

MAX-PLANCK-INSTITUT FÜR PHYSIK KOMPLEXER SYSTEME

International Workshop on
A T O M I C P H Y S I C S

November 23 – 27, 2009

Focus Days on

**Ultra-fast dynamics in finite atomic and molecular
systems probed with novel light sources**

Scientific Coordinators:

Ulf Saalmann
mpipks Dresden

Fernando Martín
Universidad Autónoma de
Madrid

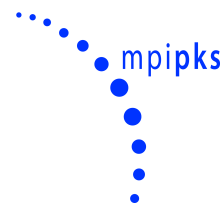
Jan M Rost
mpipks Dresden



co-sponsored by the COST Action CM0702



Local Organization: Gabriele Makolies
Max Planck Institute for the Physics of Complex Systems
Nöthnitzer Str. 38, 01187 Dresden, Germany
Tel: +49-351-871-2204, Fax: +49-351-871-2299
e-mail: atom2009@pks.mpg.de
<http://www.pks.mpg.de/~atom2009>



Program

MONDAY, November 23

- 08:45 - 09:00 WELCOME: Jan M Rost, Fernando Martín
CHAIRPERSON: Fernando Martín
- 09:00 - 09:30 **Joachim Burgdörfer**, Vienna
Attosecond streaking
- 09:45 - 10:15 **Luca Argenti**, Stockholm
The role of doubly excited states when atoms interact with short laser pulses
- 10:30 - 11:00 COFFEE BREAK
- 11:00 - 11:30 **Rebeca de Nalda**, Madrid
Femtosecond imaging of molecule and cluster dynamics
- 11:45 - 12:15 **Marie-Christine Bacchus**, Lyon
Non-adiabatic effects in photodissociation and charge transfer processes
- 12:30 - 14:00 LUNCH
CHAIRPERSON: Piero Decleva
- 14:00 - 14:30 **Wim Vanroose**, Antwerpen
Numerical analysis of absorbing boundary conditions for intense laser pulse
- 14:45 - 15:15 **Hugo van der Hart**, Belfast
Multi-electron dynamics studied using the time-dependent R-matrix approach
- 15:30 - 16:00 **Marta Labuda**, Jena
Ultrafast quantum dynamics of the low energy charge transfer in the $S^{3+} + H$ system
- 16:15 - 16:30 COFFEE BREAK
CHAIRPERSON: Ulf Saalmann
- 16:30 - 17:30 **mpipks - Colloquium**
Peter Abbamonte, Urbana, Illinois
*Why isn't graphene a strongly correlated electron system?
Insights from x-ray attosecond imaging*
- 18:30 Supper

Program

TUESDAY, November 24

CHAIRPERSON: Bernard Piraux

- 09:00 - 09:30 **Ken Taylor**, Belfast
Kinetic energy cutoffs and partitions in double ionization
- 09:45 - 10:15 **Alejandro Saenz**, Berlin
*Orientation-dependent ionization of molecules in intense laser pulses:
A tool for time-resolved imaging?*
- 10:30 - 11:00 COFFEE BREAK
- 11:00 - 11:30 **Laurence Malegat**, Orsay
*Combining the time-propagation of a wavepacket with the hyperradial-
propagation of its Fourier components*
- 11:45 - 12:15 **Vitali Averbukh**, Dresden
Intra- and inter-atomic decay processes in multiply ionized clusters
- 12:30 - 14:00 LUNCH
- CHAIRPERSON: Peter Lambropoulos
- 14:00 - 14:30 **Christian Lubich**, Tübingen
*Variational splitting time integration in multi-configuration methods
for quantum dynamics*
- 14:45 - 15:15 **Graham Worth**, Birmingham
Accurate quantum dynamics simulations of multimode problems
- 15:30 - 16:00 COFFEE BREAK
- 16:00 - 16:30 **Roberto Marquardt**, Strasbourg
The multidimensional quantum dynamics of vibrational photoexcitations
- 16:45 - 17:15 **Xavier Urbain**, Louvain
*Vibrational excitation and alignment of molecular ions in the ultrafast
multiphoton regime*
- 17:30 - 18:00 **Niels Engholm Henriksen**, Lyngby
Detection and control of molecular dynamics
- 18:15 SUPPER
- 19:00 **COST Management Committee Meeting** (room 1 D 1)
- 19:30 **Poster session** (second floor)

Program

WEDNESDAY, November 25

CHAIRPERSON: Lars Bojer Madsen

- 09:00 - 09:30 **Giuseppe Sansone**, Milano
Molecular dynamics in the attosecond domain
- 09:45 - 10:15 **Johan Mauritsson**, Lund
Attosecond experiments at Lund High-Power Laser Facility
- 10:30 - 11:00 COFFEE BREAK
- 11:00 - 11:30 **Rodolphe Vuilleumier**, Paris
Theoretical investigation of the ultrafast dissociation of ionized biomolecules immersed in water: Direct and indirect effects
- 11:45 - 12:15 **Mario Barbatti**, Vienna
*Ultra-fast dynamics of photoactivated molecules:
What simulations can tell us*
- 12:30 - 13:30 LUNCH
- CHAIRPERSON: Ladislau Nagy
- 13:30 - 14:00 **Danielle Dowek**, Paris
Electronic and nuclear dynamics probed by molecular frame photoemission
- 14:15 - 14:45 **Alicia Palacios**, Madrid
*Two-electron time-delay interference in atomic double ionization
by attosecond pulses*
- 15:00 - 15:30 COFFEE BREAK

15:45 **Social Program** with audio-guided tour in the **Historic Green Vault**
or guided tour in the **Old Masters Picture Gallery, Zwinger**

19:00 **Workshop Dinner**
Restaurant CENTRAL, Altmarkt 6

Program

THURSDAY, November 26

CHAIRPERSON: Harald Friedrich

- 09:00 - 09:30 **Itzik Ben-Itzhak**, Manhattan KS
Controlling the dissociation of a molecular ion beam with intense two-color laser fields
- 09:45 - 10:15 **Uwe Becker**, Berlin
Evidence for non-locality of time in position based EPR experiments
- 10:30 - 11:00 COFFEE BREAK
- 11:00 - 11:30 **Robert Moshhammer**, Heidelberg
Atoms and molecules in intense XUV FEL pulses
- 11:45 - 12:15 **Piero Decleva**, Trieste
Resonances in transition metal compounds: From atoms to molecules
- 12:30 - 14:00 LUNCH
- CHAIRPERSON: John Briggs
- 14:00 - 14:30 **Ulli Eichmann**, Berlin
Acceleration of neutral atoms in strong laser fields
- 14:45 - 15:15 **Agapi Emmanouilidou**, London
Electronic correlation triggered by strong laser fields in atomic and molecular systems: A quasiclassical approach
- 15:30 - 16:00 **Javier Madroño**, Munich
Highly double excited states of two-electron atoms
- 16:15 - 16:45 COFFEE BREAK
- 16:45 - 17:15 **Olga Smirnova**, Berlin
High harmonic spectroscopy of small molecules
- 17:30 - 18:00 **Eleftherios Goulielmakis**, Munich
Real time observation of valence electron motion
- 18:15 - 18:45 **Lars Bojer Madsen**, Aarhus
Attosecond photoelectron spectroscopy: Propagation and polarization effects
- 19:00 SUPPER
- 19:45 **Poster session** (second floor)

Program

FRIDAY, November 27

CHAIRPERSON: Klaus Hornberger

- 09:00 - 09:30 **Gerhard G. Paulus**, Jena
Recent experiments in above-threshold ionization
- 09:45 - 10:15 **Alexey Mikaberidze**, Dresden
Ultrafast formation of a resonant nanoplasma in doped helium droplets
- 10:30 - 11:00 COFFEE BREAK
- 11:00 - 11:30 **Rüdiger Schmidt**, Dresden
Giant collective vibrational modes in laser- and collision-induced fullerene dynamics
- 11:45 - 12:15 **Alberto Castro**, Zaragoza
Quantum optimal control theory with time-dependent density-functional theory
- 12:30 - 14:00 LUNCH
- CHAIRPERSON: Anatole Kenfack
- 14:00 - 14:30 **Günter Wunner**, Stuttgart
Bright solitons, self-organized structures, and pitchfork bifurcations in ultracold dipolar atoms
- 14:45 - 15:15 **Nimrod Moiseyev**, Haifa
Atoms and molecules in strong laser fields: Observable phenomena which can not be predicted by the standard formalism of quantum mechanics
- 15:30 - 16:00 COFFEE BREAK
- 16:00 - 16:30 **Jamal Berakdar**, Halle-Wittenberg
Nondestructive current and polarization generation by high frequency high intensity photon fields
- 16:45 - 17:15 **Vladimir Kraynov**, Moscow
Electron heating at the irradiation of large atomic clusters by intense femtosecond and attosecond laser pulses
- 17:30 SUPPER