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First Direct Observation of a Nearly Ideal Graphene Band Structure MIKE SPRINKLE, Y. HU, J. HICKS, Georgia Institute of Technology, A. TEJEDA, A. TALEB-IBRAHIMI, P. LE FÈVRE, F. BERTRAN, Synchrotron SOLEIL, C. BERGER, Georgia Institute of Technology & CNRS/Institut Neel, W.A. DE HEER, E.H. CONRAD, Georgia Institute of Technology — Angle-resolved photoemission and x-ray diffraction experiments show that multilayer epitaxial graphene grown on the SiC$(000\bar{1})$ surface is a new form of carbon that is composed of effectively isolated graphene sheets. The unique rotational stacking of these films causes adjacent graphene layers to electronically decouple, leading to a set of nearly independent linearly dispersing bands (Dirac cones) at the graphene K-point. Each cone corresponds to an individual macroscale graphene sheet in a multilayer stack where AB-stacked sheets can be considered as low-density faults. Recent results are discussed.

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