



RCMS · IGER Seminar



“Magnetic Molecules and Hybrid Materials for Molecular Spintronics”



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Date : Tue. 18th Aug. 13:30 – 15:00

Place : SA321

Spin-based electronics is one of the emerging branches in today's nanotechnology and the most active area within nanomagnetism. So far spintronics has been based on conventional materials like inorganic metals and semiconductors. Still, molecular electronics emerged several decades ago as a promising possibility to complement or even to replace conventional inorganic electronics when it goes nano. In this context, a natural evolution of molecular electronics is that of using magnetic molecules, as well as molecule-based materials, as components of new spintronic systems .

In this talk the important role that chemistry can play in molecular spintronics is highlighted. In the first part I will show that magnetic molecules based on lanthanide complexes can provide ideal examples of spin qubits which can be of interest in quantum computing. In the second part the manipulation of the spin through the temperature or through an electric field will be illustrated in nanodevices formed by spin-crossover nanoparticles. In the third part molecular materials will be integrated in spintronic heterostructures in order to fabricate molecule-based spintronic devices. In particular, I will report the fabrication of spin-OLED devices in which the light can be tuned through a magnetic field.

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