

# Advanced School and Workshop



## Ubiquitous Quantum Physics: the New Quantum Revolution

**18 February - 1 March 2019**  
**Trieste, Italy**

Further information:  
Advanced School:  
<http://indico.ictp.it/event/8648/>  
smr3273@ictp.it  
Workshop:  
<http://indico.ictp.it/event/8662/>  
smr3371@ictp.it

We are presently witnessing the start of a new quantum revolution that promises to make the quantum paradigm ubiquitous: the last years have shown a fast growing interest in the application of quantum theory to technology-oriented and information-related fields, including metrology, material science, nano-device and sensor design, together with information-based disciplines such as computation, communication and cryptography; in turn, these activities have fostered new developments in the study and manipulation of individual quantum systems, many-body compounds and hybrid micro-macro devices. All these realizations have de facto boosted a reborn interest in quantum physics and created a unique framework in which theoretical physics can fruitfully dialogue with information theory, computer science and even engineer applicative disciplines.

These activities School, (School, 18-22 February, and Workshop, 25 February-1 March) will concentrate on the interdisciplinary character of all these fields, focusing on themes that appear to stand out as the most innovative and fast growing fields of research for the coming years. The emphasis will be on the inter-relations of these research topics, with the aim of fostering mutual interactions and cross-fertilizing exchanges.

### Topics:

- Quantum dynamics in the macro-world: quantum coherence and entanglement
- Quantum theory as an interdisciplinary paradigm: quantum information and simulation
- Quantum physics for a technology boost: quantum devices and machines

### How to apply:

Online application:  
Advanced School:  
<http://indico.ictp.it/event/8648/>  
Workshop:  
<http://indico.ictp.it/event/8662/>

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.

### Directors:

Angelo BASSI (University of Trieste, Italy)  
Fabio BENATTI (University of Trieste, Italy)  
Roberto FLOREANINI (INFN, Trieste, Italy)

### Advisors:

Daniel BRAUN (University of Tübingen, Germany)  
Vahid KARIMIPOUR (Sharif Univ. Tehran, Iran)  
Mauro PATERNOSTRO (Queen's University, Belfast, UK)  
Andrea TROMBETTONI (CNR, Trieste, Italy)

### Local Organizer:

Marcello DALMONTE (ICTP)

### School Lecturers:

D. CHRUSHINSKI (University of Torun, Poland)  
R. KOSLOFF (University of Tel Aviv, Israel)  
F. MINTERT (Imperial College, UK)  
S. PASCAZIO (University of Bari, Italy)  
M. PATERNOSTRO (Queen's University, Belfast, UK)  
J. RENES (University of Zurich, Switzerland)  
W. STRUNZ (Technische Univ. Dresden, Germany)  
M. THORWART (University of Hamburg, Germany)  
P. WITTEK (University of Toronto, Canada)

### Deadline:

**15 November 2018**



The Abdus Salam  
International Centre  
for Theoretical Physics  
[www.ictp.it](http://www.ictp.it)  
Trieste, Italy

