

## THU2A • Ultrafast Charge Transfer

Auditorium

10:45–12:30

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Chair: Tahei Tahara, Molecular Spectroscopy Laboratory, RIKEN, Japan

## THU2A.1 • 10:45

•Invited•

**Femtosecond X-Ray Absorption Spectroscopy of a Photoinduced Spin-Crossover Process**, Christopher Milne<sup>1</sup>, Van-Thai Pham<sup>1</sup>, Wojciech Gawelda<sup>1,3</sup>, Amal El Nahhas<sup>1</sup>, Renske M. van der Veen<sup>1,2</sup>, Steven L. Johnson<sup>2</sup>, Paul Beaud<sup>2</sup>, Gerhard Ingold<sup>2</sup>, Camelia Borca<sup>2</sup>, Daniel Grolimund<sup>2</sup>, Rafael Abela<sup>2</sup>, Majed Chergui<sup>1</sup>, and •Christian Bressler<sup>1</sup>; <sup>1</sup>Laboratoire de Spectroscopie Ultrarapide, Ecole Polytechnique Fédérale de Lausanne, CH-1015 Lausanne, Switzerland, <sup>2</sup>Swiss Light Source, Paul-Scherrer Institut, CH-5232 Villigen-PSI, Switzerland, <sup>3</sup>Present Address: Laser Processing Group, Instituto de Óptica, CSIC, Serrano 121, E-28006 Madrid, Spain. We present ultrafast x-ray absorption studies of photoexcited aqueous iron tris-bipyridine with 160 fs and with 70 ps temporal resolution to monitor the structural evolution in this spin-crossover complex.

## THU2A.2 • 11:15

**Aqueous Proton Transfer Pathways in Bimolecular Acid-Base Neutralization**, Omar F. Mohammed<sup>1</sup>, Katrin Adamczyk<sup>1</sup>, Dina Pines<sup>2</sup>, Ehud Pines<sup>2</sup>, and •Erik T. J. Nibbering<sup>1</sup>; <sup>1</sup>Max Born Institut für Nichtlineare Optik und Kurzzeitspektroskopie, Max-Born-Strasse 2 A, D-12489 Berlin, Germany, <sup>2</sup>Department of Chemistry, Ben Gurion University of the Negev, P.O. Box 653, Beer-Sheva 84125, Israel.

We expand the classic Eigen-Weller reaction model with solvent-switch pathways, mediating proton transfer between acids and bases, having one or several water molecules, activated by the solvent and controlled by the base strength.

## THU2A.3 • 11:30

**The solvated electron dynamics in aqueous solutions: first measurement of the lifetime of the contact pair by using three-pulse-spectroscopy**, •Hristo Iglev, Martin K. Fischer, and Alfred Laubereau; Physik-Departmen E11, Technische Universität München.

We demonstrate manipulation of the ultrafast electron detachment and recombination dynamics using femtosecond pump-repump-probe spectroscopy. The predicted

electron-atom-contact pair is verified for the first time and its lifetime directly measured in aqueous halide solutions.

## THU2A.4 • 11:45

**Naphthalene Bisimides: on the Way to Ultrafast Opto-electronic Devices**, •Igor Pugliesi<sup>1</sup>, Patrizia Krok<sup>1</sup>, Alfred Blaszczyk<sup>2</sup>, Marcel Mayor<sup>2,3</sup>, and Eberhard Riedle<sup>1</sup>; <sup>1</sup>LS für BioMolekulare Optik, LMU München, Oettingenstrasse 67, D-80538 Munich, Germany, <sup>2</sup>Institute for Nanotechnology, Forschungszentrum Karlsruhe GmbH, P.O. Box 3640, D-76021 Karlsruhe, Germany, <sup>3</sup>Department für Chemie, Universität Basel, St. Johanns-Ring 19, CH-4056 Basel, Switzerland. For core-substituted naphthalene bisimides and their dimers we observe ultrafast charge transfer and Förster resonance energy transfer processes that change their conduction properties. This makes them suitable candidates for optoelectronic switches with terahertz response times.

## THU2A.5 • 12:00

**Ultrafast Charge Photogeneration in MEH-PPV Charge-Transfer Complexes**, •Artem Bakulin<sup>1</sup>, Dmitry Paraschuk<sup>2</sup>, Maxim Pshenichnikov<sup>1</sup>, and Paul van Loosdrecht<sup>1</sup>; <sup>1</sup>Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands, <sup>2</sup>Faculty of Physics and International Laser Center, Lomonosov Moscow State University, Moscow, Russia.

Visible-pump IR-probe spectroscopy is used to study the ultrafast charge dynamics in MEH-PPV based charge-transfer complexes and donor-acceptor blends. Transient anisotropy of the polymer polaron band provides invaluable insights into excitation localisation and charge-transfer pathways.

## THU2A.6 • 12:15

**Generation of Narrowband Ultrashort Pulses Tunable in the mid-IR and the Application to Vibrational Energy Transfer in a Modified Amino Acid**, •Karin Haiser, Florian O. Koller, Markus Huber, Tobias E. Schrader, Nadja Regner, Wolfgang J. Schreier, and Wolfgang Zinth; Lehrstuhl für BioMolekulare Optik, Department für Physik der Ludwig-Maximilians-Universität München, Öttingenstr. 67, 80538 München.

Difference frequency mixing of pulses with adjustable chirp produce narrowband tunable pulses in the mid infrared. They are used for selective excitation of vibrational modes in IR-pump-IR-probe experiments on a modified amino acid.