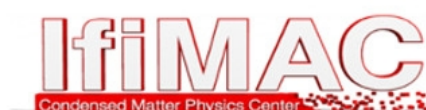
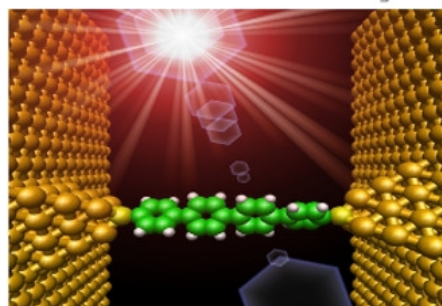
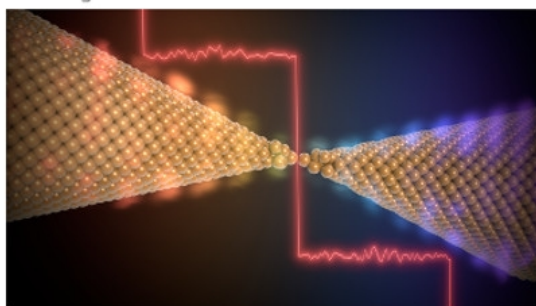


## PhD position on Theoretical Nanoscale Thermal Transport



**Position type:** PhD position in Theoretical Condensed Matter Physics.

**Advisor:** Juan Carlos Cuevas (<http://webs.ftmc.uam.es/juancarlos.cuevas/>).

**Co-advisor:** J. Guilherme Vilhena (Junior Group Leader at UAM).

**Institution:** Universidad Autónoma de Madrid (UAM).

**Duration:** 3-4 years.

**Starting date:** as soon as possible (tentatively December 2021 or January 2022).

**Requirements:** Graduate in Physics (or Chemistry) that have completed a Master in Condensed Matter Physics, Nanophysics or related areas.

**When to apply:** from September 6th to October 17th (2021).

**How to apply:** send CV and grades certificate to [juancarlos.cuevas@uam](mailto:juancarlos.cuevas@uam)

**For more info:** contact [juancarlos.cuevas@uam.es](mailto:juancarlos.cuevas@uam.es)

### Description of the project:

Understanding and controlling atomic-scale devices is one of the most important open problems in all of Nanoscience. In this context, the goal of this thesis project is the theoretical study of the thermal conductance and thermoelectricity in single-molecule junctions in close collaboration with the experimental group of Prof. Nicolás Agraït, also based at UAM. Our groups are world leaders in the field of nanoscale electronic and thermal transport and the student who joins us will learn and make use of state-of-the-art theoretical techniques such as ab initio transport methods based on density functional theory, non-equilibrium Green's function techniques, molecular dynamics simulations, etc. Those techniques will be then employed address various fundamental questions in the context of thermal conduction and energy conversion in single-molecule circuits, which constitute the ultimate limit in the miniaturization of electronic devices.