



The Abdus Salam
International Centre for Theoretical Physics



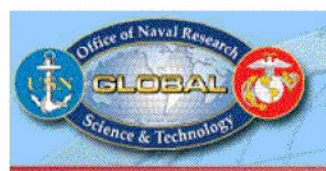
CONFERENCE ON STRONGLY INTERACTING SYSTEMS AT THE NANOSCALE

8 - 12 August 2005

(Miramare - Trieste, Italy)

co-sponsored by:

ONRG – Office of Naval Research Global,
EOARD – European Office for Aerospace Research and Development of the USAF
I²CAM – International Institute for Complex Adaptive Matter



I²CAM International Institute For
Complex Adaptive Matter



The Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste, Italy) is organizing a Conference on Strongly Interacting Systems at the Nanoscale to be held at the ICTP, from 8 to 12 August 2005. The Conference will be directed by Professors **Vladimir I. FALKO** (Lancaster Univ., Lancaster, U.K.), **Andrew John MILLIS** (Columbia Univ., New York, USA), and **Boris N. NAROZHNY** (ICTP, Trieste, Italy).

The objective of the Conference is to bring together the communities of two blooming fields of solid state physics: mesoscopics and strongly correlated systems. Both fields use similar analytical techniques, i.e. many body methods and quantum field theory. Both fields are now focusing on the issue of strongly interacting systems in the presence of disorder or in the regime of quantum chaos. Historically, the two communities were separated by the starting point in their respective approaches. In mesoscopic physics one typically starts with a disordered system in the absence of interactions and then tries to take into account interaction effects using perturbation theory (with few exceptions where non-perturbative treatment is possible). In the theory of strong correlations, the situation is reverse: a great deal is known about interactions in ideally clean systems (e.g., for systems with one spatial dimension several exact methods have been developed), while introduction of disorder renders exact solutions inapplicable. Thus people working in these two fields have a lot to learn from each other, and this Conference aims at exchanging this unique expertise.

The main topics of the conference will include: non-equilibrium phenomena; nanoparticles, single molecule conductors and Kondo effect; quantum criticality; cold atomic gases.

Participants are encouraged to contribute with a poster.

PARTICIPATION

Scientists and students from all countries that are members of the UN, UNESCO or IAEA can attend the activity. Although the main purpose of the Centre is to help researchers from developing countries through a programme of training activities within the framework of international cooperation, a limited number of students, post-doctoral scientists and researchers from developed countries are also welcome to attend. As the Conference will be conducted in English, participants must have an adequate working knowledge of that language.

As a rule, travel and subsistence expenses of the participants are borne by their home institutions. Every effort should be made by candidates to secure support for their fare (or at least half-fare). However, limited funds are available for some participants who are nationals of, and working in, a developing country, and who are not more than 45 years old. Such support is available only to those attending the entire Conference. There is no registration fee to attend this activity.

The closing date for the receipt of requests for participation is 10 MARCH 2005.

The **Application Form** is obtainable from the ICTP WWW server: <http://agenda.ictp.trieste.it/smr.php?1669> (which will be constantly up-dated) or from the activity Secretariat (smr1655@ictp.trieste.it). It should be completed, signed and returned before **10 March 2005 to:**

the Abdus Salam International Centre for Theoretical Physics
Conference on Strongly Interacting Systems at the Nanoscale (smr.1669)
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Trieste, June 2005

ORGANIZERS

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Andrew John MILLIS
(Columbia Univ., New York, USA)

Boris N. NAROZHNY
(ICTP, Trieste, Italy)

PRELIMINARY LIST OF KEY PARTICIPANTS AND SPEAKERS

B. Altshuler
(Princeton Univ., USA)

N. Andrei
(Rutgers Univ., Piscataway, USA)

L. Balents
(Univ. California, Santa Barbara, USA)

V. Cheianov
(Univ. Lancaster, U.K.)

A. Chubukov
(Univ. Maryland, USA)

S. De Franceschi
(TASC, Trieste, Italy)

K. Flensberg
(Niels Bohr Inst., Copenhagen, Denmark)

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(Univ. of Minnesota, USA)

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(Harvard Univ., Cambridge, USA)

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(Univ. Karlsruhe, Germany)

C. Müller
(Univ. Bayreuth, Germany)

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(Delft Univ., Netherlands)

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