

ICTS Statistical Physics Journal Club Seminar

Title : NEGF and Scattering approach to transport in superconducting wires.

Speaker : Junaid Majeed (ICTS-TIFR, Bengaluru)

Date : Thursday, 11th March 2021

Time : 03:00 pm (IST)

Abstract : We consider electron transport in a Kitaev chain connected at its two ends to normal metallic leads kept at different temperatures and chemical potentials. Transport in this set-up is usually studied using two frameworks -- the nonequilibrium Green's function (NEGF) approach or the scattering approach. We show explicitly that these two approaches produce identical results for the conductance of the Kitaev chain. We obtain the wavefunctions of zero energy Majorana bound states (MBS) of the wire connected to leads which give rise to perfect Andreev reflection responsible for zero bias quantized conductance peak. We discuss the dependence of the width of this peak on different parameters of the Hamiltonian and relate it to the MBS wavefunction properties. Apart from this, we will also briefly discuss thermal transport by the MBS modes and zero-bias peaks present in the conductance of a next to nearest neighbor Kitaev chain.

Venue : Please click on the link to join the meeting
<https://zoom.us/j/92034876978?pwd=T2lLc0pDSlgycEhid2lUMG1vNEF1dz09>
Meeting ID: 920 3487 6978
Passcode: 131607