

Abstract Submitted
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Andreev reflection near the Dirac point at Graphene - NbSe₂ junction MANAS SAHU, Graduate Student, PRATAP RAYCHAUDHURI, Professor, ANINDYA DAS, Assistant Professor — Despite extensive search for about a decade, specular Andreev reflection (SAR) is only recently realized in bilayer graphene-superconductor interface. The experimental observation of retro to specular Andreev reflection is not only fundamentally important but also has potential application like quantum computing etc. Here, we have carried out the transport measurements at the van der Waals interface of single layer graphene and NbSe₂ superconductor. We investigate the Andreev reflection near the Dirac point by measuring the differential conductance as a function of Fermi energy and bias energy. We find that the normalized conductance ($G_{T < T_c} / G_{T > T_c}$) becomes suppressed as we pass through the Dirac cone, which manifests the transition from retro to non-retro type Andreev reflection. The suppression indicates the blockage of Andreev reflection beyond a critical angle (θ_c) of the incident electron with respect to the normal between the single layer graphene and the superconductor junction. However, the observation of SAR was restricted due to the finite Fermi energy broadening. The results are compared with a theoretical model of the corresponding setup

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