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Growth-induced electronic properties of epitaxial graphene¹ PHILLIP FIRST, School of Physics, Georgia Institute of Technology

The growth of epitaxial graphene on silicon carbide is challenging to understand and control, yet rife with scientific and technological opportunities. This is due in part to different growth-induced structures such as the "moire" alignment of graphene layers in multilayer epitaxial graphene on SiC(0001) and the formation of sidewall ribbons at natural and lithographically-defined SiC(0001) step-bunches (nanofacets). We apply scanning tunneling microscopy (STM) and spectroscopy (STS) to probe the local energy bands of such growth-induced structures. STS at cryogenic temperatures and large magnetic fields creates a comb of discrete Landau level energies that we use to quantitatively characterize the local electronic properties.

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