

O 30 Invited talk Dujardin

Time: Thursday 09:30–10:15

Room: TRE Phys

Invited Talk

O 30.1 Thu 09:30 TRE Phys

Electronic control of molecular dynamics inside a single molecule; towards molecular nano-machines — ●GÉRALD DUJARDIN, GENEVIÈVE COMTET, MATHIEU LASTAPIS, MARTA MARTIN, and DAMIEN RIEDEL — Laboratoire de Photophysique Moléculaire, Bât. 210, Université Paris-Sud, Orsay, France

The use of a single molecule as a functionalized nano-machine requires being able to power and to control numerous dynamical processes at the atomic-scale. We have found that tunneling electrons from a low temperature (5 K) scanning tunneling microscope (STM) can be used to control, through resonant electronic excitation, different molecular movements of a single molecule. Both the energy dependence and the spatial selectivity of the electronic excitation inside the molecule demonstrate the feasibility of controlling the reversible dynamics (diffusion, isomerization, bistable state and transient state movement) of a single molecule with precision.