

Abstract Submitted
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Optical analogy of electron Transport in bilayer Graphene in presence of electromagnetic potential barriers and its possible applications SANKALPA GHOSH , Physics Department, Indian Institute of Technology, Delhi , NEETU AGGARWAL (GARG)¹, MANISH SHARMA , Center for Applied Research in Electronics, Indian Institute of Technology, Delhi — The dispersion relation for electrons near Fermi level for a graphene bilayer is very different from that of a monolayer graphene. Moreover applying a bias voltage it is possible to create and tune a gap at the Fermi level for such bilayers. Given this context we have extended a recently proposed analogy (see references 1 and 2) between geometrical optics and ballistic transport of electrons in graphene monolayer in presence of certain combinations of magnetic vector potential and electrostatic potential barriers to the case graphene bilayer. We shall particularly show how optical analogy can be used to understand various transport regime in bilayer graphene and suggests possible applications exploiting this optical analogy. We also consider the effect of localized impurities on such transport. References: 1. Sankalpa Ghosh and Manish Sharma - J. Phys. Cond. Matt 21, 292204(2009) 2. Manish Sharma and Sankalpa Ghosh – arXiv: cond-mat 0907.1631(submitted)

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