

Title: Quantum Entanglement and Superconductivity

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Abstract: Einstein called it "spooky action at a distance." Entanglement is a counterintuitive feature of quantum theory by which two particles are deeply correlated even when separated by vast distances, such that a measurement of one particle instantaneously determines the state of another. Remarkably, quantum entanglement can also happen *en masse*, determining the macroscopic properties of many electrons in certain crystals. These newly discovered states of matter could lead to practical high-temperature superconductors, which promise tremendous advances in technologies spanning medicine, clean energy, transportation, and more. Dr. Subir Sachdev, a leading researcher in the field, will explain new experiments in high-temperature superconductivity, and even do a live demonstration of superconducting levitation. He will even explore the unexpected new connections between these earthbound experiments and the strange quantum behaviour of black holes.

# Tonight's Public Lecture

Dr. Subir Sachdev

Quantum Entanglement  
and Superconductivity

October 1, 2014



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