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Local Variations of Graphene Electronic Structure Probed by STM. VICTOR BRAR, Dept. of Physics at U.C. Berkeley / Lawrence Berkeley National Lab, YUANBO ZHANG, CAGLAR GIRIT, Dept. of Physics at U.C. Berkeley, ALEX ZETTL, MICHAEL CROMMIE, Dept. of Physics at U.C. Berkeley / Lawrence Berkeley National Lab — Transport measurements on devices made from exfoliated graphene sheets have shown that graphene has a high mobility and long mean free path. However, the role that disorder plays in these measurements remains unknown, as does the source of the disorder. In order to better understand the causes of disorder on the local scale, we have performed scanning tunneling spectroscopy measurements on gated graphene flakes at 4.2K in an UHV environment. Our spectroscopy measurements show local variations in graphene electronic properties at different length scales. These variations are analyzed in terms of graphene 2D electronic structure.

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