

Seminar

Date: Tuesday, Feb. 6, 2018 / Time: 14 pm – 15 pm / Place: Room 408F, Building T1

334 Nguyễn Trãi, Thanh Xuân, Hà Nội

Kính mời thầy cô và các bạn quan tâm đến dự / Everyone is welcome !

Speaker: Dr. Nguyen Quoc Hung (Nano and Energy Center, VNU University of Science and Niels Bohr Institute, University of Copenhagen)

Title: Topological quantum computing with hybrid semiconductor/superconductor nanowires

Abstract: Performance of quantum devices based on superconducting materials suffer from short decoherence time of its superposition states. Despite monumental effort, short life time of a qubit is a major roadblock to a practical quantum computer. The recent success that combines a semiconductor with a thin layer of superconductor of high quality has led to new possibilities. Under axial magnetic field, Cooper pairings combined with spin orbit interactions lead to symmetrical excitations along one dimension. Known as Majorana, these quasiparticles extend nonlocally, and thus remain robust against environment fluctuations. It is an attractive candidate to construct a qubit that could have a long decoherence time. Two pairs of Majorana are created in a double dot configuration, which allows a continuous control on their hybridization. The Majorana parity state can be projected to the charge state of each dot, which is readout in the time domain by charge sensing. In the topological regime, we observed Rabi oscillation of a charge qubit, a milestone toward a topological protected qubit.