

International Workshop on "Atomic Physics"
MPIPKS, November 28 - December 2, 2005

Scientific Program

Sunday, November 27th

18:00 - 21:00 WELCOME BUFFET AND REGISTRATION

Monday, November 28th

08:50 - 09:00 WELCOME

CHAIRPERSON: Robert van Leeuwen

09:00 - 09:30 **Leeor Kronik**, Rehovoth

Time-dependent density-functional calculations for molecules, clusters, and nanocrystals

09:45 - 10:15 **Kieron Burke**, Rutgers

TDDFT in strong fields: Promises and challenges

10:30 - 11:00 COFFEE BREAK

11:00 - 11:30 **Roi Baer**, Jerusalem

Time dependent density functional theory beyond adiabatic approximation: New approaches and applications

11:45 - 12:15 **David Tozer**, Durham

Charge transfer excitations and the chemical hardness in DFT

12:30 - 14:00 LUNCH

CHAIRPERSON: Alejandro Saenz

14:00 - 14:30 **Artem Rudenko**, Heidelberg

Multiple ionization of atoms in intense laser fields

14:45 - 15:15 **Andreas Becker**, Dresden

Ab-initio calculation of double ionization of He and H₂ by few-cycle laser pulses

15:30 - 16:00 **Hugo van der Hart**, Belfast

Multiphoton processes in multi-electron atoms using the R-matrix Floquet approach

16:15 - 16:30 COFFEE BREAK

CHAIRPERSON: Stephan Kümmel

16:30 - 17:30 MPIPKS-Colloquium

Angel Rubio, San Sebastian/Donostia

Response functions from a TDDFT-based formalism: Applications to low dimensional structures

18:00 SUPPER

Tuesday, November 29th

CHAIRPERSON: Karl-Heinz Schartner

- 09:00 - 09:30 **Klaus Ziegler**, Augsburg
Small electronic systems with electron-phonon interaction
- 09:45 - 10:15 **Rashid Nazmitdinov**, Palma de Mallorca
Interplay between Zeeman interaction and spin-orbit coupling in a two-dimensional semiconductor system
- 10:30 - 11:00 COFFEE BREAK
- 11:00 - 11:30 **Andrei Nefiodov**, St. Petersburg
Double photoeffect on inner-shell electrons
- 11:45 - 12:15 **Thomas Pattard**, Dresden
Single-photon double ionization of the hydrogen molecule within a half-collision picture
- 12:30 - 14:00 LUNCH

CHAIRPERSON: Andreas Becker

- 14:00 - 14:30 **Alejandro Saenz**, Berlin
Influence of nuclear motion on the ionization of molecules in intense laser fields
- 14:45 - 15:15 **Armin Scrinzi**, Vienna
Few-electron dynamics in strong fields - the MCTDHF code
- 15:30 - 16:00 COFFEE BREAK

CHAIRPERSON: David Tozer

- 16:00 - 16:30 **E.K.U. Gross**, Berlin
Towards time-dependent multi-component DFT and optimal control of many-particle dynamics
- 16:45 - 17:15 **Robert van Leeuwen**, Groningen
Time-dependent density-functional theory and variational functionals from many-body perturbation theory
- 17:30 - 18:00 **Alberto Castro**, Berlin
Useful computational tools for the implementation of TDDFT: Adaptive coordinates and real-space domain parallelization
- 18:30 SUPPER
- 19:30 POSTER SESSION

Wednesday, November 30th

CHAIRPERSON: Ulf Saalman

- 09:00 - 09:30 **Manchikanti Krishnamurthy**, Heidelberg
Immense ionization of clusters in intense laser fields
- 09:45 - 10:15 **Dieter Bauer**, Heidelberg
*Collective absorption in laser cluster interaction
beyond linear resonance*
- 10:30 - 11:00 COFFEE BREAK
- 11:00 - 11:30 **Josef Tiggesbäumker**, Rostock
Dynamics of metal clusters in helium droplets
- 11:45 - 12:15 **Sergei Popruzhenko**, Moscow
Collisionless energy absorption in a heated nanoplasma
- 12:30 - 14:00 LUNCH
- CHAIRPERSON: Josef Tiggesbäumker
- 14:00 - 14:30 **Bernd von Issendorff**, Freiburg
Photoelectron spectroscopy of large sodium clusters
- 14:45 - 15:15 **Paul-Gerhard Reinhard**, Erlangen/Nürnberg
Strong-field dynamics of embedded metal clusters
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16:00 Guided tour in the city center

19:30 WORKSHOP DINNER
Ballhaus Watzke, <http://www.watzke.de>

Thursday, December 1st

CHAIRPERSON: Nikolay Kabachnik

09:00 - 09:30 **Vsevolod Balashov**, Moscow
Coherent and incoherent interactions of channeled highly-charged ions in crystals

09:45 - 10:15 **Joachim Burgdoerfer**, Moscow
Atomic dynamics probed by attosecond pulses

10:30 - 11:00 COFFEE BREAK

11:00 - 11:30 **Richard Taieb**, Paris
*Multicolor above-threshold ionization of helium:
Quantum interference effects in angular distributions*

11:45 - 12:15 **Robin Santra**, Argonne
Many-electron aspects of the three-step model of high-harmonic generation

12:30 - 14:00 LUNCH

CHAIRPERSON: Joachim Burgdörfer

14:00 - 14:30 **Stephan Fritzsche**, Kassel
Alignment and polarization effects in relativistic ion-atom collisions

14:45 - 15:15 **Stefan Schippers**, Giessen
Hyperfine structure of highly charged ions investigated by dielectronic recombination

15:30 - 16:00 COFFEE BREAK

16:00 - 16:30 **Josef Anton**, Kassel
Calculations of differential cross sections in slow atom-ion collisions

16:45 - 17:15 **Aigars Ekers**, Riga
Molecular Autler-Townes effect and its applications

18:30 SUPPER

19:30 POSTER SESSION

Friday, December 2nd

CHAIRPERSON: Joachim Brand

- 09:00 - 09:30 **Ralf Wehlitz**, Madison
Double photoionization of C_{60} from threshold up to 280eV
- 09:45 - 10:15 **Tim Laarmann**, Berlin
*Non-adiabatic multi-electron dynamics in large finite systems:
Analysis and control of C_{60} photophysics with ultrashort and
temporally shaped laser pulses*
- 10:30 - 11:00 COFFEE BREAK
- 11:00 - 11:30 **Tim Softley**, Oxford
Deceleration and surface scattering of Rydberg molecules
- 11:45 - 12:15 **Helen Fielding**, London
Coherent control of Rydberg wave packets
- 12:30 - 14:00 LUNCH
- CHAIRPERSON: Tim Softley
- 14:00 - 14:30 **Harald Friedrich**, München
Trapping ultracold atoms by quantum reflection
- 14:45 - 15:15 **Frederic Merkt**, Zürich
Towards trapping Rydberg atoms
- 15:30 - 16:00 COFFEE BREAK
- 16:00 - 16:30 **Thibault Vogt**, Paris
High resolution Rydberg excitation of cold atoms
- 16:45 - 17:15 **Stephan Kraft**, Freiburg
Ultracold atom-molecule collisions
- 17:30 SUPPER