

Princeton Center for Theoretical Physics

The Princeton Center for Theoretical Physics is a new, University-funded enterprise dedicated to exploring frontiers across the theoretical natural sciences. Its purpose is to promote interaction among theorists and seed new directions in research, especially in areas cutting across traditional disciplinary boundaries.

The Center will be home to a corps of Center Postdoctoral Fellows, chosen from nominations made by senior theoretical scientists around the world. The first class of three Fellows took up residence in Fall 2006. A group of senior Center Faculty, chosen from science departments across the campus, are responsible for guiding Center activities, which include focused topical programs involving Visiting Fellows from inside and outside the university. To house these activities, the University is constructing a dedicated facility in Jadwin Hall, home of the Physics Department, and located a few hundred feet from the departments of Biology, Geology, Chemistry, and Astrophysical Sciences, as well as the Lewis-Sigler Center for Integrative Genomics. The Center hopes to become a focus for innovation and cross-fertilization in theory for all these departments.

Center Faculty:

Curtis Callan, Director
Paul Steinhardt, Associate Director
Ravindra Bhatt
William Bialek
Igor Klebanov
Shivaji Sondhi
David Spergel
Salvatore Torquato

Center Postdoctoral Fellows:

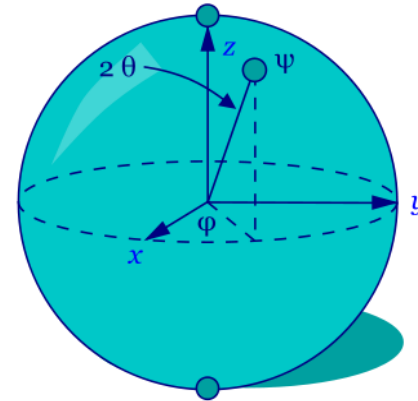
Bogdan Andrei Bernevig 2006-2009
Thomas Klose 2007-2010
Jean-Luc Lehners 2007-2010
Meera Parish 2006-2009
Antonello Scardicchio 2006-2009
Branson Stephens 2007-2010
Aleksandra Walczak 2007-2010



Symposium on Frontiers in Quantum Computing

September 26, 2007

9:00 am – 5:00 pm



Organizers

William Brinkman, Robert Calderbank, Gerald Gilbert
Shivaji Sondhi

**Sponsored by Princeton Center for Theoretical
Physics
&
The MITRE Corporation**

Symposium on Frontiers in Quantum Computing

September 26, 2007, Room A-10, Jadwin Hall
9:00 am – 5:00 pm

- 9:00 – 9:10 am** Welcome, Curtis Callan & Shivaji Sondhi, Princeton U.
- 9:10 – 10:00 am** Session Chair, Duncan Haldane, Princeton U.
- 9:10 – 10:00 am “*Topological quantum computing with exotic fractional quantum Hall states*”
Steve Simon, Bell Labs
- 10:00- 10:20 am** Break
- 10:20 – 12:00 pm** Session Chair, David Huse, Princeton U.
- 10:20 – 11:10 am “*Superconducting qubits at IBM*”
David DiVincenzo, IBM
- 11:10 – 12:00 pm “*Topologically protected qubits based on Josephson structures: theory and experimental realization*”
Lev Ioffe, Rutgers
- 12:00 – 1:00 pm** Lunch
- 1:00 – 2:40 pm** Session Chair, William Brinkman, Princeton U.
- 1:00 – 1:50 pm “*Nuclear Spins in Quantum Dots and interacting 2DEGs*”
Daniel Loss, Basel Switzerland
- 1:50 – 2:40 pm “*Controlling quantum coherence in semiconducting nanostructures*”
Jason Petta, Princeton University
- 2:40 – 3:00 pm** Break
- 1:30 – 3:00 pm** Session Chair, Stephen Lyon, Princeton U.
- 3:00 – 3:50 pm “*A universal operator theoretic framework for quantum fault tolerance*”
Gerry Gilbert, The MITRE Corporation
- 3:50 – 4:40 pm “*Quantum Computing as Computer Science*”
Umesh Vazirani, Berkeley University