



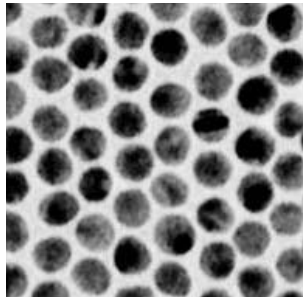
Nanoparticle arrays

molecular electronics

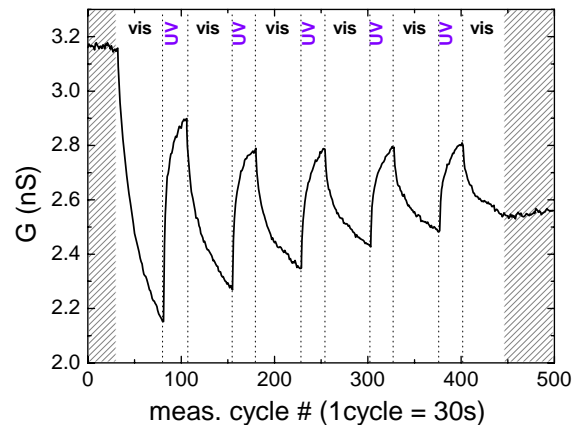
Nanometer scale metallic or semi-conducting particles represent an ideal interface to bridge molecular compounds with larger scale lithographic structures. In this project, you will prepare Au nanoparticles and assemble them to form 2D arrays on top of Si/SiO₂ wafers. Using an exchange process, you will insert dedicated molecules in the particle arrays to form interconnected networks of molecular junctions. The transport and optical properties of the networks will be characterized as a function of temperature and environment (vacuum, air, liquid). Specific aspects to be addressed include non-linearity effects in small arrays and dependence on the environmental conditions using specifically designed molecules.

Context: NCCR Nano and European FP7 NMP project.

TEM image: array of Au nanoparticles (\varnothing 10nm) stabilized with C16 linkers



light-controlled conductance modulation of a network of molecular junctions



Info

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