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Quasiparticle Interference and Anisotropy in Photoemission Spectroscopy on Graphene MICHELLE YONG, DAVID SIEGEL, UC Berkeley and Lawrence Berkeley National Lab, SHUYUN ZHOU, Advanced Light Source, Lawrence Berkeley National Lab, CHRIS JOZWIAK, Lawrence Berkeley National Lab, ALESSANDRA LANZARA, UC Berkeley and Lawrence Berkeley National Lab — A novel way of analyzing angle-resolved photoemission data from epitaxial graphene is presented resulting in new insights into relationships between quasiparticle interference, allowed scattering states, and anisotropy in the photoemission data. Dependences on polarization, film thickness and binding energy are also considered. We also present theoretical simulations to compare freestanding graphene with epitaxial graphene, in order to better understand the role of the substrate interaction in quasiparticle interference. In addition, a comparison with the known results of scanning tunneling spectroscopy is made to confirm and contrast features detectable by both real and momentum space probes.

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