

Ringberg Symposium

Ultrafast Surface Dynamics

March 28 - April 1, 1999

Schloß Ringberg, D-83700 Rottach-Egern, Germany

Organizers: U. Höfer and M. Wolf

Financial supported by
Sonderforschungsbereich 338, München
Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin
Max-Planck-Institut für Quantenoptik, Garching
Sonderforschungsbereich 450, Berlin

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Coherent GmbH
Spectra Physics



Final Program

Sunday, 28 March 1999

16:00-19:00 *Arrival at Schloß Ringberg*

- 19:00 *Welcome Reception and Buffet Dinner*

Monday, 29 March 1999

- 8:00 *Breakfast*

Session I: Vibrational dynamics

(Chair H. Zacharias)

- 8:40
Opening remarks
- 8:50
C. Harris (Berkeley)
Ultrafast studies of electron localization at surfaces and interfaces.
- 9:30
S. Fischer (München)
Simulation of electron localisation on adsorbate surfaces.
- 9:50 *Coffee break*
- 10:20
K. Domen (Tokyo)
Dynamic behavior of surface reaction intermediates studied by pump-probe method using sum-frequency generation.
- 11:00
A. Laubereau (München)
Three-color sum-frequency spectroscopy of ultrafast vibrational population dynamics of adsorbed molecules.
- 11:40
Th. Leisner (Berlin)
Real-time observation of the molecular dynamics of free and supported clusters.
- 12:30 *Lunch*
- 14:30 *Tour of the castle*

Session II: Advances in ultrafast surface spectroscopies

(Chair H. W. K. Tom)

- 15:30
F. Krausz (Wien)
Coherent sub-10fs pulses from near-infrared to soft-x-ray wavelengths: a novel tool for surface spectroscopy?
- 16:10
C. Voelkmann (München)
Second-harmonic diffraction from transient population gratings of silicon dangling bonds.
- 16:30 *Coffee break*

- 17:00
T. F. Heinz (New York)
Probing ultrafast dynamics of electric fields: time-domain spectroscopy in the far infrared.
 - 17:40
F. Rebenrost (München)
Time-domain calculation of surface nonlinear susceptibilities.
 - 18:00
L. Richter (Gaithersburg)
Broadband vibrationally resonant sum-frequency generation and its application to the study of biomimetic thin films.
 - 18:30 *Dinner*
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Session III: STM-induced reactions and spectroscopy

(Chair R. Berndt)

- 20:00
B. Stipe (IBM Almaden)
Vibrational spectroscopy and reaction of single adsorbates with the STM.
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Tuesday, 30 March 1999

- 8:00 *Breakfast*

Session IV: Electronic energy transfer

(Chair Th. Fauster)

- 8:50
P. Echenique (San Sebastian)
Lifetimes of electrons near the Fermi surface.
- 9:30
M. Aeschlimann (Essen)
Time-resolved photoemission of adsorbates on metals.
- 10:10
W. Ekardt (Berlin)
Lifetime of hot electrons in real crystals determined by ab-initio many-body perturbation theory, with Al and Cu as first examples.
- 10:30 *Coffee break*
- 11:10
W. Eberhardt (Jülich)
Femtosecond electronic relaxation processes in clusters and solids.
- 11:40
W. Pfeiffer (Würzburg)

Electronic dynamics in silver nanoparticles on graphite studied by two-photon photoemission.

- 12:00
T. Hertel (Berlin)
Electron-electron and electron-phonon dynamics in single wall carbon nanotubes.

- 12:30 *Lunch*
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● Session V: Dynamics and decoherence of surface and image states

(Chair W. Steinmann)

- 15:30
A. Goldmann (Kassel)
What determines the linewidth in angle-resolved photoemission spectra?
 - 16:00
M. Weinelt (Erlangen)
Influence of surface disorder on energy and phase relaxation of image-potential states.
 - 16:30 *Coffee break*
 - 17:00
E. Chulkov (San Sebastian)
Inverse lifetimes of surface and image potential states.
 - 17:20
W. Berthold (München)
Decoupling of Cu(100) image-potential states by Xe, Kr and Ar spacer layers.
 - 17:40
R. Berndt (Aachen)
Surface state lifetimes probed with scanning tunneling spectroscopy.
 - 18:30 *Dinner*
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Session VI: Coherent control

(Chair K.-L. Kompa)

- 20:00
G. Gerber (Würzburg)
Coherent control of quantum dynamics by feedback-optimized femtosecond laser pulses.
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Wednesday, 31 March 1999

- 8:00 *Breakfast*

Session VII: Ultrafast charge transfer and adsorbate dynamics

(Chair T. F. Heinz)

- 8:50
H. Petek (Saitama)
Transition state spectroscopy of surface photodesorption.
 - 9:30
W. Wurth (München)
Extremely fast charge transfer dynamics of adsorbates probed by resonant Auger spectroscopy.
 - 10:30 *Coffee break*
 - 10:40
P. Saalfrank (London)
STM- and photoinduced adsorbate reactions.
 - 11:20
A. Groß (München)
Molecular dynamics simulations of reactions at surfaces with electronic transitions.
 - 11:40
L. Bartels (New York)
Electronic excitation processes studied on single molecules: an alternative approach to femtochemistry.
 - 12:30 *Lunch*
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● Session VIII: Laser-induced photochemical reactions

(Chair K. Al-Shamery)

- 15:30
H. Zacharias (Münster)
Desorption of NO from NiO(100) with femtosecond laser radiation.
- 16:10
T. Klüner (Berlin)
Laser-induced desorption of diatomic molecules from oxide surfaces: a first principles study.
- 16:30 *Coffee break*
- 17:00
J. Hohlfeld (Berlin)
Energy deposition depth following optical excitation in metals.
- 17:20
M. Bonn (Berlin)
Time-resolved desorption and oxidation of CO on Ru.

- 17:40
H. W. K. Tom (Riverside)
Femtosecond desorption of CO/Cu(111): anomalous yield and isotope effect.
 - 18:30 *Bavarian Buffet*
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Thursday, 1 April 1999

- 8:00 *Breakfast*
- 9:00 *Departure*

- Address during the meeting:

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