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Moiré Patterns: Fingerprints of Few-Layer Epitaxial Graphene Growth on 4H-SiC(000$\bar{1}$) LAURA BIEDERMANN, Dept. of Physics and Birck Nanotechnology Center, Purdue University, MICHAEL BOLEN, MICHAEL CAPANO, School of Electrical Engineering and Birck Nanotechnology Center, Purdue University, DMITRY ZEMLYANOV, Birck Nanotechnology Center, Purdue University, RONALD REIFENBERGER, Dept. of Physics and Birck Nanotechnology Center, Purdue University — Few-layer epitaxial graphene (FLG) was grown by heating [000$\bar{1}$] silicon carbide to high temperatures (1350–1600°C) in vacuum. A continuous graphene surface layer was formed at temperatures of 1475°C and greater. X-ray photoelectron spectroscopy (XPS) and scanning tunneling microscopy (STM) were used to characterize the quality, thickness, and topography of the FLG. STM studies revealed a wide variety of different nanometer-scale features that include rough graphene, 1D superlattices, grain boundaries, and Moiré 2D superlattices. Detailed studies of the Moiré superlattices showed enhanced conductivity due to density of states effects. These Moiré superlattices also provided insights into the growth mechanisms of FLG on the carbon-face of SiC.
L. Biedermann *et al.*, "Insights into Few-Layer Epitaxial Graphene Growth on 4H-SiC(000$\bar{1}$) Substrates from STM Studies," **Phys. Rev. B** (submitted).

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