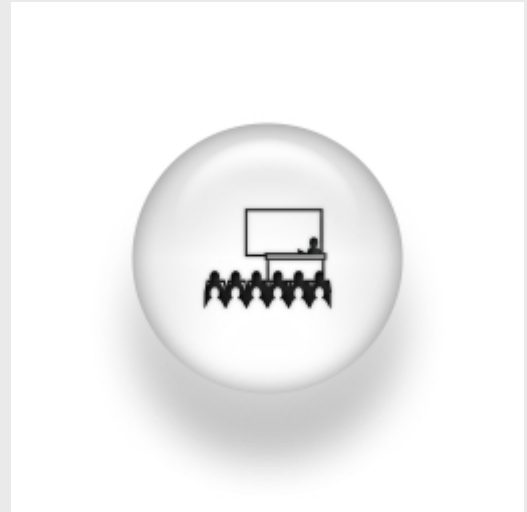


## Huge enhancement of the magnetoresistance in nanoparticle arrays

Wednesday, 2 February 2011, 12:00-13.00



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ABSTRACT:

Out of the now numerous mesoscopic solid state systems that exhibit highly controllable quantum degrees of freedom, one of the most promising technologies is that of superconducting electronic circuits or “quantum circuits”. Using relatively simple superconducting materials, such as Aluminium and Niobium, it is possible to imprint microscopic circuits which behave as artificial atoms, or as one-dimensional waveguides for the propagation of “photons”. The result is a novel and highly controllable simulation of one-dimensional QED, one which opens the door to ultrastrong light-matter interactions and new technological applications. In this talk I will provide a simple overview of these topics, while at the same time introducing recent works arising from the collaboration between our group at IFF (CSIC), the group of Prof. Solano (UPV / Ikerbasque) and the experimental groups of Prof. Gross (WMI, Munich) and Prof. Mooij (TU Delft).

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