



GEFESevilla

VII Reunión Grupo Especializado de Física de Estado Sólido

25-27 Enero 2012

www.gefes2012.com

Patrocinadores:



MINISTERIO
DE CIENCIAS
E INNOVACIÓN



CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS



CSIC



FEI™

COMITÉ ORGANIZADOR

ASUNCIÓN FERNÁNDEZ CAMACHO (Presidenta)
Instituto de Ciencia de Materiales de Sevilla, CSIC-Univ.Sevilla

DIEGO GÓMEZ GARCÍA
Dpto. Física de la Materia Condensada, Universidad de Sevilla

HERNÁN MÍGUEZ GARCÍA
Instituto de Ciencia de Materiales de Sevilla, CSIC-Univ.Sevilla

TERESA CRISTINA ROJAS RUÍZ
Instituto de Ciencia de Materiales de Sevilla, CSIC-Univ.Sevilla

COMITÉ CIENTÍFICO

LUIS VIÑA LISTE
Universidad Autónoma de Madrid

PILAR LÓPEZ SANCHO
Instituto de Ciencia de Materiales de Madrid, CSIC

NARCIS MESTRES ANDREU
Instituto de Ciencia de Materiales de Barcelona, CSIC

JACOBO SANTAMARÍA SÁNCHEZ-BARRIGA
Universidad Complutense de Madrid

FERNANDO BARTOLOMÉ USIETO
Instituto de Ciencia de Materiales de Zaragoza, CSIC-Univ.Zaragoza

XAVIER BATLLE GELABERT
Universidad de Barcelona

ANA CROS STÖTTER
Universidad de Valencia

ASUNCIÓN FERNÁNDEZ CAMACHO
Instituto de Ciencia de Materiales de Sevilla, CSIC-Univ.Sevilla

JESÚS M^o GONZÁLEZ FERNÁNDEZ
Instituto de Ciencia de Materiales de Madrid, CSIC

LUIS HUESO ARROYO
CIC Nanogune

MARCO ANTONIO LÓPEZ DE LA TORRE
Universidad de Castilla – La Mancha

JOSÉ ANGEL MARTÍN-GAGO
Instituto de Ciencia de Materiales de Madrid, CSIC

JOSÉ IGNACIO MARTÍN CARBAJO
Universidad de Oviedo

CARMEN OCAL
Instituto de Ciencia de Materiales de Barcelona, CSIC

FRANCISCO RIVADULLA FERNÁNDEZ
Universidad de Santiago de Compostela

CARLOS UNTIEDT
Universidad de Alicante

Carta de la Presidenta

Para el comité científico y el comité local es una satisfacción invitaros a una nueva edición de la Reunión Bienal del Grupo Especializado de Física de Estado Sólido de la Real Sociedad Española de Física, GEFES 2012, que se celebrará en Sevilla del 25 al 27 de enero de 2012.

Esta VII edición viene a dar continuidad a las reuniones de Madrid (2000), Calella (2002), San Sebastián (2004), Alicante (2006), Santiago de Compostela (2008) y Zaragoza (2010) y deseamos que vuelva a ser un foro de discusión y presentación de los temas más actuales en Física de Estado Sólido tanto a nivel nacional como internacional. Para ello creemos haber elaborado un programa atractivo con charlas invitadas de la más alta calidad y esperamos recibir vuestras contribuciones para acabar de confeccionarlo.

La reunión tendrá lugar en el edificio del Rectorado de la Universidad de Sevilla en la calle San Fernando; un edificio emblemático y de gran valor artístico, ubicado en pleno centro histórico de la ciudad muy cerca de la Catedral, la Giralda, los Reales Alcázares, los Jardines de Murillo, la Plaza de España ó el Parque de María Luisa.

Toda la información acerca de la reunión irá actualizándose en la web www.gefes2012.com donde también encontraréis información sobre viajes y alojamiento.

¡Os esperamos en Sevilla!

M^a Asunción Fernández Camacho
Presidenta del Comité Organizador Local



PROGRAMA

GEFES 2012

HORA	PONENTE /	ORGANIZACIÓN	TEMA	MODERADOR
8:00-9:15	Entrega documentación			
9:15-9:30	Presentación del GEFES 2012			
9:30-10:15 (Plenaria)	Laurens Molenkamp	University Würzburg, Alemania	Dirac Fermions in HgTe Quantum Wells	Luis Viña Liste
10:15-11:00 (Plenaria)	Annalisa Fasolino	Institute for Molecules and Materials, Nijmegen, Holanda	The graphene lattice: perfection, distortion and motion	Pilar López Sancho
11:00-11:30	Pausa café - Coffee break			
11:30-11:50 (oral invitada)	Rafael Roldan	Instituto de Ciencia de Materiales de Madrid ICMM-CSIC	Anharmonic flexural phonons in graphene	Andrés Cantarero Saez
11:50-12:10 (oral invitada)	Massimiliano Stengel	ICMAB-CSIC en Barcelona	First-principles nanoelectronics:oxide thin-film devices by design	
12:10-12:30 (oral invitada)	Javier Garcia-Barriocanal	School of Physics & Astronomy University of Minnesota	Electrostatic Control of the Superconductor-Insulator Transition in Cuprates	
12:30-12:50 (oral invitada)	Pablo San José Martín	Instituto de Estructura de la Materia, CSIC	Localization in twisted graphene bilayers	
12:50-13:10 (oral invitada)	Ismael Díez-Pérez	Institute for Bioengineering of Catalonia (IBEC), University of Barcelona (UB)	Tailoring the electrical behavior in single-molecule contacts	
13:10-13:30 (oral invitada)	Cristina Gómez-Navarro	Física de la Materia Condensada, Fac Ciencias de la UAM	Chemically derived graphene: electronic and mechanical	
13:30-15:30	Comidas - Lunch			
15:30-16:15 (Plenaria)	A. Ardavan	Univ.Oxford, Reino Unido	Quantum information processing with molecular electron spins	Luis Hueso Arroyo
16:15-16:35 (oral invitada)	Benito Alén	Instituto Microelectrónica Madrid (IMM-CNM-CSIC)	Semiconductor nanostructures grown on GaAs nanoholes for quantum optical information technologies.	Amílcar Labarta Rodríguez
16:35-16:55 (oral invitada)	Xavier Moya	Department of Materials Science, University of Cambridge	Interfacial physical phenomena in magnetoelectric systems.	
16:55-17:15 (oral)	Diego Frustaglia	Dep. Física Aplicada II Universidad de Sevilla	Quantum optics with electrons: adapted methods for entanglement production and detection	
17:15-17:35 (oral invitada)	Manuel Valvidares	Sincrotrón ALBA (Línea BL29 BOREAS)	Quantitative Soft X-Ray Resonant Reflectance Spectroscopy of thin oxide films	
17:35-17:55 (oral invitada)	Victorino Franco García	Dpto. Física de la Materia Condensada. Univ.Sevilla	Soft magnetic materials for energy efficient refrigeration	
17:55-19:30	Posters + cafés			

PROGRAMA

GEFES 2012

9:00-9:45 (Plenaria)	Agnes Barthelemy	THALES, Paris Sud	Ferroelectric and multiferroic tunnel junctions	Jacobo Santamaria Sánchez-Barriga
9:45-10:05 (oral invitada)	Marius Costache	Catalan Institute of Nanotechnology (ICN), Bellaterra	Spintronic nanodevices for energy-harvesting	Xavier Batlle Gelabert
10:05-10:25 (oral invitada)	Fèlix Casanova	CIC nanoGUNE Consolider. IKERBASQUE, Basque Foundation for Science	Generation and manipulation of pure spin currents	
10:25-10:45 (oral invitada)	Víctor García-Suárez	Universidad de Oviedo - CINN	Implementing strong correlations in a first principles transport code	
11:45-11:05 (oral invitada)	David Jacob	Max Planck, Halle	The Kondo effect in molecular devices from first principles	
11:05-11:35	Pausa café - Coffee break		Pausa café - Coffe break	
Sesión 3: Microscopías y Nanoscopías - Mycroscopies and Nanoscopies				
11:35-11:55 (oral invitada)	Jaume Gazquez	Department of Superconducting Materials and large scale nanostructures ICMAB-CSIC	Applications of aberration corrected STEM-EELS to magnetic oxide thin films and nanoparticles	Jose Angel Martín Gago
11:55-12:15 (oral invitada)	Lucía Aballe	Sincrotron ALBA	X-ray microscopes at ALBA: TXM and XPEEM	
12:15-12:35 (oral invitada)	Arantxa Fraile Rodríguez	Dept. Física Fundamental UB	Size-dependent properties of single iron-based nanoparticles probed by synchrotron x-ray spectromicroscopy"	
12:35-12:55 (oral)	Lionel Cervera Gontard	Instituto de Ciencia de Materiales de Sevilla (ICMS)	3D characterisation of electronirradiation effectsin Ge-doped SiO2	
12:55-13:15 (oral)	Carmen Munuera	Instituto de Ciencia de Materiales de Madrid. ICMM-CSIC	Nanoscale visualization of topographic and ferroelectric domain evolution of BTO at low temperatures	
13:15-13:35 (oral invitada)	Myriam Aguirre	Instituto de Nanociencia de Aragon INA	EELS and HAADF study of defects in SrTiO3-x:Ny single crystal obtained by microwave plasma ammonolysis	
13:35-15:30	Comidas -Lunch		Comidas - Lunch	
15:30-16:15 (Plenaria)	Thomas Ebbesen	University of Strassbourg, Francia	Light, Metal and Molecules	Fco. José García Vidal
16:15-16:35 (oral invitada)	David Zueco	Inst. Ciencia Materiales Aragón, CSIC-Uni.Zaragoza	Superconducting qubits: from quantum optics to condensed matter physics on a chip	Hernán R. Míguez García
16:35-16:55 (oral invitada)	Sergio G. Rodrigo	Institute of Optics, University of Rochester	Nonlinear optical effects in holey metal films	
16:55-17:15 (oral invitada)	Mauricio Calvo Rogiani	Instituto de Ciencia de Materiales de Sevilla. CSIC	Multifunctional materials based on porous one dimensional photonic crystals	
17:15-17:35 (oral invitada)	Mariano Campoy Quiles	CSIC, ICMAB, Instituto de Ciencia de Materiales de Barcelona	Nanostructuring organic materials for plastic solar cells and photonic applications	
17:35-17:55 (oral)	Maria Maragkou	Departamento de Física de Materiales, Universidad Autónoma de Madrid	Controlling the properties of single photon emitters	
17:55-18:15 (oral invitada)	Roberto Fenollosa	Universidad Politécnica de Valencia, Unidad Asociada ICMM\CSIC-UPV	Silicon colloids: a platform for photonics, medicine and electronics	
18:15-19:15	Posters + cafés		Posters + cafés	
Visita a los Reales Alcázares y cena			Visita a los Reales Alcázares y cena	



PROGRAMA

GEFES 2012

9:30-9:50 (oral invitada)	Rosa Lopez	Universidad de las Islas Baleares.	Josephson current in carbon nanotubes with spin-orbit interaction	M ^o Dolores Baró Mariné
9:50-10:10 (oral invitada)	Marisol Martín Gonzalez	Instituto de Microelectrónica de Madrid IMM-CSIC	Nanoengineering Thermoelectrics for 21st century applications	
10:10-10:30 (oral invitada)	Eva Pellicer	Grupo de Física de Materiales II Departamento de Física	Functional mesoporous nanocast hybrid materials	
10:30-10:50 (oral invitada)	Alvaro San Paulo Hernando	Instituto de Microelectrónica de Barcelona, IMB-CNM (CSIC)	Electromechanical properties of catalyst grown Silicon Nanowires and their application for nanoelectromechanical devices	
10:50-11:10 (oral invitada)	Juan José Meléndez Martínez	Dpto. Física. Universidad de Extremadura	Phase Field Models for Microstructural Studies	
11:10-11:40	Pausa café - Coffee break		Pausa café - Coffe break	
11:40-12:00 (oral invitada)	Aran Garcia-Lekue	Donostia International Physics Center (DIPC)	Modelling electron transport at the nanoscale using plane waves	Diego Gómez García
12:00-12:20 (oral)	Guilherme Tosi	Dpto. Física de Materiales, Universidad Autónoma de Madrid	Vortex dynamics in polariton OPO superfluids	
12:20-12:40 (oral)	Pablo Molina de Pablo	Dpto. Física de Materiales, Universidad Autónoma de Madrid	Silver nanoparticle wires on ferroelectric domain patterns in laser crystals	
12:40-13:00 (oral invitada)	Rafael Morales	Dept. Química Física, Universidad País Vasco	Tuning magnetic properties of out-of-plane and in-plane magnetic anisotropy media: from thin films to patterned nanostructures	
13:00-13:20 (oral invitada)	Daniel Errandonea	Universidad de Valencia/ICMUV	New Light on Nanomaterials under extreme conditions: synchrotron radiation and diamond-anvils cells	
13:20-13:40 (oral)	B. M. Moshtaghioun	Department of Materials Engineering, Isfahan University of Technology, Isfahan, Iran. Departamento de Física de la Materia Condensada. Univ.Sevilla.	Sintering behavior and microstructure of boron carbide ceramics processed by spark plasma sintering	Asunción Fernández Camacho
13:40-14:00	Pilar López Sancho	Instituto de Ciencia de Materiales de Madrid ICMM-CSIC. Presidenta de AMIT	Mujeres y Física	
14:00-14:20	Premios posters jóvenes y Acto de Clausura			
14:20-15:30	Coctail de despedida - Farewell coctail		Coctail de despedida - Farewell coctail	

Listado Posters

	AUTOR QUE PRESENTA	TÍTULO
P-01	Alberca	Ferromagnetic Resonance of La _{0.7} Ca _{0.3} MnO ₃ ultrathin films on BaTiO ₃ ferroelectric substrates
P-02	Alvarez R.	Interpretation of eRBS spectra for H quantification at surfaces
P-03	Antón C.	Flow dynamics on OPO-polariton condensates
P-04	Awad	Double vortex dynamics in vertically coupled Permalloy dots
P-05	B. del Rosal	Optical activation of BaMgF ₄ ultra-transparent ferroelectric crystal
P-06	Baena	Electrical control of donor electrons in Si: valley composition and consequences for quantum computing.
P-07	Bartolomé	Magnetism and structure of amorphous Co-W alloyed nanoparticles
P-08	Blázquez	Transferencia de energía en los molinos planetarios
P-09	Calderón	Magnetic state and anisotropy in the Fe-based high T _c superconductors
P-10	Carrillo	Processing and microstructure of spark plasma sintered 8Y-CSZ/5 vol% SWNT composites
P-11	Castro Smirnov	Flexible interference filters for UV radiation shielding applications
P-12	Cid	Anisotropic negative thermal expansion in Nd _x Co _{1-x} thin films with
P-13	Cuadra	Coherence of polariton condensates under OPO configuration
P-14	Delgado	Probing the nuclear spin of a single donor in Silicon nanotransistors.
P-15	Fernández JF	Cinética de formación/descomposición de hidruros metálicos investigada mediante microscopia óptica "in-situ".
P-16	Fernández-Rossier	Spin parity effects in single-spin inelastic electron tunneling spectroscopy
P-17	Francisquez	Characterization of metallic nanocontact shape by electron-phonon interaction
P-18	García del Muro	The effect of microstructure and interactions in the effective energy barrier distribution of granular Co-Zirconia films
P-19	García-Aldea	Efecto de Haas van Alphen y Ceros de Spin en YBCO
P-20	Gómez A.	Influence of the magnetic state on the vortex lattice dynamics in superconducting/magnetic hybrids
P-21	González M. Jesús	Hysteresis and radiofrequency absorption behavior in epitaxial Au/Fe/Au/Fe/MgO films
P-22	Hierro-Rodríguez	Confined magnetization state in thickness modulated amorphous NdCo ₅ films with perpendicular anisotropy.
P-23	Kovylina	Mirror symmetry in magnetization reversal and coexistence of positive and negative exchange bias in Ni /FeF ₂

	AUTOR QUE PRESENTA	TÍTULO
P-24	López-López Carmen	Photonic Crystals for Enhanced Light Harvesting in Dye Solar Cells.
P-26	Luis	Molecular Prototypes for Spin-Based CNOT and SWAP Quantum Gates
P-27	Martínez A.	Magnetovolume effect on FeCuZr alloys
P-28	Martínez B. (1)	Transport properties across LaAlO ₃ /La _{2/3} Sr _{1/3} MnO ₃ (LAO/LSMO) interfaces
P-29	Martínez B. (2)	Interfacial effects in manganite thin films with different capping layers
P-30	Milan D.C.	Fabrication and Characterization of folded Graphene on Graphite
P-31	Möller	Low temperature optical emission of wurtzite InAs nanowires
P-32	Palau	Incoherent interfaces and local lattice strains in solution-derived YBCO nanocomposites: a novel vortex pinning mechanism
P-33	Perez de Lara D.	Vortex lattice motion induced by alternating forces in superconducting magnetic hybrid nanostructures
P-34	Pérez	Magnetite nanoparticles with bulk like behaviour
P-35	Pinardi	Ordered vacancy network induced by the growth of epitaxial graphene on Pt(111)
P-36	Rivas-Murias	Optimization of the thermoelectric figure of merit through the fabrication of composites
P-37	Romero J J	Effects of agglomeration on nanoparticles properties studied by confocal Raman microscopy
P-38	Rouco	Vortex dynamics in YBCO films with engineered antidots and ferromagnetic nanostructures
P-39	Ruiz	Efecto de Proximidad en bicapas superconductoras de MoSi y Nb
P-40	Salgueiriño	Goethite (α-FeOOH) Nanorods as Suitable Antiferromagnetic Substrates
P-41	Serrano A	Combined surface plasmon resonance and X-ray absorption spectroscopy
P-42	Soriano	Manganese phthalocyanine on metallic surfaces: From Kondo effect to magnetoresistance.
P-43	Alcaire, M.	Soft plasma processing of organic nanowires: a route for the fabrication of 1D
P-44	Álvarez R.	Nanostructure of thin films grown by deposition of isotropically distributed gaseous particles at low temperatures
P-45	Awad A. A.	High frequency matching effects of superconducting Pb films with magnetic vortex periodic pinning
P-46	Baltanás J. P.	Spin waves in magnetic-semiconductor superlattices
P-47	Bartolomé F.	Parimagnetism: Strongly Correlated Paramagnetism in RCo ₂
P-48	Berceanu A. C.	"Dissipation in a coherently driven polariton fluid"
P-49	Cascales J. P.	Magnetic inhomogeneities and spin torque studies by low and high frequency noise in sub-100nm magnetic tunnel junctions
P-50	Castro E. V.	Disorder and Magnetism in Bilayer Graphene

	AUTOR QUE PRESENTA	TÍTULO
P-50	Castro E. V.	Disorder and Magnetism in Bilayer Graphene
P-51	Cros A.	DOPING LEVEL OF GaN:Si NANOWIRES STUDIED BY C-AFM AND PHOTOLUMINESCENCE
P-52	Doblas D.	Efecto magnetocalórico en multicapas Gd/Ti
P-53	Evangelisti M.	Intrinsically-porous materials as trapping media for helium gas:
P-54	Fernandes-Silva L. C.	Photoluminescence of Single ZnOTetrapods
P-55	Fernández A.	Amorphous SiO _x N _y thin films with controlled closed porosity and its effects on refractive index and mechanical properties.
P-56	Fernández J. J.	Time Dependent Density Functional Theory total energy calculations using numerical atomic orbitals
P-57	Ferrer I. J.	Trisulfuro de Titanio (TiS ₃) como material termoelectrico
P-58	Galvez F.	Interferences and modulation of Surface plasmons in thin metallic films
P-59	González J. M.	Epitaxial magnetoplasmonic structures exhibiting enhanced surface-plasmon-polariton wave vector magnetic modulation
P-60	Gosálbez-Martínez D.	Study of the transport properties in two dimensional topological insulators in presence of disorder
P-61	Herranz D.	Low frequency noise due to magnetic inhomogeneities in submicron FeCoB/MgO/FeCoB magnetic tunnel junctions
P-62	Iglesias-Freire O.	MFM characterization of double-vortex metastable state in circular Permalloy dots
P-63	Ingale B.	Magnetocaloric effect in Fe ₇₇ Co _{5.5} Ni _{5.5} Zr _{7.2} X ₂ B ₄ Cu ₁ (X = Nb, Hf) soft magnetic amorphous alloys
P-64	Jiménez-Solano Alberto.	Tailored luminescent emission of dyes embedded in porous resonators
P-65	Lara A.	Spin waves along domain walls in triangular and circular Py dots with vortices
P-66	Macías-Montero M.	Supported AgNPs@ZnO Nanorods by low temperature PECVD
P-67	Macías-Montero M. (2)	Growth of SiO ₂ Thin Films by Plasma-Assisted Reactive Magnetron Sputtering Under the Impingement of Positive and Negative Ions
P-68	Martín J.I.	Nanoestructuración de Láminas Magnéticas mediante Copolímeros en Bloque Auto-Organizados
P-69	Mestres Narcís.	Oriented epitaxial growth of ferromagnetic LaSr-2x4 manganese oxide molecular sieve nanowires
P-70	Moya C.	Co-ferrite nanoparticles with spin glass-like surface shell
P-71	Otero Lorenzo Ruth.	Synthesis of magnetic composites through controlled aggregation of nanoparticles using an autoclave system
P-72	Oulad-Zian Y.	Soft plasma processing of organic nanowires: a route for the fabrication of 1D

	AUTOR QUE PRESENTA	TÍTULO
P-73	Paradinas Markos.	properties
P-74	Queraltó A.	Very fast growth of functional oxide thin-films and nanostructures prepared by Chemical Solution Deposition
P-76	Romero J.J.	Observation of ferroelectric domains in lead free piezoelectric materials by confocal Raman microscopy
P-77	Romero-Muñiz C.	Influencia de las interacciones entre fases en el efecto magnetocalórico de composites
P-78	Sánchez-Jiménez P.E.	Mechanochemistry as a method for the synthesis of multiferroic materials
P-79	Frontera C.	Effect of cationic order and origin of the dielectric anomalies in La ₂ MnCoO ₆ .





GEFESevilla

VII Reunión Grupo Especializado de Física de Estado Sólido

eventisimo
PROFESSIONAL CONGRESS ORGANISER
www.eventisimo-pco.com

OFICINA CENTRAL

tel: 902 101 390 - Fax: 955 601 527

info@eventisimo-pco.com

www.eventisimo-pco.com

Patrocinadores:



MINISTERIO
DE EDUCACIÓN
Y CIENCIA



CSIC

