Type of position: PhD

Name of Institute: Institute of Physical Chemistry, Friedrich Schiller University Jena
PI: Prof. Dr. Andrey Turchanin
e-mail: andrey.turchanin@uni-jena.de
web: www.apc.uni-jena.de

Title: Nanoscale studies of novel two-dimensional (2D) materials

Short description: Two-dimensional (2D) materials like graphene, transition metal dihalcogenides (TMDs) or molecular nanosheets present a novel class of nanomaterials with a huge amount of implementations in nanoscience and nanotechnology ranging from nanoelectronics to nanobiotechnology. One of the challenging goals in this research field is the understanding of the growth mechanisms and structure of 2D materials at the nanoscale scale, which will be in focus of this PhD project. The PhD candidate will concentrate his/her work on studies of selected molecular nanosheets and TMDs using a combination of modern surface science techniques like X-ray and UV photoelectron spectroscopy (XPS/UPS), vacuum based atomic force and scanning tunneling microscopy (AFM/STM), low energy electron diffraction (LEED). His/her work will be strongly incorporated into the main research activities of our research group as well as into activities of the recently established collaborative research centre TRR234 “CataLight: Light-driven Molecular Catalysis in Hierarchically Structures Materials” and of the biggest EU project ”Graphene Flagship”.

Required Skills:

- A master degree in chemistry, physics, materials science or nanoscience
- Solid knowledge of photoelectron spectroscopy and scanning probe microscopy methods, their application in surface science and materials science
- Practical experience with vacuum techniques, AFM, STM, XPS, UPS or LEED is desirable
- Fun in establishing new experiments and characterization of materials at the nanoscale
- Enthusiasm to play an active role in an interdisciplinary research project, high motivation and creativity
- Excellent written and oral communications skills in English