

Abstract Submitted
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Electronic transmission through AB-BA domain boundary in bilayer graphene MIKITO KOSHINO, Tohoku Univ — We study the electron transmission through the domain boundary on bilayer graphene separating AB and BA stacking regions, which was recently found in the experiment. We calculate the electron transmission probability as a function of the electron energy and the incident angle, for several specific boundary structures. The transmission strongly depends on the crystallographic direction of the boundary and also on the atomic configuration inside. At the low energy, the boundary is either insulating or highly transparent depending on the structure. In insulating cases, the transmission sharply rises when the Fermi energy is increased to a certain level, suggesting that the electric current through the boundary can be controlled by the field effect. The boundary parallel to the zigzag direction generally have different transmission properties between the two different valleys, and this enables to generate the valley polarized current in a certain configuration.

Mikito Koshino
Tohoku Univ

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