

# THE SEMINARS

DIPC offers a full program of seminars by acclaimed authorities in the field.

2004/05

Y. Moreno Vega	A. Howie
D. Farias Tejerina	N. Yamamoto
I. Egusquiza	E. Artacho
M. Verstraete	M. Trioni
M.A. Casalilla	M. Puska
G. Gómez Santos	V.N. Strocov
A. Modinos	L. Lechuga
C. Díaz Blanco	S. Molodtsov
J.J. Sáenz Gutierrez	N. Lorente
X. Obradors	A. Planes
C. Rillo	J. Baumberg
A. Galindo	D. Vyalikh
E. Ogando	T. Teperik
W.A. Hofer	
J. Pendry	
P. Hofmann	
B.S. Mun	
H. Koh	
F. Flores Sintas	
J.D. Fuhr	
S. Erenev	
R. Hillenbrand	
C. Crespos	
G.W. Bryant	
S. Shabanov	
M. Káll	
U. Höfer	

2004/05

J.A. Sánchez-Gil	G. Bihlmayer
R. Jansen	M.J. Cabrera San Félix
A. Postnikov	C. Vallés Callizo
S. Roche	N.W. Aschroft
J.O. Fjaerestad	D. Vaknin
M.A. Casalilla	A.J. da Silva
B. Gumhalter	S. Capponi
W. Jaskólski	L. Kuipers
C. Laubschat	C. Fadley
M. Silvia Gravielle	A. Griffin
H. Schwarz	E. Zaremba
A.C. Genix	J. P. Gauyacq
J.I. Pascual Chico	A. Fernandez Rañada
E. Mena-Osteritz	R. Bergman
J. Pendry	M. Puska
H. Petek	G. Darling
C. Ambrosch-Draxl	K. Starke
J. García de Abajo	P. Lazic
U. Heinzmann	R. Quirk
	P. López Sancho
	R. Lund
	C. Balbas Ruesgas
	A. Seitsonen
	J. Bartos

JANUARY 15, 2004

**Complex networks in nature: structure and application***Y. Moreno Vega* (Universidad de Zaragoza, Spain)

JANUARY 16, 2004

**Phonon softening, chaotic motion and order-disorder transition in Sn/Ge(111)***D. Farias Tejerina* (Universidad Autónoma de Madrid, Spain)

JANUARY 23, 2004

**Time in quantum mechanics***I. Egusquiza* (Universidad del País Vasco / Euskal Herriko Unibertsitatea, Spain)

JANUARY 29, 2004

**Interactions between carbon and transition metal elements***M. Verstraete* (PCPM, Louvain-la-Neuve, Belgium)

JANUARY 30, 2004

**News and promises from NanoKelvinLand: Strongly correlated ultracold atoms***M.A. Cazalilla* (ICTP Trieste, Italy)

FEBRUARY 6, 2004

**Wave propagation in left-handed systems***G. Gómez Santos* (Universidad Autónoma de Madrid, Spain)

FEBRUARY 11, 2004

**Photonic and phononic crystals***A. Modinos* (National Technical University of Athens, Greece)

FEBRUARY 20, 2004

**Can we study H<sub>2</sub>/Pd(111) interactions using classical dynamics?***C. Díaz Blanco* (Universidad Autónoma de Madrid, Spain)

FEBRUARY 24, 2004

**Light-induced resonant forces between particles in a waveguide***J.J. Sáenz Gutiérrez* (Universidad Autónoma de Madrid, Spain)

MARCH 4, 2004

**Superconductividad: Nuevos retos para el siglo XXI***X. Obradors* (ICMB-CSIC, Spain)

MARCH 26, 2004

**Electrical quantum metrology***C. Rillo* (CSIC-Universidad de Zaragoza, Spain)

MAY 6, 2004

**Quantum information with applications to teleportation, cryptography and computation***A. Galindo* (Universidad Complutense de Madrid, Spain)

MAY 7, 2004

**Quantum size effects in Pb thin films on Cu(111): Electronic-structure calculations***E. Ogando* (Universidad del País Vasco/Euskal Herriko Unibertsitatea, Spain)

MAY 11, 2004

**Quantum information with applications to teleportation, cryptography and computation***A. Galindo* (Universidad Complutense de Madrid, Spain)

MAY 12, 2004

**Towards real-time high-resolution STM analysis: Eyes for technology on the nanoscale***W.A. Hofer* (University of Liverpool, UK)

MAY 13, 2004

**Quantum information with applications to teleportation, cryptography and computation***A. Galindo* (Universidad Complutense de Madrid, Spain)

MAY 14, 2004

**Recent results on materials with negative refraction index***J. Pendry* (Imperial College, London, UK)

MAY 19, 2004

**Some unresolved problems in electron spectroscopy from graphite***P. Hofmann* (University of Aarhus, Denmark)

MAY 20, 2004

**A study of the electronic structure of Pd thin films on Re(0001) and Pt(111) by high-resolution core level and valence band photoemission***B.S. Mun* (Lawrence Berkeley National Laboratory, California, USA)

MAY 20, 2004

**Angle-resolved photoemission spectroscopy and its application to ultra-thin In and Pb overlayers on Si(111)***H. Koh* (Lawrence Berkeley National Laboratory, California, USA)

MAY 20, 2004

**Quantum information with applications to teleportation, cryptography and computation***A. Galindo* (Universidad Complutense de Madrid, Spain)

MAY 21, 2004

**Nanowires: from breakjunction contacts to step-edge decorated lines***F. Flores Sintas* (Universidad Autónoma de Madrid, Spain)

MAY 25, 2004

**Quantum information with applications to teleportation, cryptography and computation***A. Galindo* (Universidad Complutense de Madrid, Spain)

JUNE 1, 2004

**Quantum information with applications to teleportation, cryptography and computation***A. Galindo* (Universidad Complutense de Madrid, Spain)

JUNE 11, 2004

**Electronic structure of point defects on the MoS<sub>2</sub>(0001) surface***J.D. Fuhr* (CRMCN-CNRS, Marseille, France)

JUNE 14, 2004

**Phonons in alkali metals adlayers on aluminium surfaces***S. Erenev* (Institute of Strength Physics and Materials Sciences, Tomsk, Russia)

JUNE 17, 2004

**Scattering-type near-field microscopy for optical /infrared nanoanalytics***R. Hillenbrand* (Max-Planck Institut, Martinsried, Germany)

JUNE 28, 2004

**Dynamics of gas-surface reactions: theoretical study of H<sub>2</sub> dissociation on Pd(111) surface***C. Crespos* (Laboratoire de Physico-Chimie Moléculaire, Bordeaux, France)

JULY 9, 2004

**Lighting the nanoworld***G.W. Bryant* (National Institute of Standards and Technology, Gaithersburg, USA)

JULY 23, 2004

**On pseudospectral methods of solving maxwell's equations for passive media***S. Shabanov* (University of Florida, USA)

JULY 30, 2004

**Nanoplasmonics and single molecule spectroscopy***M. Käll* (Chalmers University of Technology, Gotheborg, Sweden)

SEPTEMBER 6, 2004

**Time-resolved two-photon photoemission of Ar/Cu interface states***U. Höfer* (Philipps- Universität Marburg, Germany)

SEPTEMBER 15, 2004

**Recent progress and further opportunities for spatially localised spectroscopy***A. Howie* (Cavendish Laboratory, Cambridge, UK)

SEPTEMBER 7, 2004

**Electron beam induced light emission from surface plasmon on metallic photonic crystals***N. Yamamoto* (Tokyo Institute of Technology, Japan)

SEPTEMBER 26, 2004

**A condensed matter physicist in an earth sciences department***E. Artacho* (University of Cambridge, UK)

OCTOBER 27, 2004

**Theory of metastable deexcitation spectroscopy on simple metals: Ab initio versus approximate approach***M. Trioni* (Università di Milano-Bicocca, Italy)

November 4, 2004

**Light-induced resonant forces between particles in a waveguide***J.J. Saenz Gutierrez* (Universidad Autónoma de Madrid, Spain)

November 4, 2004

**Two-dimensional electron gas in quantum dots under high magnetic fields***M. Puska* (Helsinki University of Technology, Finland)

November 9, 2004

**Dispersions and lifetimes of photoemission final states by very-low-energy electron diffraction (VLEED) implications for photoemission band mapping in 3D k-space***V.N. Strocov* (S.P. Scherrer Institute, Switzerland)

November 9, 2004

**Integration of micro/nanotechnologies with nanobiotechnology: fully-operated biosensing platforms***L. Lechuga* (Centro Nacional de Microelectrónica (CNM)-CSIC Madrid, Spain)

NOVEMBER 19, 2004

**Electronic structure of regular bacterial surface layers***S. Molodtsov* (Technische Universität, Dresden, Germany)

NOVEMBER 23, 2004

**Metallic and semimetallic nanometer-wide silicon nanowires***N. Lorente* (Université Paul Sabatier, France)

NOVEMBER 25, 2004

**Extended first-order transitions in solids: A new view***A. Planes* (Universidad de Barcelona, Spain)

DECEMBER 2, 2004

**Chameleon metals: Photonic nanostructures from self-assembly***J. Baumberg* (University of Southampton, UK)

DECEMBER 16, 2004

**Quantum Well States in bilayers of Ag and Au metals***D. Vyalikh* (Technische Universität Dresden, Germany)

DECEMBER 16, 2004

**Void plasmons and total absorption of light on nanoporous surface of metal***T. Teperik* (Institute of Radio Engineering and Electronics, Russian Academy of Sciences, Russia)

JANUARY 26, 2005

**Surface plasmon photonics on surfaces with sub-wavelength structures:  
From nano-optics on metals to THz waves on semiconductors***J.A. Sánchez-Gil* (Instituto de Estructura de la Materia, CSIC, Spain)

JANUARY 28, 2005

**Spin-transport in semiconductor/ferromagnet hybrid structures***R. Jansen* (University of Twente, Enschede, The Netherlands)

JANUARY 31, 2005

**Magnetic interactions in molecular magnets***A. Postnikov* (Universitaet Osnabrueck, Germany)

FEBRUARY 23, 2005

**Unconventional mesoscopic transport in carbon nanotubes based materials***S. Roche* (CEA-DSM/DRFMC/SPSMS, France)

FEBRUARY 25, 2005

**Orbital currents and d-density waves in strongly correlated electron systems***J.O. Fjaerestad* (University of Queensland, Australia)

MARCH 7, 2005

**Quasi-1D systems: From 'model' solid state materials to quantum engineering with  
cold fermionic atoms***M.A. Cazalilla* (DIPC, Spain)

MARCH 9, 2005

**Ultrafast electron dynamics and decoherence in surface bands***B. Gumhalter* (University of Zagreb, Croatia)

MARCH 11, 2005

**On peculiar properties of carbon nanotubes***W. Jaskólski* (Institute of Physics Nicholas Copernicus University, Poland)

APRIL 1, 2005

**Correlated electronic structure of rare earth systems***C. Laubschat* (Institut für Festkörperphysik, Germany)

APRIL 15, 2005

**Interference effects in electron capture from insulator surfaces***M. Silvia Gravielle* (Instituto de Astronomía y Física del Espacio, Buenos Aires, Argentina)

APRIL 25, 2005

**Gas-phase catalysis by atomic cluster metal ions: The ultimate single-site catalysts***H. Schwarz* (Technische Universität Berlin, Germany)

APRIL 28, 2005

**The Dynamics of poly (ethylene oxide) in a blend with poly (methyl methacrylate)***A.C. Genix* (Thiais Université Paris XII, France)

APRIL 29, 2005

**"Visualization" of electronic states at surfaces***J.I. Pascual Chico* (Freie Universität Berlin, Germany)

MAY 4, 2005

**2D and 3D self-assembly of organic semiconductors***E. Mena-Osteritz* (Universität Ulm, Germany)

MAY 14, 2005

**Recent results on Materials with Negative Refraction Index***J. Pendry* (Imperial College, London, UK)

MAY 25, 2005

**Ultrafast imaging of surface plasmons dynamics***H. Petek* (University of Pittsburgh, Pennsylvania, USA)

JUNE 1, 2005

**Excitonic effects in the absorption spectra of organic semiconductors***C. Ambrosch-Draxl* (University of Graz, Austria)

JUNE 9, 2005

**Lattice, site, and plasmon resonances in structured metal films***J. García de Abajo* (Unidad de Física de Materiales, CSIC, Spain)

JUNE 10, 2005

**Phase and attosecond-time resolved photoemission experiments***U. Heinzmann* (Universität Bielefeld, Germany)

JUNE 15, 2005

**Nanoscale magnetism from first principles***G. Bihlmayer* (IFF-FZ, Forschungszentrum Jülich, Germany)

JUNE 17, 2005

**Molecular modelling of water ice in atmospheric and astrophysical environments.***M.J. Cabrera San Félix* (DIPC, Spain)

JUNE 28, 2005

**Synthesis of carbon nanotubes***C. Vallés Callizo* (Instituto de Carboquímica, CSIC, Zaragoza, Spain)

JULY 1, 2005

**Higher superconductivity in the dense lower elements***N.W. Aschcroft* (Cornell University, USA)

AUGUST 5, 2005

**The magneto-electric effect — a neutron scattering perspective***D. Vaknin* (Iowa State University, USA)

AUGUST 30, 2005

**Computer simulations of atomically thin gold nanowires and of defects in carbon nanotubes***A.J. da Silva* (Universidade de Sao Paulo, Brazil)

AUGUST 31, 2005

**DNA dynamics in a glassy matrix as a function of the hydration***S. Capponi* (Università degli studi de Perugia, Italy)

SEPTEMBER 13, 2005

**A local(ized) view of nanoscale light propagation***L. Kuipers* (Institute for Atomic and Molecular Physics (AMOLF), The Netherlands)

SEPTEMBER 14, 2005

**Some new directions in synchrotron radiation studies of magnetic materials and magnetic nanostructures***C. Fadley* (Lawrence Berkeley National Laboratory, USA)

SEPTEMBER 21, 2005

**An overview of recent work on trapped Fermi superfluid gases***A.Griffin* (University of Toronto, Canada)

SEPTEMBER 27, 2005

**Vortices in trapped Bose gases***E. Zaremba* (Queens University, Canada)

OCTOBER 21, 2005

**Image states on finite size adsorbate islandes***J. P. Gauyacq* (Université Paris Sud, France)

OCTOBER 26, 2005

**The Pioneer anomaly as a problem of time dynamics***A. Fernandez Rañada* (Universidad Complutense de Madrid, Spain)

OCTOBER 27, 2005

**Systematic studies of the dielectric excess wing of glass-formers***R. Bergman* (Chalmers University of Technology, Göteborg, Sweden)

NOVEMBER 4, 2005

**Finite-element implementation of the non-equilibrium Green's function scheme for electron transport through nanostructures***M. Puska* (Helsinki University of Technology, Finland)

NOVEMBER 9, 2005

**Energy exchange between small molecules and metal surfaces***G. Darling* (University of Liverpool, UK)

NOVEMBER 11, 2005

**Rashba effect and spin dynamics in 2-dimensional 4f electron systems***K. Starke* (Freie Universität Berlin, Germany)

NOVEMBER 16, 2005

**The Robin Hood Method - a new view on differential equations***P. Lazić* (Rudker Boskovic Institute, Zagreb, Croatia)

NOVEMBER 17, 2005

**Basic concepts of anionic polymerization for physicists***R. Quirk* (The University of Akron, Ohio, USA)

NOVEMBER 18, 2005

**New electronic effects in carbon-based materials***P. López Sancho* (Instituto de Ciencia de Materiales de Madrid (CSIC), Spain)

NOVEMBER 25, 2005

**Logarithmic chain exchange kinetics of polymeric micelles***R. Lund* (IFF-FZ, Forschungszentrum Jülich, Germany)

NOVEMBER 25, 2005

**Theoretical study of O<sub>2</sub> and CO adsorption on gas phase and supported glod clusters***C. Balbas Ruesgas* (Universidad de Valladolid, Spain)

DECEMBER 1, 2005

**Density functional theory studies of self-organised organic overlayers on metal surfaces***A. Seitsonen* (Université Pierre et Marie Curie, France)

DECEMBER 2, 2005

**Positron annihilation lifetime spectroscopy in glasses and polymers***J. Bartos* (Polymer Institute of SAS, Bratislava, Slovak Republic)

DECEMBER 2, 2005

**Peculiar properties of the magnetization process in magnetic multilayers***J.M. Alameda Maestro* (Universidad de Oviedo, Spain)

DECEMBER 20, 2005

**Experiments with a "Particle in a Box": Bose Einstein condensates, and Maxwell's Demon***M. Raizen* (University of Texas at Austin, USA)