



# *RCMS · IGER Seminar*



## “LANTHANIDES-TTF COMPLEXES DISPLAYING SINGLE MOLECULE MAGNET BEHAVIOUR AND LUMINESCENCE”



**Lecturer : Prof. Lahcène OUAHAB**

**(Université de Rennes)**

**Date : Wed. 9th Nov. 15:30 – 17:00**

**Place : Noyori Materials Science Laboratory  
Chemistry Gallery**

Lanthanide-based complexes have greatly contributed to the development of molecular magnetism in the last decade and more particularly in the branch of single molecule magnets (SMMs)<sup>1</sup>. The main reasons are their large magnetic moments associated to their intrinsic large magnetic anisotropy. The splitting of the multiplet ground state of a single-ion in a given environment is responsible of the trapping of the magnetic moment in one direction in SMMs. However, the analyses of the crystal field effects on the magnetic anisotropy are not so common<sup>2</sup>. A better understanding of the magneto-structural correlations in lanthanide-based complexes should provide tools to improve their potentialities.

In this presentation we will focus on the specific magnetic properties of TTF-based lanthanide mononuclear and polynuclear complexes. We will show how optimize the SMM behavior playing on i) the modulation of the supramolecular effects via chemical modifications of the TTF ligand<sup>3</sup>, ii) simple molecular engineering modifying the electronic distribution and symmetry of the coordination polyhedron, iii) magnetic dilutions (solution and doping) and iv) isotopic enrichment of the dysprosium<sup>4</sup>.

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