

International Seminar and Workshop on
Strong Correlations and Angle-Resolved Photoemission Spectroscopy

Seminar: April 10 - May 11, 2007
 Workshop: April 23 - 27, 2007

Scientific coordination:

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Organisation:

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The CORPES07 workshop and seminar is situated at the crossing between many-body theory for correlated electrons and angle-resolved photoemission spectroscopy (ARPES). The ARPES experiment, based on a detailed exploitation of the photoelectric effect in the immediate vicinity of the Fermi edge, allows to measure the complex self-energy function of correlated electrons. Many-body theory in this non-perturbative regime can only progress in close comparison to experimental data. One important objective is to understand the behaviour of quantum matter characterised by electronic correlations so strong that the low-lying excitations can no longer be described in terms of quasi-particles.

The workshop will capture the instantaneous state of the art, two years after CORPES05 (see: <http://www.mpipks-dresden.mpg.de/~corpes05>). New topics on the experimental side include: photon sources from lasers (10 eV range) and soft X-ray beam lines (1 keV range) combined with new high-resolution analysers, exploitation of photon and spin polarisation, photoemission from nano-sized objects, quantum wells and vicinal surfaces, possibilities with the free electron laser (FEL) as outlook into the near future. New topics on the theory side include: progress in solving polaronic problems, new routines for calculating the momentum dependence of the self-energy, non-Fermi-liquid models beyond the Luttinger liquid, applicable in space dimension $D > 1$. Progress on cuprates, cobaltates, manganates, etc., as well as on 4f and 5f systems, will be reviewed.

The seminar will focus on current difficulties with the theoretical interpretation of ARPES data and the proposed solutions to overcome these difficulties. Main topics are: Inclusion of correlation effects into one-step models, characterisation of the effect of electron-boson couplings on the self-energy, connection between ARPES and other experiments, low-dimensional systems, revision of the sudden approximation in the regime of low photon energies, revision of multi-photon processes. CORPES07 will also have an exploratory role in view of creating a CORPES network, focused on developing software for ARPES data analysis.

Invited speakers: (to be confirmed)*

M. Aichhorn (Würzburg)	J.W. Allen (Ann Arbor)	C.-O. Almbladh (Lund)	J.V. Alvarez (Madrid)
C. Ambrosch-Draxl (Leoben)	S. Biermann (Palaiseau)	J. Braun (München)	A. Chainani (Hyogo)
T.C. Chiang (Urbana)	T. Devereaux (Waterloo)	H. Ding (Chestnut Hill)	M. Eschrig (Karlsruhe)
Y. Fagot-Revurat (Vandœuvre)	M.S. Golden (Amsterdam)	M. Grioni (Lausanne)	O. Gunnarsson (Stuttgart)
M.Z. Hasan (Princeton)	K. Held (Stuttgart)	F.J. Himpsel (Madison)	Z. Hussain (Berkeley)
N. Ingle (Vancouver)	A. Ino (Hiroshima)	M. Jarrell (Cincinnati)	A. Kanigel (Chicago)
C. Kim (Seoul)	A. Kordyuk (Kiev)	G. Kotliar (Piscataway)	A. Lanzara (Berkeley)
A. Lichtenstein (Hamburg)	A. Liebsch (Jülich)	S. Molodtsov (Dresden)	W. Nolting (Berlin)
V. Olevano (Grenoble)	N. Plakida (Dubna)	E. Rotenberg (Berkeley)	S. Sahrakorpi (Boston)
W. Schattke (Kiel)	M. Sing (Würzburg)	S. Souma (Sendai)	Z. Sun (Boulder)
A. Tanaka* (Hiroshima)	T. Tohyama (Sendai)	T. Valla (Upton)	D. Vollhardt (Augsburg)

Applications are welcome and should be made by using the application form on the workshop web page (see web page below). The number of attendees is limited. The registration fee for the workshop is €100. Costs for accommodation and meals will be covered by the Max Planck Institute. In exceptional cases, funding is available to partially cover travel expenses.

Deadline for applications is January 31, 2007.



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