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Electronic structure of twisted bilayer graphene with doping and under electric fields LEDE XIAN, SALVADOR BARRAZA-LOPEZ, MEI-YIN CHOU, Georgia Tech — Rotational stacking faults of graphene layers in epitaxial graphene are believed to electronically decouple adjacent layers, thus single-layer graphene-like behavior can be observed. In addition, the layers close to the SiC substrate are known to be electron doped. Using density functional theory and a pi-electron, highly tuned tight-binding model, we study the modifications of the band structure in rotational stack-faulted bilayer graphene induced by doping and by external electric fields. In particular, the interlayer coupling, the magnitude of the Fermi velocity, and the possible impact on charge transport will be discussed.

Lede Xian
Georgia Tech

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