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Transport signatures of secondary moirés in triply-stacked graphene JASON LUO, YUAN CAO, Massachusetts Institute of Technology, STEPHEN CARR, SHIANG FANG, Harvard University, KENJI WATANABE, TAKASHI TANIGUCHI, National Institute of Materials Science, Japan, EFTHIMIOS KAXIRAS, Harvard University, PABLO JARILLO-HERRERO, Massachusetts Institute of Technology — Although two-layer van der Waals heterostructures already exhibit a vast range of electronic and topological behaviors, stacking beyond two layers provides us with even more possibilities to explore new quantum phenomena. While the longest moiré wavelength arising from stacking two layers of similar lattice constants is controlled by the lattice periodicity, this longest wavelength involves higher harmonics of the periodic electronic distribution when stacking three or more layers. We fabricated high quality, dual-gated triply-stacked graphene devices encapsulated by hexagonal boron nitride, where the rotational misalignments between the three layers of graphene are controlled independently. We investigate via transport measurements the existence of these secondary moirés, and the nature of interlayer hopping and hybridization in triply-stacked graphene.

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