Lyon 13-16 Jul 2026
4th International Symposium on Photonic and Electronic Molecular Machines

From Molecular Motors to Molecular Gears

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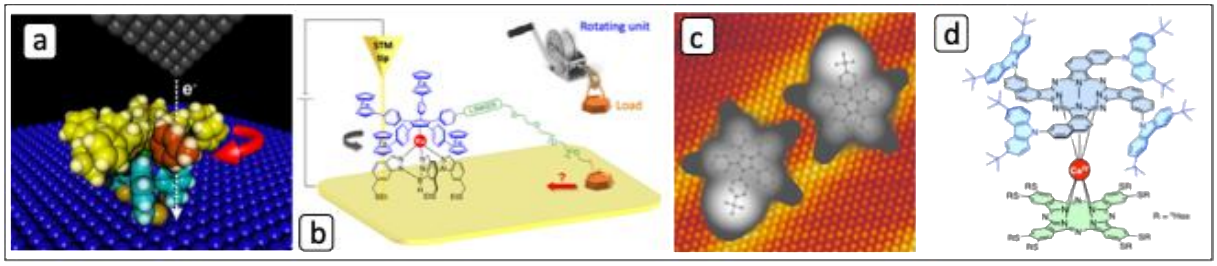
Abstract:

Advances in the imaging and manipulation of single molecules by STM has stimulated much interest in the studies of technomimetic molecules,[1] i.e. molecules designed to imitate macroscopic objects at the molecular level, also transposing the motions that these objects are able to undergo. In this lecture, I will present the design and synthesis of molecular motors,[2-3] winches[4-5] and gears[6-9] based on pentaphenyl cyclopentadienyl molecules or ruthenium(II) and cerium (IV) coordination complexes.



Molecular motor (a), winch (b) and gears (c-d).

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