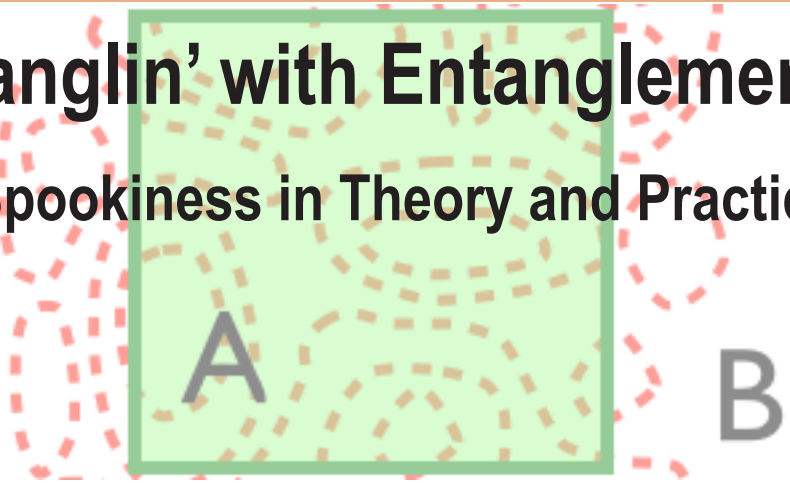
Friends Of The Kavli Institute For Theoretical Physics

Chalk Talk

Tanglin' with Entanglement

Spookiness in Theory and Practice



In the last century, three distinct and important theories developed independently. One was the physics of solid-state materials, now ubiquitous in our computing devices; the second was the abstract information protocols used to program these computers; and the third was General Relativity, our current theory of gravity. As computers matured, the development of these theories grew too, fed symbiotically by advances both conceptual and numerical. Recently, the deep structures of these seemingly very different theories have been revealed to be unified. At the heart of this new unity is the strangeness of quantum entanglement, once dismissed by Einstein as inconsistent spookiness. What might spring forth from this entangled union? Who knows! But it's already spawned the current best recipe for the next generation of computer, a goal pursued at a feverish pace by academia, governments, and the information-industrial complex.

Wednesday, July 1, 2015

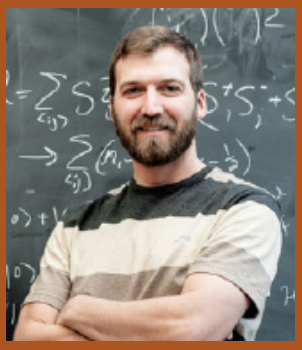
Kohn Hall, UCSB

5:30 PM Courtyard Reception

6:15-7 PM Presentation

7-7:15 PM Questions & Discussion

Attendance only by Reservation
RSVP by June 26
On-Line: www.kitp.ucsb.edu/chalk-talk-rsvp
Phone: 893-6383 or events@kitp.ucsb.edu



Roger Melko

Professor,
University of Waterloo
and Perimeter Institute

ROGER MELKO is a professor in the Department of Physics and Astronomy at the University of Waterloo, as well as an Associate Faculty Member of the Perimeter Institute for Theoretical Physics. He is the Canada Research Chair in Computational Quantum Many-Body Physics. He received his PhD in 2005 from UCSB, where he studied under Douglas Scalapino.

Roger developed a love of machines from a young age, growing up in a family of diesel mechanics in the frozen forests of northern Canada. This inspired him to become a low-temperature quantum mechanic, combining his interests in physics and in machines. Today, he uses the world's largest computers to build virtual quantum crystals and fluids, probing the strange physics at play when many quantum particles are assembled together at low temperatures.

When not jacked into the matrix, Roger enjoys the peace and quiet of the infinite wilderness of Manitoba and Saskatchewan, hunting, fishing, and farming with his family.

LOT 10 PARKING

As you enter campus from Hwy 217, turn right onto Mesa Rd, merge into left lane, at the stop light turn left into Parking Structure 10. PARK on the second floor or above, BUY a $4 permit from the dispenser (near the elevator and stairs), DISPLAY PERMIT on dashboard. The KITP is right next door in Kohn Hall.