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Probing localized states in graphene by Scanning Gate Microscopy MARKUS KOENIG, ANDREI GARCIA, KATHRYN TODD, DAVID GOLDHABER-GORDON, Stanford University — In various experiments, patterned graphene devices like nano-ribbons exhibit a complete suppression of transport for the Fermi level in the vicinity of the Dirac point. However, the experimental results cannot be explained purely by confinement based on the geometry of the devices. Usually, the transport gap is wider than would be expected for an energy gap based only on the confinement. Among other mechanisms, localization of charge carriers at imperfect sample edges has been proposed to contribute to the increased transport gap. We use Scanning Gate Microscopy to explore localized states at etched edges and within constrictions, and discuss their impact on the transport in patterned graphene devices.

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