

Towards graphene hybrid materials

T. Michely¹

¹II. Physikalisches Institut, University of Cologne

Carefully optimizing the growth of graphene on Ir(111) yields a virtually defect free, weakly bound and strained epitaxial monolayer of macroscopic extension. Graphene on Ir(111) can be used as a laboratory to construct new types of graphene based composite materials. Specifically, patterned adsorption of atoms and molecules takes place resulting in cluster superlattices with exciting perspectives for nanomagnetism and -catalysis. Intercalation underneath the graphene allows one to manipulate the properties of graphene itself, e.g. its ability to adsorb atoms and molecules or its magnetism.