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TU Wien, Institut für Angewandte Physik, E134
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Investigating the sub-surface with scanning probes

Scanning probe microscopes have evolved considerably faster than any other experimental technique not only because they give access to local topographic features of surfaces with potential atomic-scale resolution, or because they can be used as local spectroscopic probes; but also they can be modified such that they can provide physical or chemical information similar to age old techniques with the addition of extreme local precision. So far, the application of scanning probes was mostly confined to the surfaces of materials. In this talk I will introduce the capacity of Scanning Tunnelling Microscopy and Atomic Force Microscopy for investigating the sub surface. I will first discuss the photon emission scanning tunnelling microscopy and its applicability in studying the Graphene/Copper interfaces. The influence of the interface state forming between graphene and Cu(111) surfaces on the photon emission properties will be presented. On another topic, the use of lateral force microscopy (LFM) in the identification of the whereabouts of impurities forming during the CVD growth of graphene will be presented. Finally, the importance of the subsurface on the tribological properties of surfaces will be exemplified by use of swift heavy ion induced defects on/under HOPG surfaces and the data attained on the sub-surface by friction force microscopy.

All interested colleagues are welcome to this seminar lecture (45 min. presentation followed by discussion)

Friedrich Aumayr
(LVA-Leiter)

W. Werner
(Seminar Chair)