

## COURSE

### Transport in Mesoscopic Structures: A Basic Introduction to the Theory

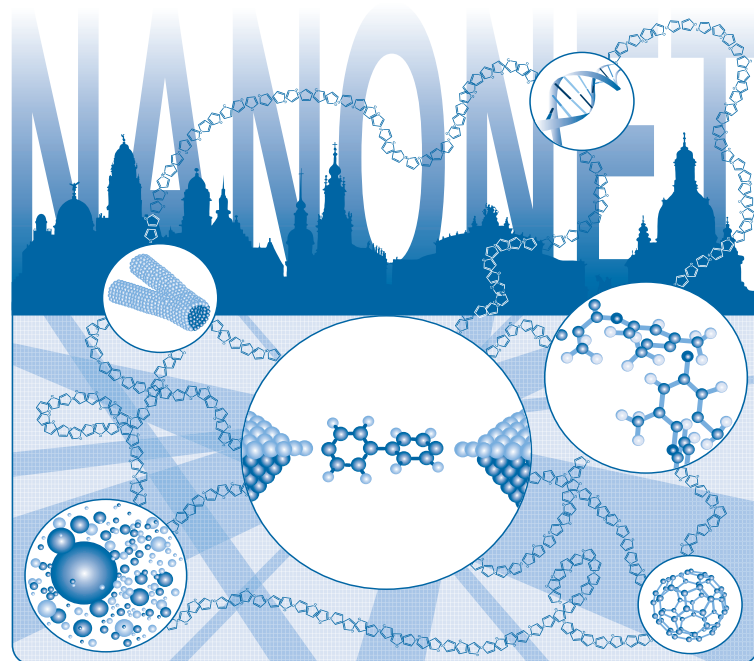
**Prof. Dr. Juan Carlos Cuevas**

Universidad Autónoma de Madrid, Spain

Date: **September 9 – 20, 2013**

Time: **09:15 – 12:45**

Place: **Helmholtz-Zentrum Dresden-Rossendorf  
Building 712, Room 138**



#### Abstract

The course gives an overview on current transport phenomena occurring in nanoscale electronic objects. It begins by introducing basic concepts of solid state physics, like the Fermi function or the density of states in various dimensions, in order to make the course suitable for students with a background in physics, chemistry and engineering. Coherent transport on the nanoscale is then explained based on the Landauer approach. The role of electron-electron interactions in such systems will be shown in so called Coulomb Blockade phenomena, where charging of single electrons becomes important. Transport phenomena in longer molecules exhibit a transition from the coherent transport to incoherent transport, where hopping behavior dominates. Getting to know these processes lays the foundations for a detailed understanding of various transport phenomena taking place in single molecules and other nanostructures.

**You are cordially invited to attend the course**

**Register before August 25, 2013**  
[www.ihrs-nanonet.de/transport](http://www.ihrs-nanonet.de/transport)