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Effects of AB-BA domain wall on the structures and electronic properties of twisted trilayer graphene

AB-BA domain wall (DW), a ubiquitous structure in Bernal bilayer graphene, has been extensively studied both in theory and experiment, owing to its topological edge states. Here, we study a unique twisted trilayer graphene (TTG) formed by a stacking misorientation between a topmost graphene sheet and an underlying Bernal bilayer graphene, which contains an AB-BA DW. Our scanning tunneling microscope (STM) measurements demonstrate that the AB-BA DW strongly alters structure of the moiré pattern and, consequently, changes the spatial distribution of electronic states of the TTG. Both the structure of the moiré pattern and the spatial distribution of local density of states (LDOS) roughly exhibit a C_2 symmetry about the DW. Moreover, our experiment indicates that the topological edge states of the DW also affect the spatial distribution of LDOS in the moiré pattern of the TTG.

References

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Figures

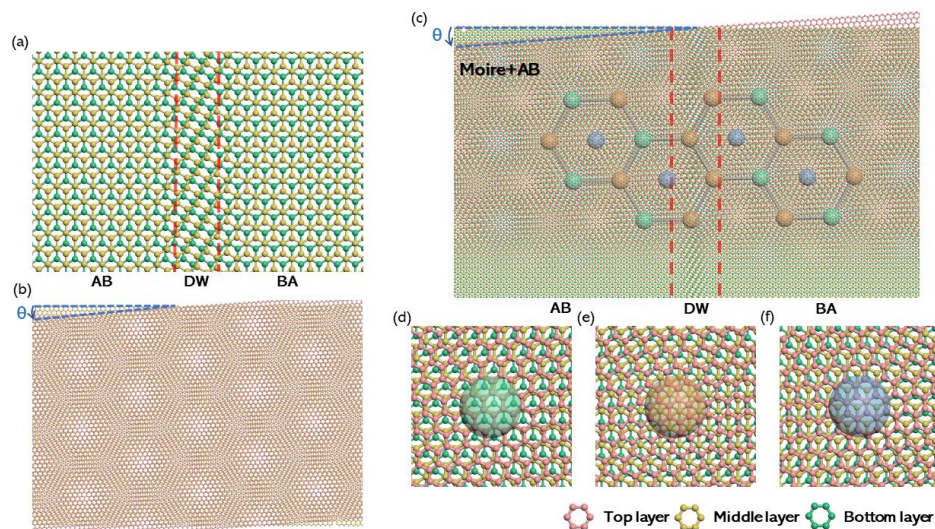


Figure 1: Simulation of (a) AB-BA domain wall, (b) moiré pattern and (c) twisted trilayer graphene with underlying AB-BA domain wall. (d-f) are the stacking details of the three-color regions in (c), respectively.