  
Ana Maria Rey (JILA)  
John Preskill (Caltech)  
Graeme Smith (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.