

FRI1A • Dynamics at Interfaces

Auditorium

8:30–10:15

FRI1A • Dynamics at Interfaces

Chair: Peter Hamm, University of Zürich, Switzerland

FRI1A.1 • 8:30**•Invited•****Ultrafast 2D-IR spectroscopy of a molecular monolayer,**

•Jens Bredenbeck^{1,2}, Avishek Ghosh¹, Marc Smits¹, and Mischa Bonn¹; ¹FOM Institute for Atomic and Molecular Physics, Kruislaan 407, 1098 SJ, Amsterdam, the Netherlands, ²Institut für Biophysik, Universität Frankfurt, Max von Laue-Str. 1, 60438 Frankfurt, Germany.

We report on ultrafast 2-dimensional vibrational surface spectroscopy, providing information on coupling and energy transfer between vibrations of surface molecules. As a 4th order technique, it is bulk-forbidden in centrosymmetric materials and hence surface specific.

FRI1A.2 • 9:00**Frozen Dynamics and Insulation of Water at the Lipid**

Interface, •Artem Bakulin, Dan Cringus, Maxim Pshenichnikov, and Douwe Wiersma; Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands.

2D IR correlation spectroscopy reveals extremely slow dynamics and splitting of the OH-stretching mode of water in anionic micelles. Water at the lipid interface behaves as if the molecules were isolated in a frozen environment.

FRI1A.3 • 9:15**Vibrational dynamics of water at biological interfaces using ultrafast time-resolved sum frequency spectroscopy,**

•Avishek Ghosh^{1,2}, Richard Kramer Campen¹, Maria Sovago¹, and Mischa Bonn^{1,2}; ¹FOM-Institute for Atomic and Molecular Physics (AMOLF), Kruislaan 407, 1098 SJ Amsterdam, The Netherlands, ²Leiden Institute of Chemistry, Leiden University, P.O. Box 950, 2300 RA Leiden, The Netherlands.

We report studies on ultrafast vibrational dynamics of water molecules at model biological interfaces using a newly

developed surface-specific femtosecond pump-probe spectroscopy technique.

FRI1A.4 • 9:30**Ultrafast Dynamics at Liquid Interfaces Investigated with Femtosecond Time-Resolved Multiplex Electronic Sum-Frequency Generation (TR-ESFG) Spectroscopy,**

•Kentaro Sekiguchi, Shoichi Yamaguchi, and Tahei Tahara; RIKEN (The Institute of Physical and Chemical Research), 2-1 Hirosawa, Wako 351-0198, Japan.

We developed a new nonlinear spectroscopy, femtosecond time-resolved electronic sum-frequency generation (TR-ESFG) spectroscopy, to investigate ultrafast dynamics at liquid interfaces. Transient electronic spectra of dyes at the air/water interface were obtained for the first time.

FRI1A.5 • 9:45**Radiationless Transitions and Angular Momentum Transfer in Semiconductor Nanocrystals,** •Gregory Scholes, Jeongho Kim, and Cathy Wong; Department of Chemistry, 80 St. George Street, Institute for Optical Sciences, and Centre for Quantum Information and Quantum Control, University of Toronto, Toronto, Ontario M5S 3H6 (Canada).

Measurements of ultrafast relaxation processes for population in the exciton fine structure states of CdSe nanocrystals are reported and discussed. Relationships between the mechanism of these dynamics and size and shape of nanocrystals are described.

FRI1A.6 • 10:00**A New Technique to Measure Time-Resolved Circular Dichroism : Ultrafast Conformational Dynamics of**

1,1'-Bi-2-naphthol, •Claire Niezborala and François Hache; LOB, Ecole Polytechnique, 91128 Palaiseau, France.

Using a new time-resolved circular dichroism technique, we study the conformational relaxation of excited state (R)-1,1'-Bi-2-naphthol and show a twenty degree decrease of the dihedral angle in Ethanol on a one hundred picosecond timescale.