OSA & SPIE. STUDENT CHAPTER PURDUE UNIVERSITY

NSAC NANOTECHNOLOGY STUDENT ADVISORY COUNCIL PURDUE UNIVERSITY

Bringing quantum mechanics to life: from Schrödinger's cat to Schrödinger's microbe

Professor Tongcang Li

Abstract: There have been many experimental breakthroughs in creating larger and larger quantum superposition and entangled states since Erwin Schrödinger proposed his famous thought experiment of putting a cat in a superposition of both alive and dead states in 1935. Remarkably, recent developments in quantum optomechanics and electromechanics may lead to the realization of quantum superposition of living microbes soon. Recent evidences also suggest that quantum coherence may play an important role in several biological processes.

In this talk, I will first give a brief introduction to basic concepts in quantum mechanics and the Schrödinger's cat thought experiment. I will then review developments in creating quantum superposition and entangled states and the realization of quantum teleportation. Non-trivial quantum effects in photosynthetic light harvesting and avian magnetoreception will also be discussed. At last, I will review recent proposals to realize quantum superposition, entanglement and state teleportation of microorganisms, such as viruses and bacteria.

Join us on October 6th, Thursday
1.15-2.15 pm at BRK 2001

Bio: Tongcang Li is currently an Assistant Professor of Physics and Astronomy and an Assistant Professor of Electrical and Computer Engineering at Purdue. His current research topics include: Quantum spin-optomechanics of levitated nanodiamonds, investigating thermodynamics of information with colloidal particles, and interfacing single atoms and plasmonic nanostructures. He recently received the National Science Foundation **(NSF) CAREER** award.

Food and beverages will be served.

Contact us: spie.purdue@gmail.com osa.purdue@gmail.com Find us on Facebook (http://on.fb.me/1P5Mu88)

OSA: Optical Society of America
SPIE: the International Society for Optics and Photonics