

## Two Postdoc Positions in Molecular Electronics: Synthesis and Characterization of Molecular Junctions based on Molecular Switches

Two postdoctoral fellow positions are available immediately) to develop new molecular junctions that can be electrostatically or optically switched between two, or more, states. Such junctions can be used to develop molecular diodes, molecular memory elements, plasmon sources. In addition, the junctions will give new insights in the conduction mechanisms and allows to study the interplay between light (or plasmons) and charge carriers inside tunnel junctions at the molecular length scale.

Position 1: This project aims to develop synthetic procedures to prepare precursors for self-assembled monolayers (SAMs) that are redox and/or optically active. Besides synthesis, the project also involves the preparation and characterization of the SAMs. The SAM precursors will have conjugated backbones and several redox active and light (or plasmon) switchable groups will be investigated. The project can be extended towards fabrication and characterization of molecular junctions.

Position 2: This project is more physical in nature and aims to study the mechanisms of charge transport across molecular junctions with molecular switches in detail using DC and AC methods, low-temperature measurements, and opto-electronic measurements. The aim is to elucidate how the molecule-electrode interface can be controlled in situ by means of electric and optical fields.

Candidates should have a strong background in synthetic chemistry (pre-requisite for position 1), charge transport measurements (pre-requisite for position 2), self-assembly, micro/nanofabrication, surface characterization, or equivalent. Posts will be offered for the initial period of one or two years with possible extension, subject to review. Competitive salary is negotiable depending on experience. Formal applications (which include CV, cover letter, and the contact details of three references) should be addressed to

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