Electron transport through pair of Graphene-Superconductor junctions

Shahrukh Salim
Rahul S. Marathe, Sankalpa Ghosh
Indian Institute of Technology Delhi
Hauz Khas, New Delhi -110016,
India shhrkhsalim28@gmail.com

Abstract

Electron transport across Graphene-Superconductor (GS) junctions has recently attracted a lot of attention [1, 2] after it was pointed out that the Andreev processes in such junctions not only have retro reflection-like properties as in SNS junctions but also have a specular component due to the ultra-relativistic nature of dispersion of mono-layer graphene. In this work, we study in detail the spectrum of such Andreev bound states in Superconductor-Graphene-Superconductor (SGS) junctions in various regimes and compare our studies with experimental observations. We also consider the electronic analogue of optical phenomena like Goos-Hanchen shift [3, 4] in such junctions and discuss their significance.

References

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