

International Seminar and Workshop on

**Bloch Oscillations and Landau-Zener Tunneling:
From Hot Electrons to Ultracold Atoms**

Seminar: April 14 - May 08, 2009 — Workshop: May 04 - 08, 2009

Scientific coordination:

Ennio Arimondo

University of Pisa
Pisa, Italy

Yuriy A. Kosevich

Semenov Institute of Chemical Physics - RAS
Moscow, Russian Federation

Thomas Pertsch

Friedrich Schiller University
Jena, Germany

Organisation:

Claudia Pönisch, MPI für Physik komplexer Systeme, Dresden, Germany

Bloch oscillations and Landau-Zener tunneling are the fundamental properties of quantum dynamics of a particle in a periodic potential subject to an external static force. The wave-particle dualism leads to completely counterintuitive behaviour of Bloch-oscillating wavepacket-particle, which attracted for years substantial interest in its deep theoretical understanding and clear experimental observation. The main purpose of this International Seminar and Workshop is to bring together leading experts in the study of Bloch oscillations and Landau-Zener tunneling in different systems and materials, such as semiconductor superlattices and devices for hot electrons, optical waveguide arrays, optical superlattices and photonic crystals for photonic wavepackets, ultrasonic superlattices and superlattices made of acoustic micro- and nanocavities for acoustic and phononic wavepackets, optical lattices for ensembles of ultracold atoms and Bose-Einstein condensates. During the Workshop week the invited and contributed talks will focus on the fundamental concepts, appealing physical analogies and interdisciplinary exchange of ideas, as well as on novel applications of Bloch oscillations and Landau-Zener tunneling in a broad spectrum of modern materials and actual systems. The Seminar will be devoted to lectures, research work and synergetic discussions.

Invited speakers:

(to be confirmed)

S. J. Allen (USA)

G. Bastard (France)

F. Beltram (Italy)

A. Buchleitner (Germany)

F. Cataliotti (Italy)

I. Cirac (Germany)

M. Dignam (Canada)

F. Dominguez-Adame (Spain)

M. Fromhold (UK)

K. Hirakawa (Japan)

M. Holthaus (Germany)

A. Ignatov (Russia)

B. Jusserand (France)

A. Kavokin (UK)

R. Khomeriki (Georgia)

V. M. Kenkre (USA)

A. Kolovsky (Russia)

H. J. Korsch (Germany)

S. Longhi (Italy)

G. Malpuech (France)

O. Morsch (Italy)

Ch. Nägerl (Austria)

M. Oberthaler (Germany)

U. Peschel (Germany)

K. Renk (Germany)

H. Roskos (Germany)

S. Ruffo (Italy)

C. Salomon (France)

S. Stringari (Italy)

A. Wacker (Sweden)

M. Weitz (Germany)

S. Wimberger (Germany)

Applications are welcome and should be made by using the application form on the conference web page (please see URL below). The number of attendees is limited. The **registration fee** for the seminar and workshop is **100 €** and should be paid by all participants. Costs for accommodation and meals will be covered by the Max Planck Institute. Limited funding is available to partially cover travel expenses. Please note that childcare is available upon request.

Deadline for registration is January 31, 2009.



For further information please contact:
Visitors Program - Claudia Pönisch
Max-Planck-Institut für Physik komplexer Systeme,
Nöthnitzer Str. 38, D-01187 Dresden, Germany
Tel.: +49-351-871-2198 / Fax: +49-351-871-2199
bolzt09@mpipks-dresden.mpg.de
<http://www.mpipks-dresden.mpg.de/~bolzt09>

