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Electronic properties of Dirac fermions in epitaxial graphene

SHUYUN ZHOU, UC Berkeley & LBNL

Graphene, atomically thin layers of graphite, has attracted a lot of research interest because of its intriguing physics as well as its technological potential for next generation electronic devices. I will first present a detailed characterization of the growth of atomically thin films of epitaxial graphene on SiC, by using low energy electron microscopy (LEEM). The electronic properties of the films are hence studied by angle resolved photoemission spectroscopy (ARPES). Data as a function of doping, temperature and sample thickness are presented and the role of disorder and many body interactions will be discussed. Finally, the presence of a bandgap in the spectra of Dirac fermions will be presented and its potential for bandgap engineering will be discussed.