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Electronic transport properties of a graphene monolayer covered by another layer with infinite or finite width DANIEL VALENCIA, JI LUO, JUN-QIANG LU, University of Puerto Rico Mayaguez — Intrinsic graphene, a zero-gap semiconductor, is one of the most promising materials for nanodevices. In this work, the electronic transport properties of a graphene monolayer covered by another infinite or finite layer were studied. The results of the transmission spectrum and the local density of states (LDOS) showed a weak interaction between the two layers when the top layer is infinite or semi-infinite. Thus the transport properties of the monolayer do not change much. However, when the monolayer is covered by a finite-width nanoribbon, the change in its transmission spectrum is dependent on the width of the ribbon. In order to understand the origin of this phenomenon we calculated the transmission spectrum of one individual channel, and observed that the changes are due to antiresonance in the electronic transmission, which is caused by interlayer interference between the wavefunctions.

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