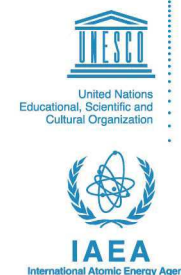




The Abdus Salam International Centre for Theoretical Physics



Workshop on Nano-Opto-Electro-Mechanical Systems Approaching the Quantum Regime

6 - 10 September 2010
Miramare - Trieste, Italy



The Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste, Italy) is organizing a **Workshop on Nano-Opto-Electro-Mechanical Systems Approaching the Quantum Regime** to be held at the ICTP from the **6th to the 10th September 2010**. This Workshop is co-sponsored by the Arnold Sommerfeld Center for Theoretical Physics, LMU Center for NanoScience, Nanosystems Initiative Munich and Yale University.

DESCRIPTION: Research groups working on mechanical systems ranging in size from nanometer-scale oscillators to kilometer-scale gravity wave detectors are all independently approaching a regime in which either the mechanical system or its interaction with the environment must be described quantum mechanically. This remarkable convergence is all the more striking because many of the scientific issues related to the quantum regime of mechanical systems are independent of the system size. As a result, researchers from backgrounds as diverse as astrophysical gravity waves, mesoscopic condensed matter physics, and quantum optics are converging on a common set of goals related to quantum effects in mechanical systems. This Workshop will address the quantum aspects of mechanical systems of all sizes. A primary goal will be to increase the level of communication and collaboration between researchers from different backgrounds through tutorials and informal discussions as well as invited presentations.

TOPICS:

- Interaction of nano- or micromechanical structures with electric circuits, optical radiation or cold atoms;
- Quantum transport in nanomechanical systems;
- Nanomechanics with carbon-based materials (graphene, nanotubes);
- Molecular nanomechanical devices, shuttles;
- Quantum measurements and entanglement involving nanomechanical systems;
- Amplification, cooling, nonlinear dynamics;
- Connections to research in gravitational wave detection.

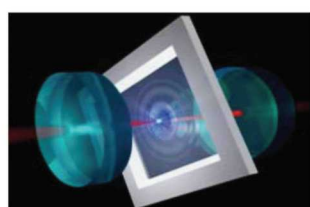
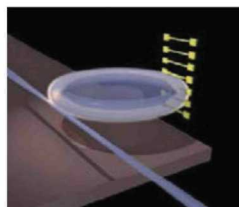
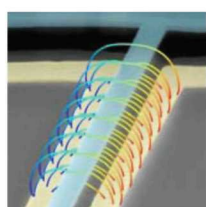
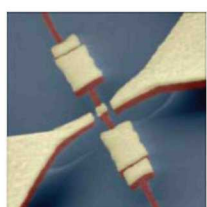
The goal of the Workshop is to bring together active researchers in the field to discuss experimental and theoretical aspects of nano-opto-electro mechanics. Several lectures/seminars will be planned for scientists from developing countries serving mostly for educational purposes. We plan to attract young scientists (graduate students and postdocs) from developing countries to participate in the Workshop.

A poster session will provide an opportunity for young scientists to present their results. Those interested in presenting a poster should prepare a one-page abstract (size A4) in PDF format, and upload it via the Online Application Form. Applicants will be informed by the Organizers whether their abstracts have been accepted for poster presentation by **30 June 2010**.

PARTICIPATION: Scientists and students from all countries that are members of the United Nations, UNESCO or IAEA may attend. As the Workshop will be conducted in English, participants should have an adequate working knowledge of this language. Although, the main purpose of the Centre is to help research workers 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 should be borne by their home institution. Every effort should be made by candidates to secure support for their fare. However, very limited funds are available for partial support of 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 Workshop. **There is no registration fee for attending this activity.**

HOW TO APPLY FOR PARTICIPATION: An Online Application Form can be accessed through the Workshop website <http://agenda.ictp.it/smr.php?2164>. Once in the website, comprehensive instructions will guide you step-by-step on how to fill out and submit the Application Form.



WORKSHOP SECRETARIAT:

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

Trieste, January 2010

ORGANIZERS:

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LOCAL ORGANIZER:

Mikhail KISELEV (ICTP, Trieste, Italy)

INVITED SPEAKERS:

A. Armour (Nottingham)
M. Aspelmeyer (Vienna)
A. Bachtold (Barcelona)
Y. Blanter (Delft)
M. Blencowe (Hanover)
R. Blick (Madison)
D. Bouwmeester (Santa Barbara)
T. Brandes (Berlin)
E. Buks (Haifa)
A. Cleland (Santa Barbara)
A. Clerk (Montreal)
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P. Zoller (Innsbruck)

* to be confirmed

Deadline for Application

1 MAY 2010