

# Superconductivity and Magnetism in the Perovskites and other Novel Materials

*Kefar Hamaccabiah Hotel, Ramat Gan, May 6<sup>th</sup> – May 10<sup>th</sup>, 2007*

## Program

### Sunday, 06.05. 2007

*19:00 Reception*

### Monday, 07. 05. 2007

**08:30 Greetings:**

**Prof. Moshe Kaveh**, President of Bar-Ilan University and Chairman of the Committee of University Heads

**Prof. Guy Deutscher**, Minerva Center Director

### **Session 1: Superconductivity – Electronic Properties I**

**08:45 Guy Deutscher**, Tel Aviv University

*Tunneling into Landau nodal states*

**09:15 Richard L. Greene**, Maryland University

*The neglected electron-doped cuprates--what do they tell us about the physics of high-Tc superconductors?*

**09:45 Yoram Dagan**, Tel Aviv University

*Dirty superconductivity in electron-doped cuprate superconductors.*

*10:15 Break*

**10:45 Nicole Bontemps**, LPS-ESPCI

*Infrared and visible spectroscopy as a probe of superconducting gap and pseudogap in cuprates*

**11:15 Meir Weger**, Hebrew University of Jerusalem

*Superconductivity – anisotropy and inhomogeneity*

**11:45 Amit Keren**, Technion

*On the origin of the pseudogap in the cuprates*

*12:15 Lunch*

## **Session 2: Superconductivity - Electronic Properties II**

**14:00 Aharon Kapitulnik**, Stanford University

*Broken time reversal symmetry states in  $Sr_2RuO_4$  and other novel superconductors*

**14:30 Assa Auerbach**, Technion

*Vortex Quantum Transport Theory*

**15:00 Ivan Bozovic**, Brookhaven National Laboratory

*Experiments with atomically engineered high-Tc films and heterostructures*

**15:30 Break**

**16:00 Kurt Scharnberg**, Hamburg University

*Elastic defect scattering in metals and superconductors: role of the quasiparticle dispersion relation*

**16:30 Edward Goldobin**, University of Tuebingen

*Fractional vortices in 0-kappa long Josephson junctions: review and recent experiments*

**17:00 Itay Asulin and Oded Millo**, Hebrew University of Jerusalem

*STM studies of the proximity effect in bilayers of  $YBa_2Cu_3O_y$  and  $SrRuO_3$*

**17:15 Ofer Yuli and Oded Millo**, Hebrew University of Jerusalem

*STS studies of  $La_{2-x}Sr_xCuO_4$  thin films in the pseudogap regime*

**Tuesday, 08.05.2007**

## **Session 3: Vortices I**

**08:45 Lia Krusin Elbaum**, IBM

*Spin Pseudo-Gap and Quantum Criticality in High-Tc Superconductors*

**09:15 Marcin Konczykowski**, Ecole Polytechnique

*Composite to tilted vortex lattice transition in layered superconductor in oblique field*

**09:45 Boris Shapiro**, Bar Ilan University

*Square-to-rhomb phase transition in vortex lattices of d-wave superconductors*

**10:15 Break**

**10:45 Haim Beidenkopf and Eli Zeldov**, Weizmann Institute of Science

**11:15 Alexei Koshelev**, Argonne National Laboratory

*Electrodynamics of Josephson vortex lattice in high-temperature superconductors*

**11:45 Daniel Golovchick and Emil Polturak**, Technion

*Design of magneto-optical experiment for detection of spontaneous flux*

**12:15 Lunch**

**Session 4: Vortices II**

**14:00 Valerii Vinokur**, Argonne National Laboratory

*Competing localization of vortex line*

**14:30 Kees Van der Beek**, Ecole Polytechnique

*Enhancement of vortex liquid correlations by in-plane field in a layered superconductor*

**15:00 Vadim Geshkenbein**, ETH Zurich

*Münchhausen effect in superconductors*

**15:30 Break**

**16:00 Beena Kalisky**, Weizmann Institute & Bar-Ilan University

*Spatiotemporal vortex-matter oscillations in  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  crystals*

**16:30 Baruch Horovitz**, Ben Gurion University

*Noise from metals and superconductors affecting quantum interference devices*

**17:00 Yoash Mor and Gad Koren**, Technion

*Vortex variable range hopping in YBCO thin films*

**Wednesday, 09.05.2007**

**Session 5: Magnetism I**

**08:45 Albert Fert, CNRS Thales**

*Spintronics: breadth of the current and future developments*

**09:15 Paul Leiderer, Konstanz University**

*Spin dynamics and ultrafast magneto-optics of garnet films*

**09:45 Lior Klein, Bar Ilan University**

*Current-induced domain wall motion in  $\text{SrRuO}_3$*

**10:15 Break**

**10:45 Lambert Alff, Darmstadt University of Technology**

*A spin-polarized metal-insulator transition by 5d-doping in Cr-based double perovskites*

**11:15 Aviad Frydman, Bar Ilan University**

*Electric transport through systems of nanomagnetic particles*

**11:45 Gil Aharonovich and Gad Koren, Technion**

*Pseudogap effects on the ferromagnetic transition of  $\text{YBa}_2\text{Cu}_3\text{O}_y$  and  $\text{SrRuO}_3$  bilayers*

**12:15 Lunch**

**Session 6: Magnetism II**

**14:00 Gianni Blatter, ETH Zurich**

*The vortex melting transition*

**14:30 Grzegorz Jung, Ben Gurion University**

*Nonequilibrium 1/f noise in low doped LCMO manganite single crystals*

**15:00 Christian Jooss, Göttingen University**

*Interplay of multiferroic behaviour, electronic phase separation and colossal resistance effects in  $\text{Pr}_{1-x}\text{Ca}_x\text{MnO}_3$*

**15:30 Break**

**16:00 Pablo Esquinazi**, University of Leipzig

*Magnetic order in Carbon*

**16:30 Michael Golosovsky**, Hebrew University of Jerusalem

*Ferromagnetic resonance in epitaxial La-Sr-Mn-O films*

**17:00 Alexander Gerber**, Tel Aviv University

*Towards Hall effect spintronics*

**19:00 Gala Dinner: Celebrating the 60th birthday of Prof. Yosi Yeshurun**

**After dinner talk:**

**Rudolf Huebener**, Tuebingen University

*Looking at the early days of superconductivity: Walther Nernst, Albert Einstein, Walther Meissner, Max von Laue*

**Thursday, 10.05.2007**

**Session 7: Novel Materials and Applications**

**08:45 Allen Goldman**, University of Minnesota

*Electrostatic modification of oxides*

**09:15 Jochen Mannhart**, Augsburg University

*Interfaces in functional oxides*

**09:45 Charles H. Ahn**, Yale University

*Heterogeneous Complex Oxide Systems: Electrostatic Modulation of Correlated Electron Behavior*

**10:15 Break**

**10:45 Christof Schneider**, Augsburg University

*High- $T_C$  SQUIDS with unusual critical-current oscillations*

**11:15 Shuki Wolfus**, Bar Ilan University

*Saturated cores Fault Current Limiter – a new approach*

**11:45 Hilbert von-Lohneysen**, Karlsruhe University

*Proximity effect between superconductors and ferromagnets*

**12:15 Lunch**

**Session 8: Magnetism and Superconductivity**

**14:30 Myron B. Salamon**, University of Illinois

*Colossal magnetoresistance as a Griffiths Singularity/Broken-Parity super conductivity*

**15:00 Shimon Reich**, Weizmann Institute of Science

*Nanosopic superconducting and magnetic systems*

**15:30 Break**

**16:00 Israel Felner**, Hebrew University of Jerusalem

*Magneto superconductors*

**16:30 Alexander Palevski**, Tel Aviv University

*Observation of periodic Pi-phase shifts in ferromagnet superconductor multilayers*

**17:00 Gad Koren**, Technion

*Concluding remarks*