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Fourier transform-STM: signatures of impurity scattering in graphene ribbons ANDERS BERGVALL, TOMAS LOFWANDER, Department of Microtechnology and Nanoscience - MC2, Chalmers University of Technology, SE-41296 Goteborg, Sweden — We report results of a theoretical investigation of the effects of impurity scattering on the Fourier transformed local density of states (FT-LDOS) in graphene ribbons. We derive analytic expressions, within the Dirac approximation, for the Green's functions for armchair ribbons. Utilizing these, we show that the FT-LDOS contains distinct features that can be understood in terms of intra- and intersubband scattering processes. The ribbon band structure can then be reconstructed from the FT-LDOS. This makes the FT-LDOS a valuable spectroscopic tool. These predictions can be directly confirmed by Fourier transform scanning tunneling microscopy.

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