

THE WORKSHOPS

DIPC facilitates the exchange of information and establishment of new creative research collaborations between attending scientists.

2004/05

1ST NANOSPAIN WORKSHOP 104

III REUNIÓN NACIONAL DE FÍSICA DEL ESTADO SÓLIDO 110

INTERNATIONAL WORKSHOP:
PHOTONIC AND ELECTRONIC MATERIALS 116

MOLECULE SURFACE INTERACTIONS:
ELEMENTARY REACTIVE PROCESSES. 120

2004/05

POLYMER-BASED COMPLEX SYSTEMS WORKSHOP 124

DYNAMICS OF POLYMER BLENDS WORKSHOP. 128

SUMMER SCHOOL ON METAMATERIALS FOR
MICROWAVE AND OPTICAL TECHNOLOGIES. 130

WORKSHOP IN HONOR OF ANTOINE SALIN:
RECENT ADVANCES ON THE DYNAMICS OF
ATOMIC AND MOLECULAR PARTICLES INTERACTING
WITH GAS AND SOLID TARGETS 134

1ST NANOSPAIN WORKSHOP

MARCH 10-12, 2004

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During the last two decades, a revolutionary scientific new age, based on the capacity to observe, characterize, manipulate and organize matter in the nanometric scale, is appearing. In this scale, physics, chemistry, materials science, computational theory, and engineering converge towards the same theoretical principles and experimental findings that are basically governed by the laws of Quantum Mechanics. Nanotechnology involves these interdisciplinary knowledge areas and methodologies in order to study, manufacture and characterize functional structures with dimensions of tens of nanometers.

The three year-old NanoSpain network aims to agglutinate and coordinate the efforts made in the field of Nanotechnology by Spanish groups from universities, research institutes and companies. Moreover, this network has tried to help the government institutions in defining potential actions and plans referring to this area. Currently, the NanoSpain network, comprised of 111 Spanish groups with nearly 400 researchers in total, is one of the largest Spanish scientific networks.

As a direct and most effective way to enhance the interaction between network members, the first meeting of NanoSpain has been organised. Its objective is to facilitate the dissemination of knowledge and promote interdisciplinary discussions among the different NanoSpain groups. In order to organise the various sessions and to select contributions, the meeting has been structured in the following thematic lines, but interactions among them will be promoted:

- MEMS/NEMS
- Nanobiology
- Nanomaterials
- Nanochemistry
- Nanoelectronics
- Scanning Probe Microscopies (SPM)
- Scientific Policy and Infrastructure
- Simulation at the nanoscale

Another objective of this meeting was to consider the state of Nanotechnology in Spain, as well as in reaching conclusions concerning the future of the NanoSpain network, in order to guarantee its continuity by means of concrete proposals and a renovation of its structures.

This event receives funding from Donostia International Physics Center (DIPC) and the Spanish Ministry of Science through the following two networks:

- Red Española de Nanotecnología (NANOSPAIN)
Funding Agency: Ministerio de Ciencia y Tecnología — Acción Especial (MAT2001-5411-E)
- Red Nacional de Investigadores en Nanociencias: Metodologías Experimentales y Teóricas (NANOCIENCIA)
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CONTRIBUTIONS

<i>J. Brugger</i>	Mems-based nanopatterning and nems
<i>J. Bausells</i>	Fabrication of micro/nano electromechanical devices in silicon
<i>J. Gonzalez</i>	Smco hard magnetic films for mems devices
<i>C.A. Mills</i>	Nanopatterning of polymer surfaces for biomedical applications
<i>M. Aguirregabiria</i>	Novel 3d embedded microfluidic channels for biomems applications
<i>S. Yaliraki</i>	Controlling self-assembled architectures for optimal molecular electronic devices
<i>M.J. Caturla</i>	Modeling material behavior at the nanoscale using molecular dynamics: nanocrystals and nanocontacts
<i>J.I. Cerdá</i>	An stm study of water on pd(111):experiment and theory
<i>M. Machado</i>	Distance dependent standing wave pattern induced by a benzene molecule adsorbed on a cu(111) surface
<i>J.J. Sáenz</i>	Electrostatic forces in scanning probe microscopy: quantitative analysis of the electrostatic signal in nanowires

<i>J. Barth</i>	Engineering supramolecular nanosystems at surfaces
<i>J.A Alonso</i>	Interaction of hydrogen with carbon nanotubes
<i>D.B. Amabilino</i>	Self-assembly of components for nanometerscale molecular electronics—tetrathiafulvalene monolayers studied by stm
<i>M. Clemente-León</i>	Nanostructured hybrid molecular materials
<i>J.V. García-Ramos</i>	Raman and infrared spectroscopy on nanostructured metal surfaces (sers and seir) of extremely dispersed or isolated molecular systems
<i>M.Victoria Martinez</i>	Towards metallophthalocyanine-based molecular materials with electronic and optoelectronic properties
<i>B. Onoa</i>	Nucleic acids: tools and targets in nanotechnology
<i>R. Eritja</i>	Assembly of nanomaterials directed by oligonucleotide derivatives
<i>I. Katakis</i>	Site directed immobilisation of biorecognition nanomodules for biochips
<i>I. Casuso</i>	Advances towards the development of scanning probe microscopy for the electrical characterisation of biological samples
<i>M. Vazquez</i>	National strategic action plan of nanotechnology
<i>M. Miles</i>	Developments in spm for nanotechnology
<i>A.M. Baró</i>	Characterization by atomic force microscopy of biological material under physiological conditions
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<i>F. Pérez Murano</i>	Measurement of electrical current during scanning probe oxidation
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<i>B. Garrido</i>	Development of microphotonic devices based on nanocrystalline silicon
<i>J. Fernández-Rossier</i>	Ferromagnetism in diluted magnetic semiconductor single electron transistor
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<i>D. Ruiz-Molina</i>	Multiple length scale patterning of single-molecule magnets

<i>EJ. García de Abajo</i>	Excitacion of surface plasmon and cherenkov modes by fast electrons
<i>J. Esquena</i>	Preparation of mesoporous silica templated in highly concentrated emulsions
<i>J. Bartolomé</i>	Anomalous low-temperature behavior of switching fields in fe nanowires
<i>P. Gomez-Romero</i>	Hybrid nanocomposite materials for energy storage and conversion applications
<i>R. Miranda</i>	Magic heights in pb nanodots induced by quantum size effects
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<i>P. Van-Hove</i>	Advanced research in nanotechnology information devices and nanoelectronics: contribution of ec programmes
<i>C. Domínguez</i>	Facilities expansion for nanoand micro fabrication at the imb-cnm.
<i>E. Prieto</i>	The metrological infrastructure and the “nano” world
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<i>M.A. Cazalilla</i>	Strongly correlated atoms in two-dimensional optical lattices
<i>J.J. Sáenz</i>	Photonic liquids
<i>L.A. Blanco</i>	Control of spontaneous emission by means of nanostructures
<i>B. Garrido</i>	Electroluminescence, optical memories, and optical amplification from nanostructured group iv semiconductors: towards integration of photonic devices with si technology

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III REUNIÓN NACIONAL DE FÍSICA DEL ESTADO SÓLIDO

JUNE 2-4, 2004

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Following the tradition of the two previous meetings (Madrid, 2000 and Calella, Barcelona, 2002) the third national conference of the Condensed Matter Group ("Grupo Especializado de Física del Estado Sólido", GEFES) of the Spanish Royal Physical Society was organized in San Sebastian in June 2004. The general aim of these series of meetings is to put together Spanish people working in the different areas of condensed matter physics and related topics. On the other hand, these meetings try to offer young researchers the opportunity of presenting their work in a frank atmosphere and to have plenty of time for discussions with senior and established scientists

CONTRIBUTIONS

D. Richter **Neutrons in Soft Matter Science**

J. Fernández Rossier **Control eléctrico de nano-imanés semiconductores**

A. Masquaraque **Ondas de densidad de carga en sistemas de baja dimensionalidad**

A. Palau **Corriente percolativa y anclaje de vórtices en cintas superconductoras de $\text{Yb}_2\text{Cu}_3\text{O}_7$**

F. Pérez Murano **Fabrication of mechanical devices**

S. Arrese-Igor **Estudio de la dinámica de los anillos fenileno de la polisulfona vítrea mediante dispersión de neutrones: escalas micro y mesoscópica**

A. Hdez. Vozmediano **Local defects and ferromagnetism in graphite**

F. Rivadulla **Segregación de fases en manganitas: ¿un sistema de partículas interaccionantes?**

F. Mesguer **Colloidal crystals as photonic crystals**

T. Ezquerra **Fenómenos de ordenamiento en sistemas poliméricos investigados mediante técnicas de relajación dieléctrica**

L.M. Liz Marzán **Nanocilindros metálicos, formación, propiedades ópticas y estructuración**

O. Fesenko **Simulation of switching properties of Fe Pt/Fe Rh films for heat-assisted magnetic recording application**

I. Fernández Barquín **Interacciones indirectas y dipolares en aleaciones nanométricas de Fe-Cu-Ag**

M. Salmerón **The structure of surfaces in thermodynamic equilibrium with high pressure environments**

A. Bergara **Aleaciones metálicas de hidrógeno, ¿posibles superconductores de alta temperatura?**

J. Villegas **Superconductores nanoestructurados artificialmente: la dinámica de vórtices bajo control**

J. Stankiewicz **Interrelación entre transporte electrónico y magnetismo en aleaciones intermetálicas**

A. Asenjo **Microscopía de fuerzas magnéticas**

M.D. Martín **Hacia la condensación de polaritones en microcavidades de semiconductor**

J. Gil Sevillano **Efectos de tamaño en plasticidad cristalina**
Mesa Redonda:
"Trends and Interdisciplinarity in condensed matter physics"
moderado por P.M. Echenique, con la participación de M. Salmerón, J. Tejada y M. Vázquez.

J. García **Radiación de sincrotrón: Dispersión Resonante de Rayos X.**

J.L. García Muñoz **Separación de fases y localización electrónica en óxidos: complementariedad de la difracción sincrotrón y de neutrones.**

C. Tejedor **Usando puntos cuánticos para hacer óptica cuántica**

A. Baró **Microscopías de proximidad y microscopía electrónica**

B. Martínez **Ferromagnetism in wide bandgap semiconductors: Co-doped ZnO particles**

D. Ruiz Molina **Multiple length scale patterning of single molecule magnets**

A. Arnau **Forma atómica e inversión de contraste en imágenes STM**

J.G. Rodrigo **Estudio de la superconductividad multibanda en NbSe_2 mediante STM con punta superconductora**

M.J. Caturla **Modelización de materiales irradiados y nanoestructuras**

A. Postigo **Fabrication and characterization of 2D photonic crystals in GaInAsP/InP semiconductor laser heterostructures**

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INTERNATIONAL WORKSHOP: PHOTONIC AND ELECTRONIC MATERIALS

JUNE 14-16, 2004

Organizers

Prof. R. Balda (Universidad del País Vasco/Euskal Herriko Unibertsitatea, Spain)
Prof. J. Fernández (Universidad del País Vasco/Euskal Herriko Unibertsitatea, Spain)
Prof. P.N. Prasad (University at Buffalo, The State University of New York, USA)

Advisory Committee

Prof. G. Boulon (Claude Bernard Lyon I Université, France)
Prof. P. Günter (ETH-Zürich, Switzerland)
Prof. S. John (University of Toronto, Canada)
Prof. D. Levy (ICMM, CSIC, Spain)
Prof. F. Meseguer (Universidad Politécnica de Valencia-CSIC, Spain)
Prof. M. Nieto-Vesperinas (ICMM, CSIC, Spain)
Prof. K. Ueda (Institute for Laser Science, University of Electro-Communications, Japan)
Prof. W.M. Yen (University of Georgia, USA)

In the last years a wide variety of research activities linked with the interaction between light and matter have developed important applications in fields such as telecommunications, information technology, medical diagnostics and treatment, environment control etc. Among all the applications for the foreseeable future, those based on the non linear optical properties of matter are specially promising. Moreover, science and technology breakthroughs in the 21st Century are more likely to occur at the interface of disciplines. Recently much interest has been focused on Biophotonics defined as the interface of photonics and biological sciences. It is a new frontier, offering tremendous prospects for optical diagnostics as well as light activated therapy, surgery, biosensing, and restoration of biological functions. The demand for suitable materials (optical storage systems, systems with artificial non linearities, multipolar structures, new waveguides, photonic bandgaps, rare earth activated nano crystals, activated fibers...) and new techniques for detection in these fields are continuously growing.

The purpose of this workshop was to gather researchers from crossed fields and horizons (universities, laboratories and industries), to provide a much needed forum for the critical assessment and evaluation of recent developments in photonic materials (inorganic, organic, polymeric, biological,...) and molecular devices. It also gave the participants insight on future advances and research possibilities in these fields and an opportunity for starting fruitful collaborations.

CONTRIBUTIONS

<i>P. N. Prasad</i>	Emerging opportunities in Nanophotonics and Biophotonics
<i>P. Fleitz</i>	Understanding the photophysics of two-photon absorbing materials
<i>J. Ripoll</i>	Non contact optical tomography for 3D imaging in tissue
<i>P. Günter</i>	DAST crystals and thin films for electro-optics and THz generation
<i>T. Kaino</i>	Fabrication of polymer optical waveguides using soft-lithography
<i>D.R. Evans</i>	Understanding and eliminating photovoltaic induced instabilities during contra-directional two-beam coupling in photorefractive LiNbO₃:Fe
<i>I. Ledoux</i>	Multifunctional molecular materials and nanostructures for optical signal processing
<i>D. Levy</i>	Electrooptical properties of gel-glass dispersed liquid crystals (GDLCs) devices by chemical modification of hybrid silica/liquid crystal interfaces
<i>J. L. Serrano</i>	Supramolecular organizations based on liquid crystals for molecular electronic applications
<i>J. Martorell</i>	Counter-propagating nonlinear interaction in photonic structures
<i>V. M. Orera</i>	Novel photonic materials made from ionic eutectic compounds
<i>E. J. García de Abajo</i>	Multiscale metamaterials
<i>S. John</i>	Photonic band gap materials: Semiconductors of light
<i>E. Meseguer</i>	Sonic crystals and new phenomena in periodic systems
<i>C. López</i>	Materials aspects of opals as photonic crystals for devices
<i>W.M. Yen</i>	General factors governing the efficiency of luminescence devices
<i>G. Boulon</i>	Optical spectroscopy, concentration quenching mechanisms and theoretical approach of laser performances in Yb³⁺-doped oxide garnets
<i>H. U. Güdel</i>	New upconversion light emitting materials
<i>K. Ueda</i>	Ceramics lasers, today and future
<i>B. Di Bartolo</i>	Upconversion dynamics in Pr-doped YAG and YAlO₃ laser crystals
<i>F. Auzel</i>	Powder Lasers: Stimulated amplification versus super-radiance
<i>N.P. Barnes</i>	Compositionally tuned lasers practical lasers at designer wavelengths
<i>D. Vivien</i>	Ytterbium activated materials: New opportunities for solid-state lasers

<i>R.M. Almeida</i>	Novel glassy and nanocrystalline photonic materials
<i>G.C. Righini</i>	Integrated optical amplifiers and microspherical lasers based on erbium-doped oxide glasses
<i>J.-L. Adam</i>	Non-oxide photonic glasses and waveguides
<i>L. Viña</i>	Non-linear effects in the ultrafast emission from semiconductor microcavities
<i>G.M. Turner</i>	Small animal imaging with fluorescence tomography

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MOLECULE SURFACE INTERACTIONS: ELEMENTARY REACTIVE PROCESSES

SEPTEMBER 7-11, 2004

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Reactivity at gas-solid interfaces plays a fundamental role in a large number of natural processes: heterogenous catalysis, atmospheric reactions, interstellar matter, biological or geological media. Recently, reactivity studies have greatly benefited from the development of individual atom, molecule or radical manipulation and reaction control on surfaces. The latter technique allows to pilot step by step chemical reactions, to observe elementary reactions in real time, to construct nanostructured catalysts, etc. Molecular beams allow to simulate elementary steps in catalytic processes like the formation and stabilization of reactive radicals or direct reactions between adsorbates and atoms/molecules of the gas phase. On the other hand, theoretical methods for the determination of the electronic structure of adsorbates on surfaces have reached the point where they are able to deal with complex situations, like the determination of reactive paths, even when the latter involve defects or local modifications of the surface. The concerted theoretical and experimental approach has proven to be very successful for the elucidation of elementary microscopic reaction steps of molecules at surfaces. In this workshop, the current state of the art in both theory and experiment was reviewed and promising new developments discussed.

CONTRIBUTIONS

- A. Kley* **Reactive processes at the surfaces of a fusion reactor**
- R. Beck* **State resolved studies of molecule- Surface reaction dynamics**
- G. Sitz* **State resolved studies of the scattering of D₂ and HD from Pd(111)**
- M. Rocca* **Stereodynamics of hydrocarbon adsorption at Ag surfaces**

- K.H. Rieder* **STM control of chemical reactions**
- N. Lorente* **Inducing controlled atomic dynamics by an electron current**
- H. Ueba* **Theory of inelastic tunneling and its relation to vibrational excitation in ladder climbing process of single adsorbates**
- C. Corriol* **Role of surface geometry and electronic structure in STM images of O/Ru(0001) surfaces**
- E. Zaera* **Selectivity in catalysis explained by the mechanisms of surface reactions**
- L. Savio* **Adsorption dynamics of simple molecules at surfaces with well defined defects: O₂ and C₂H₄/Ag(n10)**
- B. Hayden* **Dissociation dynamics on stepped metal surfaces**
- R. Olsen* **Why rough surfaces make good catalysts?**
- A. Dianat* **Hydrogen dissociation dynamics on transition metal surfaces**
- W. Dong* **Trapping, molecular adsorption and precursors for nonactivated chemisorption**
- U. Hofer* **Angular and vibrational dependent dynamics of hydrogen adsorption on Si (001)**
- A. Luntz* **How adiabatic is activated adsorption?**
- H. Nienhaus* **Electronic excitations by reactive particle-surface interaction**
- M. Persson* **Electronically, non-adiabatic processes in molecule-surface interactions**
- K. Reuter* **The steady-state of heterogeneous catalysis, studied by first principles statistical mechanics**
- A.C. Kummel* **Anisotropic angular distributions of ejected Cl atoms from the abstractive chemisorption of Cl₂ on Al(111)**
- J. Manson* **Scattering of molecules by surfaces**
- F. Martin* **Reflection and dissociation of H₂ and D₂ molecules on Pd and NiAl surfaces**

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POLYMER-BASED COMPLEX SYSTEMS WORKSHOP

JANUARY 24-25, 2005

Organizers

Donostia International Physics Center, Spain

Forschungszentrum Jülich, Germany

Prof. J. Colmenero (Universidad del País Vasco / Euskal Herriko Unibertsitatea, Spain)

The SoftComp Area 4 meeting "Polymer-based complex systems workshop" was the first of the periodic meetings of the SoftComp network focused on the topic covered by this area.

CONTRIBUTIONS

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Welcome and General information about SoftComp

W. J. Briels

Coarse Graining of Polymer Melts

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Molecular Stretching in Polymer Melts undergoing steady elongational flow

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An interplay of SANS and Rheological Relaxation Data in Deformed Melts

J. Claracq

Tailoring Polymer Topology for Improved Melt Strength

A. Alegria

Segmental Dynamics in Polymer Blends by Broad Band Dielectric Spectroscopy

J. Colmenero

Segmental Dynamics in Polymer Blends by Quasielastic Neutron Scattering

A. Wischnewski and M. Zamponi

Microscopic dynamics in Polymer Systems investigated by Neutron Spin Echo Spectroscopy

A. Likhtman

Search for the Fundamental Model of Entanglements

N. Inkson

Structural Architecture of Branched Polymers and Processing Modeling

P. J. Hine

Understanding the links between structure and properties in 2 phase polymer composites

T. C. B. McLeish

Predictive Rheology of Highly-Branched Polymer Ensembles

D. Vlassopoulos

Studies of the dynamics of complex polymer systems

R. Tuinier

Phase behaviour of dispersions of spheres and stiff chains

R. Zorn

Confinement Effects on the Dynamics of Glass Forming Liquids and Polymers

W. Paul

A Nanobuoy Floating on a Polymer Film

I. Pastoriza-Santos

Nanoparticle-Doped Polydimethylsiloxane Elastomer Films

L. M. Liz-Marzán

Optical Control and Patterning of Gold Nanorod-PVA Nanocomposites Films

J. Oberdisse

Structure of silica aggregates in a soft polymeric matrix by SANS

J. Colmenero

General Information and Discussion: SoftComp MoU and SoftComp Applications

Current Status of Activities: Workpackage 4.1 (Tailoring Rheological and mechanical Properties: A molecular Approach)

Current Status of Activities: Workpackage 4.2 (Reinforcement by Internal Surfaces in Polymer Nanofiller Composites)

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DYNAMICS OF POLYMER BLENDS WORKSHOP

JUNE 2-4, 2005

Organizers

Donostia International Physics Center, Spain

Forschungszentrum Jülich, Germany

Prof. J. Colmenero (Universidad del País Vasco/Euskal Herriko Unibertsitatea, Spain)

Prof. D. Richter (Forschungszentrum Jülich, Germany)

The focus of this workshop was the critical revision of the state of the art and future perspectives regarding the question of the dynamic miscibility in polymer blends. This can be formulated as: How does blending affect the different dynamical processes taking place in a polymer? Especially interesting is the influence on the structural relaxation, process directly related to the phenomenon of the glass transition. Intense scientific activity has been developed during the last two decades to solve this problem from both, theoretical and experimental viewpoints. General consensus on the well established phenomenological observations as well as on the successes and failures of the current theoretical approaches was achieved by the participants, who can be considered as the most recognized scientists currently dealing with this subject worldwide.

CONTRIBUTIONS

J. Colmenero

Dynamics in Miscible Blends: Recent Results and Open Questions

D. Richter

Dynamic Miscibility in Polymer Blends—A Quasielastic Neutron Scattering Approach

C. Lorthoir

Local dynamics in miscible poly(styrene)-poly(vinyl methyl ether) blends below the glass transition temperature: Out of equilibrium dynamics of poly(vinyl methyl ether) segments

J.K. Maranas

An atypical case of blend dynamics: the PEO/PMMA blend

A. Arbe

Quasielastic Neutron Scattering Study on the Effect of Blending on the Dynamics of Head-to-Head Poly(propylene) and Poly(ethylene propylene)

S.K. Kumar

Importance of Concentration Fluctuations in the Dynamics of Miscible Polymer Blends

D. Canghialosi

Thermodynamic approach to describe the component dynamics in miscible polymer blends

K. Adachi

Dielectric Study of Dynamical Heterogeneity in Blends of Polyethers and Interpretation with a Gear Model

M. Ediger

Segmental and Terminal Dynamics in Miscible Blends Containing Polyisoprene or Polystyrene.

J. Haley

Dynamics in miscible polymer blends: the relationship—or lack thereof—between global and local motions

M. Roland

A Description of the Dynamics in Miscible Blends based on the Coupling Model

G. Fytas

Rich Dynamics in Diblock Copolymers

G. Floudas

Effects of pressure on blend dynamics

E. Leroy

Modelling the dynamics of polymer blends: Direct and inverse problems, and the importance of experimental Tg measurements

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SUMMER SCHOOL ON METAMATERIALS FOR MICROWAVES AND OPTICAL TECHNOLOGIES

JULY 18-20, 2005

Organizers

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Metamaterials constitute artificial media that are structured in order to sustain electromagnetic properties that are not available in nature. This summer school intends to provide the attendants with a global understanding of the state-of-the-art of this area of research. This goal will be realized by means of invited talks given by internationally renowned researchers, as well as by active participation of young researchers, who will have the opportunity to present their achievements within activities specifically targeted for them. Furthermore, we intend to stimulate the relationship between basic research and industry that such excellent results is producing in telecommunications and information technologies.

CONTRIBUTIONS

<i>V.G. Veselago</i>	Some remarks to electrodynamics of materials with negative refraction
<i>J.B. Pendry</i>	Towards a road map for negative index materials
<i>V.M. Shalaev</i>	Optical negative index materials
<i>N. Yamamoto</i>	Light emission by surface plasmon on metal nanostructures induced by high energy electrons
<i>A.G. Schuchinsky</i>	Surface plasmons in layered semiconductor dielectric structures
<i>P. Haring Bolivar</i>	Terahertz time-domain characterization techniques applied to metamaterial analysis
<i>J.C. Vardaxoglou</i>	Metalodielectric EBG Surfaces: Miniaturisation, tenability and antenna applications
<i>P. de Maagt</i>	Electromagnetic bandgap antennas and components for microwave and submillimetre wave applications
<i>M. Sorolla</i>	Antennas based upon enhanced microwave transmission

<i>T. Taubner</i>	Nanomechanical resonance tuning in optical near field interaction
<i>A.K. Iyer</i>	Negative-refractive-index transmission-line metamaterials and applications
<i>B. Jecko</i>	Overview of the EBG Resonator Antenna
<i>S. John</i>	Photonic band gap materials: Engineering the fundamental properties of light
<i>C. López</i>	Wealth of materials and functionalities for composite opals
<i>K. Guven</i>	Development and analysis of metamaterials with negative index of refraction
<i>G.W. Bryant</i>	The nanooptics of coupled metallic nanoparticles
<i>P. Johansson</i>	Quantum optics treatment of surface-enhanced raman scattering and fluorescence
<i>J. Pérez Juste</i>	Gold nanorods: Properties and structuration
<i>C.M. Soukoulis</i>	Negative index materials: New frontiers in optics
<i>L. Martín Moreno</i>	Wave transmission through apertures assisted by surface states
<i>A. Rubio</i>	Optical properties of nanostructures and biomolecules from first principles
<i>J.J. Sáenz</i>	Unusually strong optical interactions between particles in a waveguide

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WORKSHOP IN HONOR OF ANTOINE SALIN:
**RECENT ADVANCES ON THE
 DYNAMICS OF ATOMIC AND
 MOLECULAR PARTICLES INTERACTING
 WITH GAS AND SOLID TARGETS**

OCTOBER 24-25, 2005

Organizers

Prof. A. Arnau (Universidad del País Vasco/Euskal Herriko Unibertsitatea, Spain)

Dr. H.F. Busnengo (Universidad de Rosario, Buenos Aires)

Dr. C. Crespos (Universite de Bordeaux, France)

Dr. R. Diez Muino (Unidad de Física de Materiales, CSIC, Spain)

Prof. P.M. Echenique (Donostia International Physics Center and Universidad del País Vasco/Euskal Herriko Unibertsitatea, Spain)

As an expression of respect and gratitude to the scientific career of Antoine Salin, and due to his recent retirement, a scientific workshop was held in Donostia - San Sebastian at the end of October. The workshop included several sessions on different hot topics of active research in the fields of gas-surface dynamics, atomic collisions in the gas and solid phases, and other related subjects.

C O N T R I B U T I O N S

ION-SOLID INTERACTIONS

P. Bauer **Electronic stopping of slow hydrogen ions in metals and insulators**

J.E. Miraglia **Plasmon decay mechanisms in proton metal collisions**

V.H. Ponce **Convoy electrons: from ion-atom to ion-surface collisions**

G. Schiwietz **Auger spectroscopy for short-time ion-solid interactions**

J. García de Abajo **Electron energy loss as a probe of photonic structures**

ATOMIC AND MOLECULAR PHYSICS

P.N. Abufager **Single electron capture involving multielectron atomic targets**

M. Yáñez **On the existence and lifetimes of complexes between neutral systems and indications**

R.D. Rivarola **Coherent electron emission from molecular targets**

P.D. Fainstein **Photoionization of the hydrogen molecular ion: angular distributions and interference effects**

GAS—SURFACE DYNAMICS

R. Olsen **Why rough surfaces make good catalysts—reaction mechanisms of hydrogen on the Pt(211) stepped surface**

R. Sayós **DFT and classical dynamics study of atomic oxygen interaction on β -cristobalite (100)**

G.-J. Kroes **The electronically adiabatic approach to diffractive and reactive scattering of H₂ from metal surfaces**

A. Gross **Adsorption dynamics at surfaces including energy transfer to the substrate**

C. Díaz **Dissociative chemisorption of N₂ on Ru(0001)**

A. Salin **Structure—reactivity relation in N₂ dissociation on W surfaces**

GAS—SURFACE DYNAMICS

P. Rivière **Interaction of H₂ and D₂ with NiAl(110)**

W. Dong **Solute transfer from micelles to a bilayer adsorbed on a hydrophilic solid surface**

ELECTRON DYNAMICS

D. Vernhet **Dynamics of laser-cluster interaction probed by X-ray spectroscopy**

J.-P. Gauyacq **Core-excited Ar*(2p-13/2 nl) atoms in various environments: surfaces and bulk**

D. Sánchez-Portal **Charge transfer at surfaces: the case of Ar and S on Ru(0001)**

CHEMICAL REACTIVITY

J.C. Rayez **The statistico-dynamical approach: a transition state theory revisited**

P. Larrégaray **Validity of phase space theory for atom-diatom insertion reactions**

L. Bonnet **Gaussian weighting in the quasiclassical trajectory method**

GAS—SURFACE DYNAMICS

V. Sidis **The interaction and recombination of H atoms at a graphite surface**

M. Rocca **Role of rotational alignment in gas-surface interactions and simple chemical reactions**

E. Martín **Diffraction and reactivity of H₂ molecules on Pd surfaces**

V.H. Ponce **Concluding remarks**

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