

Image-potential states of graphene on iridium

Daniel Niesner¹, Thomas Fauster¹

¹*Lehrstuhl für Festkörperphysik
Universität Erlangen-Nürnberg
Staudtstr. 7 A3
D-91058 Erlangen, Germany*

A single layer of graphene can be produced by decomposition of hydrocarbons on metal surfaces. The resulting adlayer is electronically almost completely decoupled from the metal as known from photoemission data [1]. A comparative study of the image-potential states in front of graphene on (111) and (100) surfaces of iridium was performed by time- and angle-resolved two-photon photoemission measurements using a display-type analyzer. The work function of a single layer of graphene (4.6 eV) is close to the value for graphite even for the Ir substrates with rather high work function >5.6 eV. Energies, dispersion, and lifetimes of the lowest two image-potential states are presented.

[1] I. Pletikosić, M. Kralj, P. Pervan, R. Brako, J. Coraux, A. T. N'Diaye, C. Busse, and T. Michely, *Phys. Rev. Lett.* **102**, 056808 (2009).