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Scanning Gate Microscopy on Patterned Graphene Nanoribbons ANDREI GARCIA, MARKUS KOENIG, KATHRYN TODD, DAVID GOLDHABER-GORDON, Stanford University — Graphene-based electronic devices are of interest due to the unique nature of the graphene band structure. Bulk graphene exhibits a gapless linear dispersion near the Fermi level. When graphene is etched to form a narrow ribbon a transport gap opens at the Dirac point. The origin of this transport gap in patterned graphene nanoribbons remains an unresolved problem. Two possible explanations for the origins of the gap are confinement in the direction perpendicular to the length of the ribbon and localization due to disorder along imperfectly formed ribbon edges. We explore the local properties of this gap in nanoribbons using a scanning gate microscope.

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