The Abdus Salam International Centre for Theoretical Physics

IAEA International Atomic Energy Agency

unesco United Nations Educational, Scientific and Cultural Organization

School on Quantum Dynamics of Matter, Light and Information

Description:

This School aims to teach a modern course in condensed matter and statistical physics, combining basic concepts with recent structural and interdisciplinary developments, with a special focus on the interactions between information, light and matter. The leitmotif of the school will be to bridge traditional methods and approaches developed in the context of strongly correlated electrons, to interdisciplinary concepts and ideas coming from quantum information theory as well as solid state and atomic physics experiments.

MORE INFORMATION:

The event is aimed at graduate students and junior researchers, and features a combination of theory and computational courses, as well as seminars on experimental progress in the field.

TOPICS:

- Statistical Mechanics: from foundations to active matter and quantum information
- Analytical techniques and (quantum) field theory
- Numerical techniques: high-level programming and advanced computational methods
- Coherent dynamics: entanglement, decoherence, phase transitions, driven systems, and chaos in many body physics
- Topological quantum matter: phases, excitations, and diagnostics
- Physical platforms - solid state, atoms and photons

LECTURERS:

A. Browayes, Institut d'optique, France
P. Calabrese, SISSA, Italy
A. Chandran, Boston Univeristy, USA
J. Chalker, University of Oxford, UK
W. Krauth, Ecole Normale Superieure, France
C. Laumann, Boston Univeristy, USA
M. Levin, Unviersity of Chicago, USA
M. Mueller, Paul Scherrer Institute, Switzerland
M. Mueller, University of Aachen, Germany
S. Pappalardi, Universityt of Cologne, Germany
S. Sachdev, Harvard University, USA
M. Stoudenmire, Flatiron Institute, USA
A. Suslov, University of Cambridge, UK
A. Yazdani, Princeton Unviersity, USA
M. Znidaric, University of Ljubljana, Slovenia

18 August - 5 September 2025

Trieste, Italy

Application and Deadlines:

15 April 2025
for applicants requesting financial and/or visa support

15 May 2025
for all other applicants

DIRECTORS:

C. Castelnovo, University of Cambridge, UK
X. Chen, California Institute of Technology, USA
M. Dalmonte, ICTP, Italy
M. McGinley, University of Cambridge, UK
R. Moessner, MPI, Germany
A. Scardicchio, ICTP, Italy
A. Silva, SISSA, Italy

LOCAL ORGANISER:

M. Dalmonte, ICTP, Italy

FURTHER INFORMATION:

E-mail: smr4095@ictp.it

Web: http://indico.ictp.it/event/10860/

Female scientists are encouraged to apply.

GRANTS:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries.
There is no registration fee.

ICAM-I2CAM Institute for Complex Adaptive Matter

ct.qmat

NQSTI National Quantum Science and Technology Institute