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Wissenschaftlicher Abendvortrag
(in englischer Sprache)

Dienstag, 7. Juni 2016, 18:30 Uhr

Magnus-Haus Berlin, Am Kupfergraben 7, 10117 Berlin

Prof. Hrvoje Petek
Department of Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA, U.S.A.

Atoms, Superatoms, and the Electronic Structure of Solids

Diskussionsleitung: Prof. Dr. Wolfgang Eberhardt, Wiss. Leiter Magnus-Haus Berlin

Anschließend kleine Bewirtung. Die Veranstaltung wird gefördert durch die WE-Heraeus-Stiftung.

Anmeldung:
http://www.dpg-physik.de/dpg/magnus/formulare/formular_2016-06-07/anmeldung-2016-06-07.html

Zur Person:
Hrvoje Petek is the Richard King Mellon Chair of Physics and Astronomy and Professor of Chemistry at the University of Pittsburgh. He received his education in Chemistry from MIT (BS; 1980) and U.C. Berkeley (PhD; 1985). From 1985 to 1993 he was first a postdoctoral fellow and then a Research Associate at the Institute for Molecular Science in Okazaki, Japan. In 1993 he joined the Hitachi Advanced Research Laboratory as a Group Leader. In 2000 he moved to the University of Pittsburgh as a Professor of Physics and to the Fritz-Haber Institute in Berlin as a Humboldt Awardee. He is the Editor-in-Chief of Progress in Surface Science. His research interests span ultrafast spectroscopy and microscopy of solid-state materials and surfaces. He pioneered coherent multiphoton photoemission as a method for investigating coherent electron dynamics on the femtosecond temporal and nanometer spatial scales at semiconductor and metal surfaces.

Zum Inhalt des Vortrags:
Solid state physics, surface science, and catalysis depend on how atoms share electrons to define material specific physical and chemical properties. I will introduce the electronic structure of atoms, and how atoms combine to form the electronic structure of molecules and solids using alkali atoms and C60 molecules as examples. The simple electronic structure of alkali atoms is replicated within C60 molecules, which we will take as ersatz atoms. Using scanning tunnelling microscopy and spectroscopy, as well as theory, we will use our superatoms to demonstrate how the electronic structure of atoms evolves into those of molecules and solids. Once we have formed a metal, I will show what happens to the electronic structure of alkali atoms when chemisorbed on metal surfaces. Methods of angle and time-resolved multiphoton photoemission spectroscopy will be used to image the electronic structure of chemisorbed alkali atoms and how it depends on the supporting substrate.