

Institute of Physical Chemistry. Hamburg University. Germany

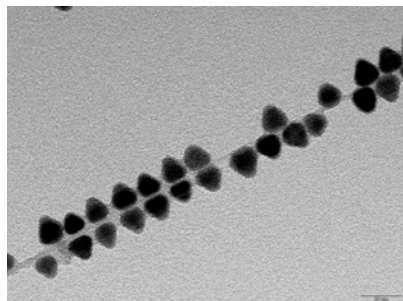
Beatriz H. Juárez, Christian Klinke and Horst Weller

The Hamburg group led by Prof. Horst Weller has been working for 25 years on the colloid-chemical preparation of semiconductor and metal nanoparticles and is one of the pioneering groups in the field of chemical nanosciences. The activities focus on the development of preparation techniques for samples of monodisperse particles with diameters in the 2 - 20 nm range and their characterization as well as on the investigation of their size-dependent optical, electronic, magnetic, catalytic, and structural properties. The synthesis allows controlled surface modification, preparation of core-shell systems, doping of particles and size control. The palette of materials ranges from II-VI, IV-VI and III-V semiconductors to a series of doped oxide systems, noble metals and magnetic alloys.



A series of CdSe based nanoparticles with growing size from left to right between 3 and 6 nm.

The scientific topics include basic investigations on the nucleation and growth of nanoparticles, the 2D and 3D self-assembly of the crystallites, various aspects of nanoelectronics and nano-biotechnology as well as application of nanoparticles in LEDs, solar cells, bio-labeling, and imaging magnetic resonance. Composite materials like the combination of semiconductor nanoparticles and carbon nanotubes and their application in photovoltaics are being currently investigated. J. Prof. C. Klinke collaborates with the group of Prof. H. Weller performing the electric transport studies of several individual nanostructures (carbon nanotubes and nanoparticles) and/or films of nanoparticles.



CdSe nanoparticles attached to carbon nanotubes.

Some additional information as well as some publications can be found in the following links:

<http://www.chemie.uni-hamburg.de/pc/weller/index.html>

<http://www.chemie.uni-hamburg.de/pc/klinke/index.html>