Projekt-/ Masterarbeit 2011

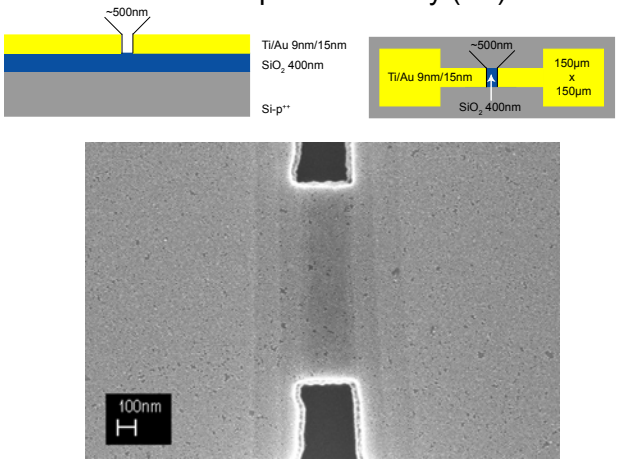
nanoelectronics group **nanolino group**

Combining electrical transport and Kelvin probe force microscopy in ordered nanostructures

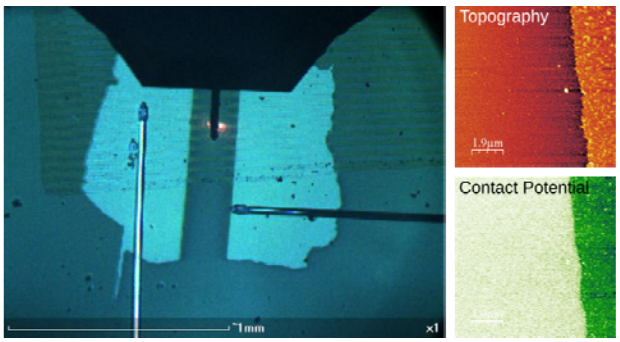
Ordered assemblies of metallic and semiconducting nanoparticles are important for possible applications in ***molecular electronics*** and ***solar cells***. One of the important aspects in such devices is the understanding of the pathways taken by charge carriers. A deeper control on this will enable a better engineering of the structures and possible devices.

In this project you will investigate the electronic properties of self-assembled nanoparticle arrays containing Au or TiO_2 nanoparticles. After learning the basics to fabricate and contact those structures, you will characterize their electrical transport, possibly opto-electrical properties and use Kelvin probe force microscopy (electrostatic or surface potential AFM) to gain further insight into the local electrostatic potential variations in these structures. These studies shall shed light on the pathways adopted by charge carriers and help improve the design of the structures.

Small nanoparticles array (Au)



KPFM image of a Au NP array



Info

starting date:	possible immediately
duration:	8 weeks (Project) / 24 weeks (Master)
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