

# THE SEMINARS

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

02

F Aryasetiawan  
J. M. Soler Torroja  
M. E. García  
M. C. Asensio  
B. Gumhalter  
A. Bauer  
J. Gómez  
F. J. Meseguer  
J. J. Palacios  
M. Dähne  
S. Iijima  
N. W. Ashcroft  
A. Schneider  
F. Reinert  
E. Coronado Miralles  
M. Mareschal  
V. Kuznetsov  
K. Horn  
J. Alonso  
V. Crespi  
J. C. Gómez Sal  
P. M. Ajayan

A. Hernando  
W. A. Hofer  
W. Schneider  
N. Lorente  
T. W. Ebbesen  
P. Soukiassian  
J. Ortega Mateo  
P. Dederichs  
S. Blügel  
N. H. March  
A. Kaminskii  
P. de Andrés  
G. Benedek  
E. Krasovskii  
T. Strasser  
J. Fink  
P. Hofmann  
V. R. Velasco  
I. Pascual

## Invited Speakers

03

H. Winter  
H. Winter  
M. A. Cazalilla Gutierrez  
M. Aguilar  
E. Zaremba  
E. Agulló  
J. Aizpurua  
W. Pfeiffer  
M. Löffler  
A. Dereszewska

M.C. Bellissent-Funel  
W. Schoene  
C. Lemell  
C. Marinica  
L. Brey  
L. Viña  
J.M. Ugalde Uribe-Etxebarria  
M. Neeb  
C. Alejandre Losilla  
A.F. Ho  
M. Aeschlimann  
V.F. Puentes  
R. Baragiola

P. Ordejón  
F. Schiller  
R. Aguado  
J.B. Pendry  
G. Bihlmayer  
R. Miranda  
L. Viña  
L. Salvador Froufe  
E.V. Ludena  
N.W. Ashcroft  
M.J. Stott  
J. P. Perdew  
M. Bode  
T. Fauster  
W. Schoene  
I. Boustani  
I. Zozoulenko Linkoeping  
J.E. Miraglia  
J. Dobson

F. García Moliner  
F. Guinea  
J. Tejada  
R. Matzdorf  
N. Barberan  
A. García  
S. Baroni  
R. Mukhopadhyay  
D. Cangialosi  
T. Brixner  
G. Platero  
S. Bluge

JANUARY 18, 2002

**Total energy method from many-body formulation**

*F. Aryasetiawan* (National Institute of Advanced Industrial Science and Technology, Japan)

FEBRUARY 1, 2002

**The SIESTA method for ab initio order-N materials simulation**

*J. M. Soler Torroja* (Universidad Autónoma de Madrid, Spain)

FEBRUARY 15, 2002

**Laser induced ultrafast phase transitions**

*M. E. García* (Frei Universität Berlin, Germany)

FEBRUARY 19, 2002

**Fermi Surface Mapping of 2-D and 3-D Systems by Angle Resolved Photoemission**

*M. C. Asensio* (LURE, Paris, France/ICMM-CSIC, Madrid, Spain)

FEBRUARY 21, 2002

**Dephasing of optically excited electron-hole pairs in 2-D bands of the image potential**

*B. Gumhalter* (University of Zagreb, Croatia)

FEBRUARY 22, 2002

**Electronic Structure and Lifetimes of Surface States on Lanthanide Metals**

*A. Bauer* (Freie Universität Berlin, Germany)

MARCH 1, 2002

**Microscopía de proximidad: los ojos de la nanotecnología**

*J. Gómez* (Universidad Autónoma de Madrid, Spain)

MARCH 5, 2002

**Cristales fotónicos y estructuras relacionadas-Photonic crystals and related structures**

*F. J. Meseguer* (Unidad Asociada CSIC - Universidad Politécnica de Valencia, Spain)

MARCH 22, 2002

**Electrónica molecular desde primeros principios/Molecular electronics from first principles**

*J. J. Palacios* (Unidad Asociada CSIC - Universidad de Alicante, Spain)

APRIL 5, 2002

**Structure and optical properties of self-organized semiconductor nanostructures**

*M. Dähne* (Technische Universität Berlin, Germany)

APRIL 12, 2002

**Past, present, and future of carbon nanotubes**

*S. Iijima* (Meijo University, Japan)

APRIL 16, 2002

**Complexity in the hitherto simple metals**

*N. W. Ashcroft* (Cornell University, New York, USA)

APRIL 18, 2002

**Kondo resonance and STM: Probing the interaction of a Single Magnetic Atom with Bulk and Surface electrons**

*A. Schneider* (Max-Planck-Institut FKF, Stuttgart, Germany)

APRIL 19, 2002

**Direct observation of low-energy features in the photoemission spectra of conventional superconductors and heavy-fermions compounds**

*F. Reinert* (Universität des Saarlandes, Saarbrücken, Germany)

APRIL 26, 2002

**Materiales Moleculares Multifuncionales**

*E. Coronado Miralles* (Universidad de Valencia, Spain)

APRIL 29, 2002

**What is the difference between a fluid and a granular fluid?**

*M. Mareschal* (CECAM, ENS-LYON, France)

MAY 3, 2002

**Local magnetic moment interaction problem revisited:  
The role of electron kinetic energy in magnetic interactions in metals**

*V. Kuznetsov* (Physics Faculty, Tomsk State University, Russia)

MAY 6, 2002

**Electronic structure in low-dimensional systems and complex quasicrystalline alloys**

*K. Horn* (Fritz-Haber-Institut, Berlin, Germany)

MAY 13, 2002

**Absorción de hidrógeno en nanotubos de carbono**

*J. Alonso* (Universidad de Valladolid, Spain)

MAY 31, 2002

**Theory of nanostructures: Boron-based nanotubes, nanocones, perfect bearings, the strongest nanotubes, and magnetic hurricanes in ordered porous magnets**

*V. Crespi* (University Park, Pennsylvania, USA)

JUNE 6, 2002

**Sobre los líquidos no de Fermi y las transiciones de fase cuánticas en metales. Una aproximación experimental**

*J. C. Gómez Sal* (Universidad de Cantabria, Spain)

JUNE 14, 2002

**Organized Assembly of Carbon Nanotube Architectures**

*P. M. Ajayan* (Rensselaer Polytechnic Institute, New York, USA)

JUNE 17, 2002

**Auger neutralization of He<sup>+</sup> ions in front of Ag(111)**

*H. Winter* (Humboldt-Universität zu Berlin, Germany)

JUNE 18, 2002

**Future Energy from Thermonuclear Fusion: Scientifically possible? Technologically feasible? Socioeconomically acceptable?**

*H. Winter* (Technische Universität Wien, Austria)

JULY 11, 2002

**Some scenarios for strong correlation phenomena in ultracold atom systems**

*M. A. Cazalilla Gutierrez* (ICTP, Trieste, Italy)

JULY 12, 2002

**Física de partículas: estatus y perspectivas**

*M. Aguilar* (CIEMAT, Madrid, Spain)

AUGUST 5, 2002

**Dynamics of Bose-Einstein Condensed Gases at Finite Temperatures**

*E. Zaremba* (Queen's University, Canada)

SEPTEMBER 4, 2002

**Las técnicas de haces de iones para el análisis de materiales: El Centro UAM**

*F. Agulló* (Universidad Autónoma de Madrid, Spain)

SEPTEMBER 5, 2002

**Tunnel-coupled quantum dots: Atomistic Theory of Quantum Dot Molecules and Arrays**

*J. Aizpurua* (NIST, Gaithersburg, USA)

SEPTEMBER 19, 2002

**Electron Dynamics in Supported Nanoparticles**

*W. Pfeiffer* (Universität Wuerzburg, Germany)

SEPTEMBER 24, 2002

**Growth of Cobalt silicides on Si(111) and vicinal Si(111)**

*M. Löffler* (Lehrstuhl für Festkörperphysik, Erlangen, Germany)

SEPTEMBER 30, 2002

**Determinación de movilidad molecular de polímeros semirígidos por medio de espectroscopia dieléctrica**

*A. Dereszewska* (Merchant Maritime University, Gdynia, Poland)

OCTOBER 1, 2002

**Magnetismo del hierro nanocristalino**

*A. Hernando* (Universidad Complutense de Madrid, Spain)

OCTOBER 7, 2002

**Challenges and Errors: Interpreting high resolution Images of scanning tunneling microscopes**

*W. A. Hofer* (University College London, England)

OCTOBER 11, 2002

**Scanning tunneling spectroscopy and microscopy of nanostructures**

*W. Schneider* (Université de Lausanne, Switzerland)

OCTOBER 17, 2002

**Controlled reactions on single molecules on surfaces**

*N. Lorente* (Université Paul Sabatier, Toulouse, France)

OCTOBER 25, 2002

**Diffraction Control and Enhanced Transmission through Sub-Wavelength Apertures in Metal Films**

*T. W. Ebbesen* (Université Louis Pasteur, Strasbourg, France)

NOVEMBER 6, 2002

**Atomic Control of Silicon Carbide Surfaces and Highly Stable Nanostructures**

*P. Soukiassian* (Commissariat de l'Énergie Atomique, Saclay, DSM-DRECAM-SPCSI-SIMA, France)

NOVEMBER 8, 2002

**Dynamical fluctuations and the  $\sqrt{3}\times\sqrt{3}$   $\rightarrow$   $3\times 3$  transition in  $\alpha$ -Sn/Ge(111) and Sn/Si(111)**

*J. Ortega Mateo* (Universidad Autónoma de Madrid, Spain)

NOVEMBER 11, 2002

**Diluted Magnetic Semiconductors**

*P. Dederichs* (Forschungszentrum Jülich, Germany)

NOVEMBER 13, 2002

**Magnetism at the Nanocosmos**

*S. Blügel* (Forschungszentrum Jülich, Germany)

NOVEMBER 14, 2002

**Fingerprints of unconventional superconductivity in heavy Fermion materials and high  $T_c$  cuprates**

*N. H. March* (Universiteit Antwerp, RUCA, Antwerp, Belgium)

NOVEMBER 18, 2002

**Novel nonlinear-laser  $\chi^{(2)}$ - and  $\chi^{(3)}$ -active crystals and new self-frequency conversion effects**

*A. Kaminskii* (Russian Academy of Sciences, Russia)

NOVEMBER 22, 2002

**How do water molecules bind to close-packed metal surfaces?**

*P. de Andrés* (ICMM-CSIC, Madrid, Spain)

NOVEMBER 25, 2002

**Surface phonons and phase transitions**

*G. Benedek* (Università degli Studi di Milano - Bicocca, Italy)

NOVEMBER 28, 2002

**Electronic structure and dielectric properties of Bi**

*E. Krasovskii* (Universität Kiel, Germany)

NOVEMBER 28, 2002

**One step photoemission calculation from a multiple scattering cluster-model approach**

*T. Strasser* (Universität Kiel, Germany)

NOVEMBER 29, 2002

**Plasmons in solids studied by electron energy-loss spectroscopy**

*J. Fink* (Institute for Solid State Research, IFW, Dresden, Germany)

DECEMBER 5, 2002

**Geometry, electronic structure and electron-phonon coupling on Bi surfaces**

*P. Hofmann* (University of Aarhus, Denmark)

DECEMBER 13, 2002

**Physical properties of quasi-periodic systems. Dreams and realities**

*V. R. Velasco* (ICMM-CSIC, Madrid, Spain)

DECEMBER 20, 2002

**STM in lateral nanostructures**

*I. Pascual* (ICMB-CSIC, Barcelona, Spain)

JANUARY 10, 2003

**Protein dynamics studied by Neutron Scattering and Molecular Dynamics Simulations**

*M.C. Bellissent-Funel* (CNRS, Laboratoire Leon Brillouin LLB, Saclay, France)

JANUARY 14, 2003

**Lifetimes of excited electrons in metals**

*W. Schoene* (Fritz-Haber-Institut der Max-Planck, Berlin, Germany)

JANUARY 17, 2003

**Many Electron Systems Interacting with Strong Fields**

*C. Lemell* (University of Technology, Vienna, Austria).

JANUARY 23, 2003

**Quantum-well resonances and image states in the Ar/Cu(100) system**

*C. Marinica* (Laboratoire des Collisions Atomiques et Moleculaires, Paris, France)

JANUARY 24, 2003

**A lattice spin mechanism for colossal magnetoresistance in manganites**

*L. Brey* (ICMM-CSIC, Madrid, Spain)

JANUARY 31, 2003

**Semiconductor quantum microcavities: a solid state approach for condensation**

*L. Viña* (Universidad Autónoma de Madrid, Spain)

FEBRUARY 14, 2003

**An innocent chemist look at the Density Functional Theory**

*J.M. Ugalde Uribe-Etxebarria* (Universidad del País Vasco / Euskal Herriko Unibertsitatea, Spain)

FEBRUARY 21, 2003

**Ultrafast relaxation dynamics of optically excited states in small transition metal cluster**

*M. Neeb* (BESSY GmbH, Berlin, Germany)

FEBRUARY 28, 2003

**Fusion energy and the ITER project: present situation and future perspectives**

*C. Alejandro Losilla* (Laboratorio Nacional de Fusión, CIEMAT, Madrid, Spain)

MARCH 03, 2003 AND MARCH 04, 2003

**Two lectures on basic Kondo physics**

*A.F. Ho* (University of Birmingham, UK)

MARCH 10, 2003

**Ultrafast two-photon photoemission studies of excited electrons in metals**

*M. Aeschlimann* (University of Essen, Germany)

MARCH 21, 2003

**Nanoparticles: Building Units and Built Structures**

*V.F. Puntès* (Universidad de Barcelona, Spain)

MARCH 21, 2003

**Excitación electrónica de aislantes por iones lentos: generalidades y el caso del MgO**

*R. Baragiola* (Virginia, Charlottesville, USA)

APRIL 10, 2003

**First principles calculations of ballistic transport in nanoscale systems**

*P. Ordejón* (ICMB-CSIC, Barcelona, Spain)

APRIL 28, 2003

**Crystalline and electronic structure of thin Be and Mg films**

*E. Schiller* (Institut für Oberflächen-und Mikrostrukturphysik TU- Dresden, Germany)

MAY 09, 2003

**Kondo effect in quantum dots**

*R. Aguado* (ICMM-CSIC, Madrid, Spain)

MAY 13, 2003

**The Perfect Lens - Focusing Beyond the Diffraction Limit**

*J.B. Pendry* (Imperial College, London, UK)

MAY 21, 2003

**Magnetism in low dimensions: Overlayers, wires, and atoms**

*G. Bihlmayer* (Institute for Solid State Physics, Jülich, Germany)

MAY 27, 2003

**Tunneling Spectroscopy on metallic nanostructures: Observing the electronic states of confined systems**

*R. Miranda* (Universidad Autónoma de Madrid, Spain)

MAY 30, 2003

**Semiconductor quantum microcavities: a solid state approach for condensation**

*L. Viña* (Universidad Autónoma de Madrid, Spain)

JUNE 03, 2003

**Conductance Distributions in Disordered Wires at the Metal-Insulator Crossover**

*L. Salvador Froufe* (Universidad Autónoma de Madrid, Spain)

JUNE 27, 2003

**Is DFT a semi-empirical theory? Some comments on its foundations, accomplishments and shortcomings**

*E.V. Ludena* (IVIC Caracas, Venezuela and Universidad Autónoma de Madrid, Spain)

JULY 02, 2003

**New ground state quantum liquids (accessible in the laboratory) in dense hydrogen and deuterium?**

*N.W. Ashcroft* (Cornell University, New York, USA)

JULY 14, 2003

**Modelling Bioactive Calcium Phosphate Ceramics**

*M.J. Stott* (Queen's University, Kingston, Ontario, Canada)

JULY 18, 2003

**Climbing Jacob's Ladder: The Meta-Generalized Gradient Approximation for Exchange and Correlation**

*J. P. Perdew* (Tulane University, New Orleans, Louisiana, USA)

JULY 21, 2003

**Atomic resolution in magnetic STM**

*M. Bode* (Universität Hamburg, Germany)

JULY 24, 2003

**Inter- and intraband scattering by defects at metal surfaces**

*T. Fauster* (Universität Erlangen-Nurnberg, Germany)

AUGUST 20, 2003

**Lifetimes of excited electrons in metals**

*W. Schoene* (Free University Berlin, Germany)

SEPTEMBER 04, 2003

**Boron quasipolar clusters and nanotubes. From theoretical predictions to experimental confirmations**

*I. Boustani* (Universität Wuppertal, Germany)

SEPTEMBER 05, 2003

**Wave and Ray dynamics in optical cavities and quantum electron billiards**

*I. Zozoulenko* (Linköpings Universitet, Sweden)

SEPTEMBER 16, 2003

**Plasmon decay and nonlinear effects**

*J.E. Miraglia* (IAFE and Universidad de Buenos Aires, Argentina)

SEPTEMBER 26, 2003

**Van der Waals interactions at leisure**

*J. Dobson* (Griffith University, Queensland, Australia)

OCTOBER 03, 2003

**El valor práctico de la cultura**

*F. García Moliner* (Universitat Jaume I, Castellón, Spain)



OCTOBER 10, 2003

**Suppression of Quantum features and decay processes induced by metallic environments**

*E. Guinea* (ICMM-CSIC, Madrid, Spain)

OCTOBER 23, 2003

**Resonant spin tunneling and related phenomena**

*J. Tejada* (Universidad de Barcelona, Spain)

OCTOBER 24, 2003

**Electron correlations and electron-phonon coupling in adsorbates on noble-metal surfaces**

*R. Matzdorf* (Universität Kassel, Germany)

OCTOBER 27, 2003

**Nanostructures under magnetic fields**

*N. Barberan* (Universidad de Barcelona, Spain)

NOVEMBER 07, 2003

**Effective-Hamiltonian Simulations in Ferroelectrics**

*A. García* (Universidad del País Vasco/Euskal Herriko Unibertsitatea, Spain)

NOVEMBER 11, 2003

**Montecarlo simulation of the dynamics of quantum interacting systems: structure, dynamics and superfluidity of small doped He clusters**

*S. Baroni* (SISSA and INFN DEMOCRITOS National Simulation Center, Trieste, Italy)

NOVEMBER 11, 2003

**Stochastic Dynamics in Condensed Matter: Neutron Scattering Study**

*R. Mukhopadhyay* (BARC, Mumbai, India)

NOVEMBER 17, 2003

**Positron annihilation lifetime spectroscopy to study the dynamics of polycarbonate far below  $T_g$**

*D. Cangialosi* (University of Delft, Holland)

DECEMBER 04, 2003

**Adaptive Quantum Control: Technique and Applications**

*T. Brixner* (University of California, Berkeley, USA)

DECEMBER 05, 2003

**Dynamical control of electronic states in AC-Driven Quantum Dots**

*G. Platero* (ICMM-CSIC, Madrid, Spain)

DECEMBER 16, 2003

**Rashba spin-orbit effect at metal surfaces**

*S. Blugel* (IFF, Jülich, Germany)