



The Abdus Salam
**International Centre
for Theoretical Physics**

50th Anniversary 1964–2014

((ICTP – Eurasian Centre
for Advanced Research))



Advanced Workshop on Landau-Zener Interferometry and Quantum Control in Condensed Matter

29 September – 3 October 2014

ICTP-ECAR Centre, IZTECH (Izmir, Turkey)

The ICTP – Eurasian Centre for Advanced Research (ICTP-ECAR), Center for NanoScience (CeNS, Munich, Germany) and Nanosystems Initiative Munich (NIM, Munich, Germany) are organizing an Advanced Workshop on Landau - Zener Interferometry and Quantum Control in Condensed Matter, to be held in ICTP-ECAR Centre, IZTECH, Izmir (Turkey), from 29th September to 3rd October 2014.

The workshop will address recent developments on Landau-Zener dynamics and related quantum control in complex systems including (but not limited to) many-body effects in ultracold gases, dissipative Landau-Zener transitions, Landau-Zener interferometry in superconducting qubits, double and triple quantum dots, spin & charge qubits, N-V centers and nano-mechanical systems.

The central idea of this workshop is to bring together various condensed matter communities, dealing with complex systems, where the nonequilibrium dynamics at avoided crossings is (other than in pure atomic systems) highly influenced by many-body interactions and, in many cases, environmental fluctuations. We expect about 100 participants including about 25 invited presentations given by the world experts in order to exchange ideas and shape new links beyond the traditional community boundaries. We hope to facilitate Landau-Zener interferometry and quantum control as one of the key spectroscopic tools in condensed matter systems for the future.

TOPICS

- **Quantum control in condensed matter:** semiconducting quantum dots, superconducting qubits, ultracold gases, NV-centers, nanomechanical systems
- **Landau-Zener-Stückelberg-Majorana interferometry**
- **Dissipative Landau-Zener transitions**

About ICTP-ECAR (<http://ictp-ecar.org>)

“ICTP – Eurasian Centre for Advanced Research (ICTP – ECAR)” is a new regional centre intended to foster the advancement of basic sciences in Eastern Europe and Near Asia (in particular, Balkan, Black Sea, Inner Asia, Middle East and Northern Africa) countries. The Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste-Italy), a United Nations organization working under the umbrella of UNESCO, and the Izmir Institute of Technology (IZTECH, Izmir-Turkey) have agreed to collaborate towards the creation of ICTP – ECAR. The Centre’s organization and activities will be truly international following the decades-long successful model of ICTP. The role of Turkey, and IZTECH in particular, is to host and facilitate its operations.

Participation

Scientists and students from all countries which are members of the United Nations, UNESCO or IAEA may attend the Workshop. Priority will be given to advanced undergraduates, graduate students, post-doctoral researchers, faculty and research scientists from Eastern Europe and Near Asia (in particular, Balkan, Black Sea, Inner Asia, Middle East and Northern Africa) countries. As lectures and talks will be given in English, participants should have an adequate working knowledge of that 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 the home institution. There is no registration fee.

HOW TO APPLY FOR PARTICIPATION

The application form can be accessed at the activity website
<http://agenda.ictp.it/smr.php?2677>

Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form. You may address general requests for information to:

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INVITED SPEAKERS

Ehud Altman (Israel) *)
Dimitris Angelakis (Greece & Singapore)
Alexander Altland (Germany)
Pierre Barthelemy (Netherlands)
Guido Burkard (Germany)
Aashish Clerk (Canada)
Francesca Ferlino (Austria) *)
Yuval Gefen (Israel)
Steven Girvin (U.S.A.)
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Fedor Jelezko (Germany) *)
Sigmund Kohler (Spain)
Mikhail Lukin (U.S.A.) *)
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Gilles Montambaux (France)
Mehmet Ozgur Oktel (Turkey)
William D. Oliver (U.S.A.)
Jukka Pekola (Finland)
Thomas Pohl (Germany)
Valery Pokrovsky (U.S.A.)
Anatoli Polkovnikov (U.S.A.)
Andrew Sachrajda (Canada)
Ulrich Schneider (Germany)
Tim Taminiau (Netherlands)
Richard Warburton (Switzerland)
Eva Weig (Germany)

*) to be confirmed

DEADLINE for applications with financial support request and needing visa:
30th June 2014

DEADLINE for applications NOT requiring financial support, nor visa:
15th August 2014