

the
abdus salam
international centre for theoretical physics

**XII WORKSHOP ON
STRONGLY CORRELATED ELECTRON SYSTEMS
(17 - 28 July 2000)
Miramare, Trieste**

co-sponsored by
APCTP - Asia Pacific Centre for Theoretical Physics, Seoul, Korea
and
SISSA - International School for Advanced Studies, Trieste, Italy

Directors:
G. Baskaran, P. Coleman*, M. Fabrizio, A. Georges, G. Kotliar, E. Tosatti and YU Lu
(*co-ordinator)

PRELIMINARY PROGRAMME

(updated 7 July)

All lectures will be held in the Main Building - Main Lecture Hall

Monday, 17 July

08.30 - 09.50 *REGISTRATION FORMALITIES*

Morning session - Chairperson : P. Coleman

09.50 - 10.00 *Opening Session*

10.00 - 10.50 **P. LEE (MIT)**
"Overview - Theory"

11.00 - 11.20 Coffee break

11.20 - 12.10 **G. BLUMBERG (Lucent Bell Labs.)**
"Overview - Experiments"

12.20 - 15.00 Lunch break

Afternoon session - Chairperson : YU Lu

15.00 - 16.00 **Short Poster Abstract Presentations I**

16.00 - 16.15 Coffee break

Chairperson : T.V. Ramakrishnan

16.15 - 17.05 **P. JOHNSON (Brookhaven Nat. Lab.)**
"High-Resolution Photoemission Studies of Self-Energy Effects in
High T_c Superconductivity"

17.05 - 17.55 **N.P. ONG** (Princeton)
"Quasiparticles and Vortices: The Picture from Thermal Hall Effect
and Nernst Effect Experiments"

Tuesday, 18 July

Morning session - Chairperson : A. Chubukov

09.00 - 09.50 **Z.X. SHEN** (Stanford)
"XPS - exact title to be announced"

10.00 - 10.50 **S. SACHDEV** (Yale)
"Quasiparticle and Collective Mode Damping in D-Wave
Superconductors"

11.00 - 11.20 Coffee break

11.20 - 12.10 **M. GOLDEN** (IFW-Dresden)
"The Electronic Structure and Fermi Surface of Bi-2212 based HTSC
from High Resolution Angle-Scanned Photoemission"

12.20 - 14.30 Lunch break

Afternoon session - Chairperson : Z.X. Shen

14.30 - 16.00 **Poster Session I**

16.00 - 16.50 **G. AEPPLI** (NEC, Princeton)
"Do We Know Everything About the Magnetism of the
Cuprates?"

16.50 - 17.10 Coffee break

17.10 - 18.00 **B. KEIMER** (Stuttgart)
"Recent Neutron Scattering Experiments on the Resonant Mode in
Cuprate Superconductors"

18.30 *Small Reception - Main Building Terrace*

Wednesday, 19 July

Morning session - Chairperson : G. Kotliar

09.00 - 09.50 **A. FUJIMORI** (Tokyo)
"Photoemission Spectroscopy of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ "

10.00 - 10.50 **Y. ANDO** (CRIEPI, Tokyo)
"Magneto-Transport Properties and Charged Stripes in
High-Tc Cuprates"

11.00 - 11.20 Coffee break

11.20 - 12.10 **V. YAKOVENKO** (Maryland)
"Overview of Transport Models in Cuprates"

12.20 - 14.30 Lunch break

Afternoon session - Chairperson : *P. Johnson*

15.00 - 15.50 **K. MOLER** (Stanford)
Title to be announced

15.50 - 16.40 **S.J.C. DAVIS** (Berkeley)
"Scanning Tunneling Microscopy of Impurity States and other
Inhomogeneities in the Electronic Structure of HTSC's"

16.40 - 17.00 Coffee break

17.00 - 17.50 **H. ALLOUL** (U. Paris-Sud, Orsay)
"Impurities in High Tc Materials as studied by NMR"

Thursday, 20 July

Morning session - Chairperson : *Y. Ando*

09.00 - 09.50 **D. BASOV** (UCSD, San Diego)
"An Infrared Probe of Unconventional Superconductivity in
High-Tc Cuprates"

10.00 - 10.50 **D. DREW** (Maryland)
"IR Hall effect in YBCO"

11.00 - 11.20 Coffee Break

11.20 - 12.10 **D. VAN DER MAREL** (Gröningen)
"Optical Signatures of Electron Correlations in the Cuprates"

12.20 - 15.00 Lunch break

Afternoon session - Chairperson : *A. Georges*

15.00 - 15.50 **S. SORELLA** (SISSA)
"D-wave Superconductivity from Superexchange spin-spin
interaction"

15.50 - 16.40 **J. SCHMALIAN** (Iowa State)
"Crossover from Coherent to Incoherent Pairing in the Spin
Fermion Model for Cuprates"

16.40 - 17.00 Coffee break

17.00 - 17.50 **P.W. ANDERSON** (Princeton)
"RVB Redux"

Friday, 21 July

Morning session - Chairperson : N.P. Ong

- 09.00 - 09.50 **K. BEHNIA** (ESPCI & CNRS, Paris)
"Subkelvin Thermal Conductivity: Probing the Very Low Energy
Excitations of the Superconducting State"
- 10.00 - 10.50 **T.V. RAMAKRISHNAN** (Bangalore)
"Thermal Conductivity in a Magnetic Field in Superconducting
Cuprates"
- 10.50 - 11.20 Discussion
- 11.20 - 11.30 Coffee break
- 11.30 - 12.30 **1999 ICTP Prize Ceremony in Honour of Stig Lundqvist**
- 12.30 - 14.30 Lunch break

Monday, 24 July

Morning session - Chairperson : V. Yakovenko

- 09.00 - 09.50 **D. JEROME** (Orsay)
"1D - exact title to be announced"
- 10.00 - 10.50 **R.H. McKENZIE** (Univ. of Queensland)
"A Strongly Correlated Electron Model for the Quasi-two-
dimensional Organic Superconductors Kappa-(BEDT-TTF)₂X"
- 11.00 - 11.20 Coffee break
- 11.20 - 12.10 **L. FORRO** (EPFL, Lausanne)
"Hall Measurements on 1D conductors"
- 12.20 - 15.00 Lunch break

Afternoon session - Chairperson : A. Tsvelik

- 15.00 - 15.50 **J. MYDOSH** (Leiden)
"CDW in RE₅Ir₄Si₁₀ Compounds"
- 15.50 - 16.40 **A. SCHOFIELD** (Birmingham)
"Transport in the 2D Perovskites"
- 16.40 - 17.00 Coffee break
- 17.00 - 17.50 **J. COOPER** (Cambridge)
"Transport Measurements on the Cuprates"

Tuesday, 25 July

Morning session - Chairperson : A. Mackenzie

- 09.00 - 09.50 **L. GLAZMAN** (Minnesota)
"Quantum dots - exact title to be announced"

- 10.00 - 10.50 **D. GOLDHABER-GORDON** (Harvard)
"Kondo Effect in a GaAs Quantum Dot System"
- 11.00 - 11.20 Coffee break
- 11.20 - 12.10 **P. CHANDRA** (NEC)
"Glasses, Optimization and Computation"
- 12.20 - 14.30 Lunch break
Afternoon session - Chairperson : P. Coleman
- 14.30 - 15.30 **Short Poster Presentations II**
- 15.30 - 16.30 **Poster Session II**
- 16.30 - 16.50 Coffee break
Chairperson : H. Takagi
- 16.50 - 17.40 **B. BATLOGG** (Bell Labs, Lucent Technologies)
"Some New Physics of Organic Semiconductors"

Wednesday, 26 July

Morning session - Chairperson : B. Batlogg

- 09.00 - 09.50 **G. LONZARICH** (Cavendish Lab.)
"Magnetically Mediated Superconductivity in Heavy Fermion Systems"
- 10.00 - 10.50 **Q. SI** (RICE Univ.)
"Theoretical Studies of Quantum Critical Behavior in Heavy Fermions"
- 11.00 - 11.20 Coffee break
- 11.20 - 12.10 **C. PEPIN** (Oxford)
"Heavy Fermions/NFL theory"
- 12.20 - 15.00 Lunch break
Afternoon session
- 15.00 - 16.00 Pedagogical talk on "Electron Edge States in Quasi-1D & Quasi-2D"
V. YAKOVENKO (Maryland)
- 16.00 - 16.30 Free
- 16.30 - 16.50 Coffee break
Chairperson : H. Takagi
- 16.50 - 17.20 **P. GEGENWART** (MPI, Dresden)
"Non-Fermi-Liquid Behavior and Superconductivity in the Heavy-fermion Compounds CeCu₂Si₂ and CeNi₂Ge₂".

17.20 - 17.50 **O. TROVARELLI** (MPI, Dresden)
"YbRh₂Si₂ : Pronounced Non-Fermi-Liquid Effects Above
a Low-Lying Magnetic Phase Transition"

Thursday, 27 July

Morning session - Chairperson : G. Baskaran

09.00 - 09.50 **M. ARONSON** (Michigan)
"Magnetic Correlations in UCu_{5-x}Pd_x 0<x<2"

10.00 - 10.50 **R. MOVSHOVICH** (Los Alamos Nat. Lab.)
"Superconductivity in Heavy Fermion Compounds"

11.00 - 11.20 Coffee Break

11.20 - 12.10 **H. TAKAGI** (Tokyo)
"Overview of Spinel Oxides - from Geometrically Frustrated
Magnet, Charge Ordered Insulator to Heavy Fermion Metal"

12.20 - 15.00 Lunch break

Afternoon session - Chairperson : M. Fabrizio

15.00 - 15.50 **N. SATO** (Nagoya)
"Magnetic Exciton Mediated Superconductivity in UPd₂Al₃"

15.50 - 16.40 to be decided

Friday, 28 July

Morning session - Chairperson : J. Mydosh

09.00 - 09.50 **H. AMITSUKU** (Hokkaido)
"Heavy Fermions/NFL - exact title to be announced"

10.00 - 10.50 **A. MACKENZIE** (Birmingham)
"Unconventional Metals and Superconductors in the Layered
Ruthenates"

11.00 - 11.20 Coffee Break

11.20 - 12.10 **WORKSHOP SUMMARY and DISCUSSION**
P. Coleman