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Engineering Electronic Band Structure in Graphene Superlattices on Hexagonal Boron Nitride GUORUI CHEN, MENGQIAO SUI, YIJUN YU, State Key Laboratory of Surface Physics and Department of Physics, Fudan University, WEI YANG, Beijing National Laboratory for Condensed Matter Physics and Institute of Physics, Chinese Academy of Sciences, KENJI WATANABE, TAKASHI TANIGUCHI, National Institute for Materials Science, GUANGYU ZHANG, Beijing National Laboratory for Condensed Matter Physics and Institute of Physics, Chinese Academy of Sciences, YUANBO ZHANG, State Key Laboratory of Surface Physics and Department of Physics, Fudan University — When subjected to a periodic potential, the Dirac fermion spectrum in graphene undergoes dramatic transformation. This makes it possible to engineer electronic band structure in graphene through the formation of Moiré patterns on hexagonal Boron Nitride (hBN) substrate. By varying the angle between graphene and hBN substrate, we are able to produce graphene superlattices with different period. We further probe the electronic structure of the graphene superlattices through electronic transport measurements. Vastly different band structures are observed in graphene superlattices with different Moiré wavelength, which is in agreement with our theoretical model.

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