The Abdus Salam International Centre for Theoretical Physics

Conference on Superconductor-Insulator Transitions

Organizer(s): Directors: M. Feigelman, M. Muller, Z. Ovadyahu, M. Sanquer. Local Organizer: V. Kravtsov
Trieste - Italy, 18 - 23 May 2009

Venue: Adriatico Guest House Kastler Lecture Hall

Final programme

Monday, 18 May (Room:Adriatico Guest House - Kastler Lecture Hall Area (Lower Level 1))

18 May 2009

08:30 - 09:30 (Room: Adriatico Guest House (Lower Level 1))
Registration and Administrative Formalities

09:30 - 09:45 (Room: Adriatico Guest House Kastler Lecture Hall)
Welcome and Opening Remarks

09:45 - 10:30 (Room: Adriatico Guest House Kastler Lecture Hall)
A. Kapitulnik / *Stanford University, USA*
Critical behavior near the superconductor-insulator transitions in two-dimensions

10:30 - 11:00 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

11:00 - 11:45 (Room: Adriatico Guest House Kastler Lecture Hall)
N. P. Armitage / *John Hopkins University, Baltimore, USA*
From classsical to quantum: Broadband microwave studies of superconducting fluctuations in 2D InO thin Films

11:45 - 12:30 (Room: Adriatico Guest House Kastler Lecture Hall)
V. Gantmakher / *Inst. of Solid State Physics, Moscow, Russian Federation*
Comparsion of superconductor-insulator transitions in different materials

12:30 - 14:30 (Room: Adriatico Guest House Cafeteria)
--- Lunch Break ---

14:30 - 15:15 (Room: Adriatico Guest House Kastler Lecture Hall)
D. Shahar / *The weizmann Inst. of Science, Rehovot, Israel*
The insulator in the superconductor-insulator transition

15:15 - 16:00 (Room: Adriatico Guest House Kastler Lecture Hall)
S. Ganapathy / *University of Buffalo, USA*
Inhomogeneous conduction near the quantum critical point in InO films

16:00 - 16:30 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

16:30 - 17:15 (Room: Adriatico Guest House Kastler Lecture Hall)
C. Strunk / *Universitaet Regensburg, Germany*
The Superconductor-Insulator transition in thin TiN films

19:00 - 21:00 (Room: Adriatico Guest House Cafeteria)
--- RECEPTION ---

Tuesday, 19 May (Room:Adriatico Guest House - Kastler Lecture Hall Area (Lower Level 1))

19 May 2009

08:45 - 09:30 (Room: Adriatico Guest House Kastler Lecture Hall)
C. Chapelier / *C.E.A. Grenoble, France*
Fluctuations in thin superconducting TiN films

09:30 - 10:15 (Room: Adriatico Guest House Kastler Lecture Hall)
B. Sacepe / *University of Geneva, Switzerland*
Tunneling spectroscopy on amorphous indium oxide: spectral signature of incoherent Cooper-pairs

10:15 - 10:45 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

10:45 - 11:30 (Room: Adriatico Guest House Kastler Lecture Hall)
P. Raychaudhuri / *Tata Inst. of Fundamental Res. Mumbai, India*
Tunneling studies in a disordered s-wave superconductor close to the Fermi glass regime

11:30 - 14:00 (Room: Adriatico Guest House Cafeteria)
--- Lunch Break ---

14:00 - 14:45 (Room: Adriatico Guest House Kastler Lecture Hall)
P. Adams / *Louisiana State University, Baton Rouge, USA*
Spin effects near the superconductor-insulator transition in ultra-thin Al and Be films

14:45 - 15:30 (Room: Adriatico Guest House Kastler Lecture Hall)
A. Frydman / *Bar-Ilan University, Ramat Gan, Israel*
Inverse proximity effect in thin superconducting and ferromagnetic layers

15:30 - 16:00 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

16:00 - 16:45 (Room: Adriatico Guest House Kastler Lecture Hall)
M. Gershenson / *Rutgers State University, Piscataway, USA*
Towards Realization of Topological Order in Josephson Arrays

18:00 - 19:30 (Room: Adriatico Guest House Kastler Lecture Hall)
Round Table 1: News and views, and open questions on the Sl-transition

Wednesday, 20 May (Room:Adriatico Guest House - Kastler Lecture Hall Area (Lower Level 1))

20 May 2009

08:45 - 09:30 (Room: Adriatico Guest House Kastler Lecture Hall)
M. Cieplak / *Inst. of Physics, PAS, Warsaw, Poland*
Superconductor-Insulstor Transition in High-Tc and Conventional Superconducting Films

09:30 - 10:15 (Room: Adriatico Guest House Kastler Lecture Hall)
A. Yazdani / *Princeton University, USA*
Nodal Quasi-Particles & the Suppression of Superconductivity with Doping & Temperature in Cuprates

10:15 - 10:45 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

10:45 - 11:30 (Room: Adriatico Guest House Kastler Lecture Hall)
N. Trivedi / *The Ohio State University, Columbus, USA*
Nature of Superconducting and Insulating States in a Disordered System

11:30 - 12:15 (Room: Adriatico Guest House Kastler Lecture Hall)
M. Mueller / *ICTP, Trieste, Italy*
Compensation driven superconductor-insulator transition

12:15 - 14:00 (Room: Adriatico Guest House Cafeteria)
--- Lunch Break ---

14:00 - 14:45 (Room: Adriatico Guest House Kastler Lecture Hall)
S. Gariglio / *Universite de Geneve, Switzerland*
Electric Field Tuning of Superconductivity at the LaAIO3/SrTiO3 Interface

14:45 - 15:30 (Room: Adriatico Guest House Kastler Lecture Hall)
T. Schneider / *University of Zurich, Switzerland*
Finite size effects in 2D superconductors

15:30 - 16:00 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

16:00 - 16:45 (Room: Adriatico Guest House Kastler Lecture Hall)
B. Kessler / *Univ. of California at Berkeley, USA*
Tunable Superconducting Transition in Doped Graphene Sheets

17:00 - 19:00 (Room: Adriatico Guest House (Lower Level 1))
Poster Session

Thursday, 21 May (Room:Adriatico Guest House - Kastler Lecture Hall Area (Lower Level 1))

21 May 2009

08:45 - 09:30 (Room: Adriatico Guest House Kastler Lecture Hall)
T. Grenet / *LEPES - CNR, Grenoble, France*
Glassiness in insulating granular aluminum thin films

09:30 - 10:15 (Room: Adriatico Guest House Kastler Lecture Hall)
O. Entin-Wohlman / *Tel Aviv University, Israel*
The conductance of superconducting-normal hybrid structures

10:15 - 10:45 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

10:45 - 11:30 (Room: Adriatico Guest House Kastler Lecture Hall)
A. Ioselevich / *Landau Inst. for Theoretical Physics, Moscow, Russian Federation*
Coulomb effects in a mixed granular system near the percolation threshold

11:30 - 12:15 (Room: Adriatico Guest House Kastler Lecture Hall)
V. Kravtsov / *ICTP, Trieste, Italy*
Giant jumps in nonlinear resistance: bistability caused by overheating of an electron system

12:15 - 14:00 (Room: Adriatico Guest House Cafeteria)
--- Lunch Break ---

14:00 - 14:45 (Room: Adriatico Guest House Kastler Lecture Hall)
M. Feigelman / *L.D. Landau Inst. for Theoretical Physics, Moscow, Russian Federation*
Pseudogaped superconductivity of localized electrons

14:45 - 15:30 (Room: Adriatico Guest House Kastler Lecture Hall)
L. Ioffe / *Rutgers, the State Univ. of New Jersey, USA*
Phase transitions in strongly disordered magnets and superconductors on Bethe lattice

15:30 - 16:00 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

16:00 - 16:45 **K. Efetov** / *Ruhr-Universitat Bochum, Germany*
Transport in a network of Josephson junctions in the insulating state

16:45 - 17:30 (Room: Adriatico Guest House Kastler Lecture Hall)
B. Altshuler / *Columbia University, New York, USA*
Many-Body Localization and Transport Properties of Insulation Josephson Arrays

18:00 - 19:30 (Room: Adriatico Guest House Kastler Lecture Hall)
Round Table 2: 2d superconductivity:Superconducting films, high Tc's, interfacial superconductivity - Similarities and differences

Friday, 22 May (Room:Adriatico Guest House - Kastler Lecture Hall Area (Lower Level 1))

22 May 2009

08:45 - 09:30 (Room: Adriatico Guest House Kastler Lecture Hall)
K. Prassides / *University of Durham, UK*
Fulleride superconductivity at hyperexpanded separations

09:30 - 10:15 (Room: Adriatico Guest House Kastler Lecture Hall)
E. Tosatti / *S.I.S.S.A., Trieste, Italy*
Strongly Correlated Superconductor-Mott insulator Transition in Fullerides

10:15 - 10:45 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

10:45 - 11:30 (Room: Adriatico Guest House Kastler Lecture Hall)
M. Fabrizio / *S.I.S.S.A., Trieste, Italy*
s-Wave superconductivity near a Mott transition: the puzzling case of fullerenes

11:30 - 12:15 (Room: Adriatico Guest House Kastler Lecture Hall)
A. Ardavan / *University of Oxford, UK*
Fluctuating and unconventional superconductivity in organic molecular metals

12:15 - 14:00 (Room: Adriatico Guest House (Terrace))
--- Lunch Break ---

14:00 - 14:45 (Room: Adriatico Guest House Kastler Lecture Hall)
H. Aubin / *Ecole Sup. de Physique et Chimie Industrielle, Paris, France*
Nernst effect and superconducting glasses

14:45 - 15:30 (Room: Adriatico Guest House Kastler Lecture Hall)
M. Skvortsov / *L.D. Landau Inst. for Theoretical Physics, Moscow, Russian Federation*
Giant Nernst Effect due to Fluctuating Cooper Pairs in Superconductors

15:30 - 16:00 (Room: Adriatico Guest House (Terrace))
--- Coffee Break ---

16:00 - 16:45 (Room: Adriatico Guest House Kastler Lecture Hall)
K. Michaeli / *The Weizmann Inst. of Science, Rehovot, Israel*
Fluctuations of the superconducting order parameter as an origin of the Nernst effect

17:00 - 19:00 (Room: Adriatico Guest House (Lower Level 1))
Poster Session

Saturday, 23 May (Room:Adriatico Guest House Kastler Lecture Hall) (**Saturday**)

23 May 2009

09:00 - 11:45 **Informal Discussions**

11:45 - 12:00 **Concluding Remarks**