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S E M I N A R

aus

Halbleiterphysik und Nanotechnologie

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Optical Spectroscopy of Single and Few-Layer Graphene

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Abstract. At the beginning an introduction to basic physics of graphene will be given, followed by the main results in optical spectroscopy of graphene and our research on optical properties of single and few-layer graphene obtained by mechanical exfoliation of natural NGS graphite. The optical characterization involves micro Raman spectroscopy, UV/VIS spectroscopic ellipsometry and NIR FT reflectometry of gated graphene flakes on oxidized n-doped silicon wafers with nominal oxide thicknesses of 100 and 300 nm. The sample quality and determination of the flake thickness is based on combined AFM and Raman measurements. As a result the optical parameters (*n*, *k*) and the optical conductivity (in units of the universal optical conductivity, $\sigma_o=e^2/4\nabla$) of graphene are determined.

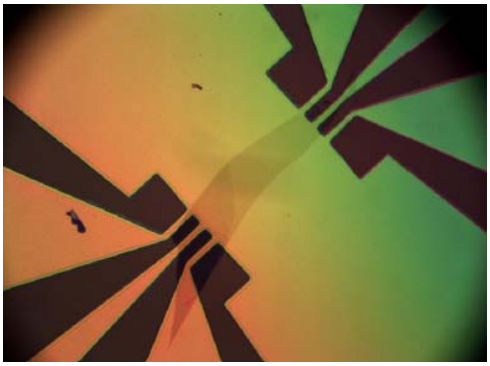

FIGURE 1. Mask with a resist on a few-layer graphene flake on an SiO_2 substrate ready for Au evaporation.