The Abdus Salam International Centre for Theoretical Physics

IAEA International Atomic Energy Agency

unesco United Nations Educational, Scientific and Cultural Organization

ICTP 1964–2024

School and Workshop on Frontiers of Nanomechanics

Description:

This Advanced School and Workshop will recapitulate the fundamental concepts of nano- and optomechanical systems and introduce the key concepts behind future nano- and optomechanical technologies. The school and workshop will consist of lectures on: introductory material, coupling nanomechanics to spins, nonlinear dynamics, topological systems, cavity optomechanics (theory/experiment), foundations, coupling to qubits, and non-Hermitean physics. These lecture series reflect the fields which currently attract the highest scientific interest and/or application potential. Beyond lectures, students will work on mini-projects and have the chance to present their work in a poster session.

23 September - 4 October 2024

Trieste, Italy

Deadlines:

15 June 2024
for applicants requesting financial and/or visa support

1 August 2024
for all other applicants

MORE DETAILS:

The study of nanomechanical systems has evolved into a vast and rapidly growing field of research. The rise of nanomechanical systems is fueled by their astounding potential in many respects: While they are solid-state based model systems to investigate fundamental quantum physics and to target the frontiers of quantum mechanics, they also receive considerable attention for their potential practical applications in classical and quantum information technology or as ultrasensitive detectors of mass, displacement, acceleration, force or spin. Even more, their nonlinear properties allow to study effects of parametric amplification, self-oscillation or synchronization, giving rise to potential exploitation as oscillators for clocking applications. By their nature, nanomechanical systems are interdisciplinary, since they can couple to electrical circuits or optical cavities and they have potential applications in sensing, telecommunications, biophysics, and photonics, both in the classical and in the quantum realm.

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LOCAL ORGANISER:

M. KISELEV, ICTP, Italy

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.

FURTHER INFORMATION:

E-mail: smr3969@ictp.it

Web: https://indico.ictp.it/event/10507/

Female scientists are encouraged to apply.