

ADRIATICO RESEARCH CONFERENCE on  
**LASERS IN SURFACE SCIENCE**

11–15 September 2000

*Miramare - Trieste, Italy*

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**Directors: H.-J. Freund, T.F. Heinz and H. Zacharias**

**PROGRAMME**

**Venue:** Adriatico Guest House - Small Lecture Room



## **MONDAY, 11.9.**

### **Morning Session: Surface Reactions**

#### **Chairperson**

**H. Zacharias**

09:00

OPENING

09:15 — 10:15

**D.J. Auerbach**, IBM Almaden Research Center, San Jose, USA

*"Vibrational Energy Transfer and Reactivity of Highly Vibrationally Excited Molecules from Solid Surfaces"*

10:15 — 11:15

**A.W. Kleyn**, Leiden University, Leiden, The Netherlands

*"Passivation of a Metal Surface"*

11:15 — 11:45

**Coffee Break**

11:45 — 12:15

**M. Wolf**, Fritz-Haber-Institut der MPG, Berlin, Germany

*"New Pathways in Femtosecond Laser Induced Surface Reactions"*

12:15 — 12:45

**M. Bonn**, Leiden Institute of Chemistry, Leiden, The Netherlands

*"Femtosecond Surface Vibrational Spectroscopy of CO on Ru(001)"*

12:45

**Lunch**

### **Afternoon Session: Laser Desorption**

#### **Chairperson**

**A. Hodgson**

16:30 — 17:00

**H. Arnolds**, Cambridge University, UK

*"Thermally Assisted DIET: Laser-Induced Desorption of Multilayer Benzene from Pt(111) from the Femtosecond to the Subnanosecond Regime"*

17:00 — 17:30

**B. Redlich**, FOM Institute, Nieuwegein, The Netherlands

*"Infrared Laser-Induced Desorption After Resonant Excitation of Small Molecules Condensed on Insulator Surfaces Using the Free Electron Laser "Felix"*

17:30 — 18:00

**Coffee Break**

18:00 — 18:30

**K. Al-Shamery**, Universität Oldenburg, Germany

*"Nonthermal UV-Laser Induced Diffusion and Desorption Processes of CO on Nanosized Pd Aggregates Adsorbed on an Epitaxial Al<sub>2</sub>O<sub>3</sub>-Support"*

**TUESDAY, 12.9.**

**Morning Session:**

**Electronic Excitation**

**M. Wolf**

**Chairperson**

09:00 — 10:00

**G. Gerber**, Universität Würzburg, Germany  
*"Coherent Control of Quantum Dynamics by Feedback Optimized Femtosecond Laser Pulses"*

10:00 — 11:00

**P.M. Echenique**, Universidad del Pais Vasco, San Sebastián, Spain  
*"Electron and Hole Dynamics of Bulk and Surface Electrons in Metals"*

11:00 — 11:30

**Coffee Break**

11:30 — 12:00

**Y. Matsumoto**, University for Advanced Studies, Hayama, Kanagawa, Japan  
*"Surface States at a Graphite Monolayer on Pt(111) Studied by Multi-Photon Photoelectron Spectroscopy"*

12:00 — 12:30

**M. Weinelt**, Universität Erlangen-Nürnberg, Germany  
*"Lifetimes of Conduction Bands and Surface States at Semiconductor Surfaces"*

12:30

**Lunch**

**Afternoon Session:**

**New Methods**

**Chairperson**

**E. Hasselbrink**

16:30 — 17:00

**T.F. Heinz**, Columbia University, New York, USA  
*"Terahertz Time-Domain Spectroscopy"*

17:00 — 17:30

**M. Bauer**, JILA, Boulder, Colorado, USA  
*"Time Resolved Valence Level Photoemission Spectroscopy: Studying Surface Chemical Reactions with Time Resolution"*

17:30 — 18:00

**Coffee Break**

18:00 — 18:30

**K. Sokolowski-Tinten**, Universität Essen, Germany  
*"Ultrafast Time Resolved X-Ray Diffraction at Femtosecond Excited Surfaces"*

**Chairperson**

**H.J. Freund**

20:30 —

**Poster Session — Wine and Sweets**

## **WEDNESDAY, 13.9.**

### **Morning Session:**

### **Nonlinear Spectroscopy**

#### **Chairperson**

**T.F. Heinz**

09:00 — 10:00

**M.C. Downer**, University of Texas at Austin, USA  
*"Second Harmonic Spectroscopy of Silicon Adsorbate Systems:  
Experiment Meets Theory"*

10:00 — 11:00

**M.S. Yeganeh**, Exxon Research, Annandale, New Jersey, USA  
*"Application of Sum-Frequency Generation Spectroscopy to Inter-  
faces"*

11:00 — 11:30

**Coffee Break**

11:30 — 12:00

**G. Rupprechter**, Fritz-Haber Institut der MPG, Berlin, Germany  
*"In-Situ Studies of High Pressure CO Adsorption on Supported  
Pd Nanoparticles by Sum Frequency Generation Spectroscopy"*

12:00 — 12:30

**K.A. Briggman**, NIST, Gaithersburg, USA  
*"Sum Frequency Generation (SFG) Studies of Organic Thin Film  
Interfaces"*

12:30

**Lunch**

### **Afternoon Session:**

### **Nonlinear Spectroscopy**

#### **Chairperson**

**M.C. Downer**

16:30 — 17:00

**G. Mizutani**, PRESTO, Saitama, Japan  
*"Optical Second Harmonic Microscopy of Surfaces"*

17:00 — 17:30

**W.L. Mochan**, Centro de Investigaciones en Optica, León, México  
*"Second Harmonic Generation from Spherical Particles"*

17:30 — 18:00

**Coffee Break**

18:00 — 18:30

**C. Voelkmann**, Universität Marburg, Germany  
*"Coherent and Incoherent Dynamics of Electronic Surface States  
of Si(111) and Si(001)"*

18:30 — 19:00

**X.D. Zhu**, University of California at Davis, USA  
*"Growth and Surface Reaction Kinetics in Thin Film Epitaxy  
Studied by Oblique-Incidence Optical Reflectivity Difference  
Technique"*

## **THURSDAY, 14.9.**

### **Morning Session:**

#### **Electronic Excitation**

##### **Chairperson**

**M. Aeschlimann**

09:00 — 10:00

**H. Petek**, University of Pittsburgh, USA

*"Ultrafast Two-Photon Photoemission Studies of the Alkali Atom Dynamics on Noble Metal Surfaces: From Transition States to Chaos"*

10:00 — 11:00

**J.P. Gauyacq**, Université Paris-Sud, France

*"Long-Lived Excited States in Adsorbate/Metal Surface Systems"*

11:00 — 11:30

**Coffee Break**

11:30 — 12:00  
Croatia

**B. Gumhalter**, Institute of Physics of the University, Zagreb,

*"Decoherence Effects in Propagation of Optically Generated Electron-Hole Pairs in Image Potential States"*

12:00 — 12:30

**M. Rohlfing**, Universität Münster, Germany

*"Excited Electronic States of Surface and Molecules — an ab initio Approach"*

12:30 - 13:00

**M.M.T. Loy**, Hong Kong University of Science and Technology, China

*"Femtosecond Laser Desorption of Diatomic (CO) and Polyatomic (NH<sub>3</sub>) Molecules from Pt(111) Surface"*

13:00

**Lunch**

### **Afternoon Session:**

#### **New Methods**

##### **Chairperson**

**K.W. Kolasinski**

16:30 — 17:30

**L. Lauhon**, Harvard University, Cambridge, USA

*"Direct Observation of the Quantum Behavior of a Single Hydrogen Atom with a STM"*

17:30 — 18:00

**Coffee Break**

18:00 — 18:30

**R.T. Jongma**, University of Nijmegen, The Netherlands

*"Deceleration and Trapping of Neutral Dipolar Molecules"*

19:30 —

**Conference Dinner**

**FRIDAY, 15.9.**

**Morning Session:**

**Surface Reactions**

**Chairperson**

**M.M.T. Loy**

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| 09:00 — 10:00 | <b>J. Nørskov</b> , Technical University of Denmark, Lyngby, Denmark<br><i>"Molecular Adsorption and Reactions on Transition Metal Surfaces"</i> |
| 10:00 — 11:00 | <b>G.O. Sitz</b> , The University of Texas at Austin, USA<br><i>"State-to-State Scattering at Reactive Surfaces"</i>                             |
| 11:00 — 11:30 | <b>Coffee Break</b>                                                                                                                              |
| 11:30 — 12:00 | <b>A.L. Utz</b> , Tufts University, Medford, USA<br><i>"Eigenstate Resolved Measurements of Methane Dissociation on Ni(100)"</i>                 |
| 12:00 — 12:30 | <b>M. Binetti</b> , Universität Essen, Germany<br><i>"Abstractive Chemisorption of O<sub>2</sub> on Al(111)"</i>                                 |
| 12:30 — 13:00 | <b>A. Hodgson</b> , The University of Liverpool, UK<br><i>"Nitrogen Formation at Metal Surfaces"</i>                                             |

