

The Scanning Probe Methods Group at the University of Hamburg (Group of Prof. Wiesendanger) offers a Ph.D. Position in the Field of Nanomagnetism

We are searching for a student who is interested in working with **spin-resolved scanning tunnelling spectroscopy at very low temperatures** in one of the worlds leading groups for scanning probe methods. The project will be concerned with the fundamental research of the magnetism of **individual and coupled magnetic impurities** on metallic substrates or in semiconducting hosts.

The project is integrated in the Graduiertenkolleg 1286 "Functional Metal-Semiconductor Hybrid Systems" of the Department of Physics and the Department of Informatics and will be fundet by a Ph. D. scholarship. For further information on funding please visit:
http://www.physnet.uni-hamburg.de/GrK/gk_mmhhs/index.html

Short description of the project:

We use a Scanning Tunnelling Microscope (STM) working at a temperature of 0.3K or 4K to image individual magnetic atoms on the surface of nonmagnetic metals (see Fig.1) or below the surface of semiconductors (see Fig.2). By coating the tip of the STM with a magnetic layer, the microscope can image the magnetization of the individual atoms. We can use an external magnetic field to switch the magnetization of the atoms.

Using this method we want to answer fundamental questions regarding the magnetic interaction between the atoms which is mediated via the metal substrate or the semiconductor host. By variation of the density of magnetic atoms we will cover different ranges of interaction strengths and can study the very interesting fields of diluted ferromagnetic metals or semiconductors.

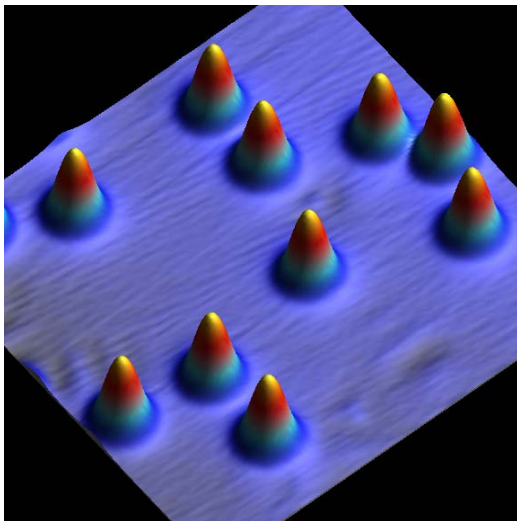


Figure 1: Cobalt adatoms on the (111) surface of platinum.
Image size: 8.5nm x 8.5nm
The image was acquired at 0.3K.

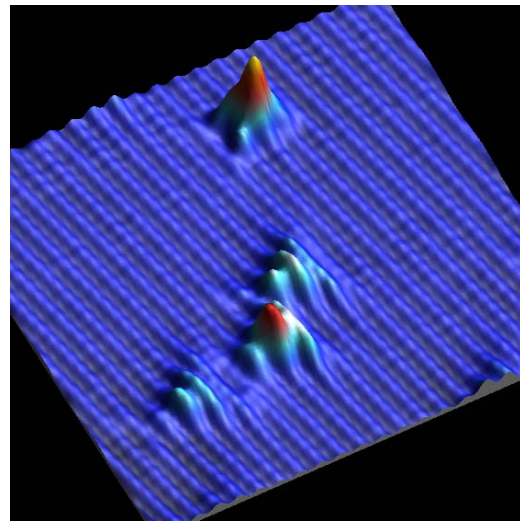


Figure 2: Manganese dopants in different depths below the (110) surface of indium arsenide.
Image size: 11 nm x 11 nm
The image was acquired at 4.2K.

For further information on the details of the project and on our subgroup, please visit
http://www.nanoscience.de/group_r/stm-sts/

Or contact: Dr. Jens Wiebe

email: jwiebe@physnet.uni-hamburg.de

Tel.: ++49 (0)40 42838 3282