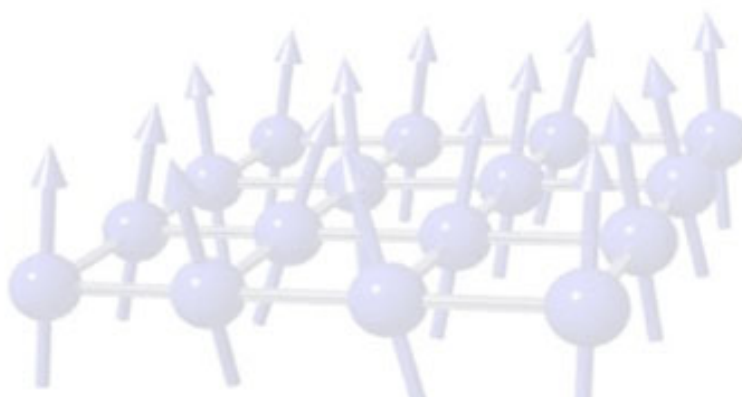


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Coupling nanomagnetism and nanoelectronics: a fresh look from the molecular and non-molecular perspectives

A revolution in electronics is in view, with the contemporary evolution of the two novel disciplines of spintronics and molecular electronics. A fundamental link between these two fields can be established using magnetic nanomaterials and, in particular, systems with slow relaxation of the magnetization like magnetic nanoparticles and single-molecule magnets. Here we will describe our recent progress in the field using two non-conventional detection schemes. The first one exploits the optical excitation of plasmons to control the magnetization dynamics of metal alloy nanoparticles, while the second demonstrate single-molecular magnet sensitivity in carbon-nanotube devices. The advantages over more conventional approaches are outlined as well as the current challenges in the field, together with a perspective on how to overcome them.



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