Chez Pierre

Presents ...

Monday, September 26, 2016
12:00pm Noon
MIT Room 4-331

Chez Pierre Seminar

Leonid Glazman- Yale University

” Coulomb Blockade of Electron Transport through a Proximitized Nanowire“

We build a quantitative theory of two-terminal conductance across finite-length segments of nanowires which are made superconducting by the proximity effect. In the presence of spin-orbit interaction, a proximitized nanowire can be tuned across the topological transition point by an applied magnetic field. Due to a finite segment length, electron transport is controlled by the Coulomb blockade. Upon increasing of the field, the shape and magnitude of the Coulomb blockade peaks in the linear conductance is defined, respectively, by Andreev reflection, single-electron tunneling, and resonant tunneling through the Majorana modes emerging after the topological transition (aka teleportation). Our theory provides the framework for the analysis of recent experiments with proximitized nanowires, and identifies the signatures of the topological transition in the two-terminal conductance.