CEA - Saclay 91191 Gif-sur-yvette Cedex
Service de Physique de l'Etat Condensé
SÉMINAIRE

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Mercredi 25 janvier 11h15

Orme des Merisiers SPEC Salle Itzykson, Bât.774

Hybrid devices for quantum nano-electronics

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Creating direct electrical connections between metal electrodes and low-dimensional semiconductor nanostructures has recently become possible thanks to the development of new nanomaterials and nanofabrication methods. Hybrid devices can thus be made in which macroscopic properties, such as superconductivity or ferromagnetism, are combined with microscopic properties, such as the charge or the spin state of individual electrons. Such hybrid devices open a wide range of opportunities for the study of new quantum phenomena and, in the long term, they may lead to the development of useful electronic devices with quantum functionalities. In this talk I will focus on hybrid devices made of zero-dimensional, quantum-dot structures coupled to either normal or superconducting electrodes. After a brief introduction to the underlying physics and a review of the main experimental achievements, I will present some recent results obtained with hybrid devices made from self-assembled SiGe nanocrystals and InAs-based nanowires.

A coffee break will be served at 11h00. The seminar will be given in English.

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