Departamento de Física de la Materia Condensada

Universidad Zaragoza

SEMINARIOS 2019

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Insitut de Ciència de Materials de Barcelona (ICMAB-CSIC)

"New functionalities for energy-efficient superconducting electronic devices"

Advances in the science of superconductivity have numerous challenges to improve old and create new technologies able to fulfil big challenges of the XXI century; ranging from power applications (storage and transport of clean, sustainable and reliable energy) to novel electronic devices (information technologies and data storage systems). The individual and collective behaviour of vortices (quantum nano-tubes of magnetic flux) in a superconductor is of enormous practical significance for applications. This has sustained the study of different methods for engineering the vortex pinning landscape in order to infer in vortex dynamics of superconductors.

In this talk, I will discuss the opportunities of high temperature superconducting cuprates for applications in novel multifunctional electronic devices. In particular, I will present different strategies to design nanostructured high temperature $YBa_2Cu_3O_{7-x}$ superconducting films, with controllable artificial pinning centres, able to manipulate vortex motion for fluxtronic device applications. In addition, I will present novel functionalities associated to field effect tuning of the metal-insulating transition and spin-texture manipulation in superconducting hybrids with the vision of energy-efficient electronics

Dr. Anna Palau is a Tenured Scientific at the Institute of Materials Science, ICMAB-CSIC, Barcelona, Spain. She received a B.S in Physics (1999), B.S in Materials Science (2000), Ph.D in Materials Science (2005) at Barcelona and performed a postdoctoral stay (2005-2007) at University of Cambridge (U.K). Her scientific interest includes functional properties of oxides with focus on superconducting and magnetic materials. Her main current research activity is devoted to study the outstanding physical properties of functional oxides and vortex matter physics, with strong effort in the opportunities that nanotechnology can bring to high temperature superconductors. She has co-authored more than 80 peer-reviewed scientific papers, 3 Book chapters and holds 3 licensed patents. She has delivered more than 30 Invited Talks in international Workshops and Conferences and participated in more than 25 national and international projects. She is Master Lecturer on Advanced Nanoscience and Nanotechnology at UAB (Barcelona).

1 de Marzo (viernes)

Con la colaboración de:

Facultad de Ciencias
Universidad Zaragoza

LUGAR: SALÓN DE ACTOS DEL EDIFICIO DE GEOLÓGICAS

HORA: 12:30