

Lecturer : Prof. Seth Lloyd (MIT, USA)

Date: January 28th. 2011, 15 : 30 ~

Place: Graduate school of Engineering Science, Common seminar room  
in B build.

(1)Title: Quantum transport in biological systems

Abstract: Recent experimental observations have shown that quantum coherence plays an important role in photosynthetic energy transport. Photosynthetic molecules are large and complex, containing both regular structures, such as rings of chromophores, and apparently irregular structures. This talk proposes a general theory of the role of symmetry and asymmetry in quantum transport in biomolecules. I will show that collective coherent effects, including entanglement, can give rise to substantial enhancements of excitonic lifetimes and energy transport.

(2)Title: Sending a photon backwards in time

Abstract: Ever since Einstein, physicists have argued about whether time travel is consistent with the laws of physics, and, if so, how it might be accomplished. This talk presents a new theory of time travel based on Quantum teleportation. Unlike previous theories, the theory can be tested experimentally. I report on an experimental realization of the 'grandfather paradox': we send a photon a few billionths of a second backwards in time and have it try to 'kill' its previous self.