



School in Computational Condensed Matter Physics: From Atomistic Simulations to Universal Model Hamiltonians

7 - 25 September 2015
(ICTP, Miramare, Trieste, Italy)

The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy is organizing a **School in Computational Condensed Matter Physics: From Atomistic Simulations to Universal Model Hamiltonians**, to be held at ICTP, Trieste, Italy, from **7 to 25 September 2015**. The School will be co-sponsored by the **Centre Européen de Calcul Atomique et Moléculaire CECAM** and **Deutsche Forschungsgemeinschaft DFG**.

The purpose of this School, aimed at graduate students and junior researchers, is to teach the modern numerical methods used by various communities to study cooperative phenomena in condensed matter and statistical physics. The School will cover the basics of modern programming and will reach as far as advanced topics involving the dynamics of complex classical and quantum systems, and the effects due to disorder and strong electron correlations. Strong emphasis will be put on the integration between sophisticated many-body techniques that have been developed in various branches of condensed matter physics, including solid-state physics, quantum gases and in the physical chemistry of biological systems.

The School provides the necessary background to employ, develop and combine a broad spectrum of modern computational methods:

**Molecular Dynamics;
Density Functional Theory;
Dynamical Mean-field Theory;
Monte Carlo Simulations;
Exact Diagonalization;
Density Matrix Renormalization Group;
Integrated Programming;
Quantum Computing.**

The lectures will be of a pedagogical nature, and will include hands-on tutorials performed in the computer laboratory. They will cover the theoretical basis of these techniques and their most recent practical applications.

PARTICIPATION

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

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 for those who attend the entire activity. There is no registration fee.

HOW TO APPLY FOR PARTICIPATION

The online application form can be accessed at the activity website:
<http://indico.ictp.it/event/a14246/>

DEADLINE for requesting participation with financial support: 20 APRIL 2015

DEADLINE without financial support: 14 June 2015

LIMITED PARTICIPATION

Activity Secretariat:

Telephone: +39-040-2240305

Telefax: +39-040-224163

E-mail: smr2706@ictp.it

ICTP Home Page: <http://www.ictp.it>

Co-sponsors :



ORGANIZERS :

Ali HASSANALI*

(ICTP, Trieste, Italy)

Roderich MOESSNER

(MPI-PKS, Dresden, Germany)

Michele PARRINELLO

(ETHZ & USI, Lugano, Switzerland)

Sebastiano PILATI *

(ICTP, Trieste, Italy)

Anders W. SANDVIK

(Boston University, MA, U.S.A.)

Antonello SCARDICCHIO *

(ICTP, Trieste, Italy)

Nicola SERIANI *

(ICTP, Trieste, Italy)

Matthias TROYER

(ETHZ, Zurich, Switzerland)

* also Local Organizers

SPEAKERS:

Ali ALAVI (MPI-FKF, Stuttgart, Germany)

Bela BAUER (Station Q, Santa Barbara)

Michele CERIOTTI (EPFL, Lausanne)

Giovanni CICCOTTI (Rome)

Ivan GIROTTO (ICTP Trieste)

Werner KRAUTH (ENS-Paris)

Georg KRESSE (Univ. of Vienna)

Andreas LÄUCHLI (Univ. of Innsbruck)

Chris LAUMANN (Univ. of Washington)

Saverio MORONI (CNR-IOM & SISSA)

Michele PARRINELLO (ETHZ & USI)

Frank POLLMANN (MPI-PKS Dresden)

Pedro RIBEIRO (Lisboa)

Thomas SCHULTHESS (CSCS/ETHZ)

Anders W. SANDVIK (Boston Univ.)

Matthias TROYER (ETHZ, Zurich)

Philipp WERNER (Univ. of Fribourg)

Steve WHITE (UC Irvine)

Michael WIMMER (UC Irvine)

EVENT WEB PAGE:

<http://indico.ictp.it/event/a14246/>