

ICTP – [The Abdus Salam International Centre for Theoretical Physics](#), Trieste, Italy

smr1318/Final_programme

The Second Stig Lundqvist Research Conference on the Advancing Frontiers in Condensed Matter Physics:

"Non-Conventional Systems and New Directions"

2 - 6 July 2001

Co-sponsored by:

- the Office of Naval Research, ONR, Arlington, VA, USA;
- the National Science Foundation, NSF, Washington, DC, USA;
- the Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil;
- the Scuola Internazionale Superiore di Studi Avanzati, SISSA, Trieste, Italy.

FINAL PROGRAMME

All lectures were held in the Adriatico Guest House

- Kastler Lecture Hall -

Monday, 2 July

09:00 - 10:30 Registration

10:30 - 12:00 Time open for administrative matters

Opening Session Chairperson: E. Burstein

14:00 Welcome

M. Virasoro, Director of the Abdus Salam I.C.T.P., Trieste

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Yu Lu, The Abdus Salam I.C.T.P., Trieste

- 14:15 Introductory Remarks
 D. Awschalom, University of California, Santa Barbara
- 14:45 - 15:45 B. Batlogg, ETH Zürich
 Molecular organic crystals: A new playground for
 many-body physics
- 15:45 - 16:15 Coffee break
- 16:15 - 17:15 J. Joannopoulos, MIT, Cambridge
 Novel light phenomena in photonic crystals
- 17:15 - 18:15 K. Takayanagi, Tokyo Institute of Technology
 Conductance of nano-scale quantum point contact

Tuesday, 3 July

Morning Session Chairperson: D. Awschalom

- 09:00 - 10:00 D. Loss, University of Basel
 Electron spins in quantum dots for quantum computing
- 10:00 - 11:00 H. Ohno, Tohoku University, Sendai
 Ferromagnetic/nonmagnetic III-V semiconductor
 structures
- 11:00 - 11:30 Coffee Break
- 11:30 - 12:30 D. H. Cobden, University of Warwick
 Kondo physics in carbon nanotube quantum dots

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Afternoon Session Chairperson: J. Joannopoulos

- 14:30 - 15:30 G. Abstreiter, TU München
Optical properties of single semiconductor quantum
dots
- 15:30 - 16:10 G. Salis, University of California, Santa Barbara
All optical NMR in nanostructures
- 16:10 - 16:40 Coffee Break
- Chairperson: M.P. Das
- 16:40 - 17:20 H. Schön, Bell Labs, Lucent Technologies
Lasing in molecular organic single crystals
- 17:20 - 18:00 A. Yodh, University of Pennsylvania, Philadelphia
Entropic forces and self-assembly of microstructures
in suspensions
- 18:00 - 18:50 P. Pincus, University of California, Santa Barbara
Coulombic effects in soft condensed matter

Wednesday, 4 July

Morning Session Chairperson: M. Cardona

- 09:00 - 10:00 K. H. Rieder, Freie Universität Berlin
Physics and chemistry with single atoms and molecules
using the STM
- 10:00 - 11:00 M. Persson, Chalmers University, Göteborg

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Spectroscopy and chemical manipulation at the spatial
limit

11:00 - 11:30 Coffee Break

11:30 - 12:30 M. Salmeron, Lawrence Berkeley National Laboratory
On the microscopic mechanism of friction

Afternoon Session Chairperson: G. Scoles

14:30 - 15:20 B. Persson, IFF, FZ Juelich
Sliding friction

15:20 - 16:10 G.-Y. Liu, Wayne State University, Detroit
Molecular manipulation on surfaces

16:10 - 16:40 Coffee Break

Chairperson: P. Fazekas

16:40 - 17:30 A. Lucas, University of Namur
Diffraction by molecular helices: from DNA to carbon
nanotubes

17:30 - 18:20 E. Mele, University of Pennsylvania, Philadelphia
Quantum geometric phases in molecular nanotubes

20:00 - 22:30 Poster Session

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Thursday, 5 July

Morning session Chairperson: E. Burstein

09:00 - 10:00 D.H. Vanderbilt, Rutgers University, Piscataway
Role of compositional order and disorder in complex
perovskites

10:00 - 11:00 C.B. Murray, IBM, T. J. Watson Research Center
Self-organization of nanocrystal superlattices:
building with artificial atoms

11:00 - 11:30 Coffee Break

11:30 - 12:30 R. Car, Princeton University
Designing enzyme mimics: electron transfer in
oxomanganese porphyrins

Afternoon Session Chairperson: D. Vanderbilt

14:30 - 15:10 B. Noheda, Brookhaven National Laboratory, Upton
High piezoelectric response in complex ferroelectric
oxides

15:10 - 16:00 A.M. Belcher, University of Texas, Austin
Evolving biomolecular control of semiconductor and
magnetic nanostructures

16:00 - 16:30 Coffee Break

Chairperson: G.P. Brivio

16:30 - 17:20 J. Hone, California Institute of Technology, Pasadena
Nanoelectromechanical systems

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17:20 - 18:20 A. Pinczuk, Columbia University, New York
Milli-Kelvin spectroscopy of electron quantum liquids
in semiconductors

Friday, 6 July

Closing Session Chairperson: Yu Lu

09:00 - 10:00 E. Tosatti, S.I.S.S.A. The Abdus Salam I.C.T.P.
String tension, structure and stability of tip-
suspended gold, silver and platinum nanowires

10:00 - 10:30 Coffee Break

10:30 - 11:30 M. Parrinello, Max-Planck-Institut, Stuttgart
Ab-initio simulation of chemical processes in
realistic environments

11:30 - 12:30 G. Scoles, Princeton University
Unusual physical and chemical processes in
superfluid helium nanodroplets

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