

Faraday Discussion 153: Coherence and Control in Chemistry

25 – 27 July 2011
University of Leeds, UK

Provisional Programme

Monday 25 July

12:00	Registration and lunch
13:15	Welcome and introductions
Session 1	Electronic coherence and biological supramolecular assemblies
13:30 Paper 1	Introductory lecture Thomas Baumert* <i>Universität Kassel, Germany</i>
14:30	Afternoon tea
15:00 Paper 2	Coherently-controlled two-dimensional spectroscopy: Evidence for phase induced long-lived memory effects Valentyn I. Prokhorenko, Alexei Halpin and R.J. Dwayne Miller* <i>University of Toronto, Canada</i>
Paper 3	Electronic energy transfer in model photosynthetic systems: Markovian vs. non-Markovian dynamics Navinder Singh and Paul Brumer* <i>University of Toronto, Canada</i>
Paper 4	Coherent control of single molecules at room temperature Daan Brinks, Richard Hildner, Fernando D. Stefani and Niek F. Van Hulst* <i>ICFO - Institute of Photonic Sciences, Spain</i>
Paper 5	Exploring the role of phase modulation on photoluminescence yield D.G. Kuroda, C.P. Singh, Z. Pengaband, V.D. Kleiman* <i>University of Florida, USA</i>
17:00	Close of session
17:00 – 19:00	Poster session and drinks reception
19:00	Free evening for delegates

Tuesday 26 July

Session 2	Electronic coherence
09:00 Paper 6	Extracting dynamics of excitonic coherences in congested spectra of photosynthetic light harvesting antenna complexes Justin R. Caram and Gregory S. Engel* <i>University of Chicago, USA</i>
Paper 7	Multiconfigurational Ehrenfest approach to quantum coherent dynamics in large molecular systems Dmitrii V Shalashilin* <i>University of Leeds, UK</i>
Paper 8	The influence of the optical pulse shape on excited state dynamics in provitamin D₃ Kuo-Chun Tang and Roseanne J. Sension* <i>University of Michigan, USA</i>
10:30	Morning coffee
Session 3	Strategies
11:00 Paper 9	Wavepacket and potential reconstruction by four-wave mixing spectroscopy: preliminary application to polyatomic molecules David Avisar and David J. Tannor* <i>Weizmann Institute of Science, Israel</i>
Paper 10	Entanglement in interference-based quantum control: the wave function is not enough Moshe Shapiro* and Paul Brumer <i>University of British Columbia, Canada</i>
Paper 11	Searching for pathways involving dressed states in optimal control theory Philipp von den Hoff*, Markus Kowalewski and Regina de Vivie-Riedle <i>Ludwig Maximilians-Universität München, Germany</i>
Paper 12	Photoelectron photoion coincidence imaging of ultrafast control in multichannel molecular dynamics C. Stefan Lehmann, N. Bhargava Ram, Daniel Irimia and Maurice H.M. Janssen* <i>VU University, Amsterdam, The Netherlands</i>
13:00	Lunch

Tuesday 26 July

Session 4	Applications
14:30 Paper 13	A general control mechanism of energy flow in the excited state of polyenic biochromophores Tiago Buckup, Jürgen Hauer, Judith Voll, Regina Vivie-Riedle and Marcus Motzkus* <i>Universität Heidelberg, Germany</i>
Paper 14	Coherent control of vibrational transitions: Discriminating molecules in mixtures A.C.W. van Rhijn, A. Jafarpour, M. Jurna, H.L. Offerhaus* and J.L. Herek <i>University of Twente, The Netherlands</i>
Paper 15	Coherent control of the motion of complex molecules and the coupling to internal state dynamics Paul Venn* and Hendrik Ulbricht <i>University of Southampton, UK</i>
16:00	Afternoon Tea
Session 5	Non-adiabatic interactions
16:30 Paper 16	Combining dissociative ionization pump–probe spectroscopy and ab initio calculations to interpret dynamics and control through conical intersections Spiridoula Matsika*, Congyi Zhou, Marija Kotur and Thomas C. Weinacht* <i>Temple University, USA</i>
Paper 17	Nonadiabatic ab initio molecular dynamics including spin-orbit coupling and laser fields Philipp Marquetand*, Martin Richter, Jesús González-Vázquez, Ignacio Sola and Leticia González <i>Friedrich-Schiller-Universität Jena, Germany</i>
Paper 18	Dynamic stark control: model studies based on the photodissociation of IBr Cristina Sanz Sanz*, Gareth Richings and Graham A. Worth <i>University of Birmingham, UK</i>
18:00	Close of session
19:00	Pre-dinner drinks
19:30	Conference dinner

Wednesday 27 July

Session 6	Strong fields
09:00 Paper 19	From molecular control to quantum technology with the dynamic stark effect Philip J. Bustard, Guorong Wu, Rune Lausten, Albert Stolow*, Ian A. Walmsley and Benjamin J. Sussman <i>Steeacie Institute for Molecular Sciences National Research Council, Canada</i>
Paper 20	Controlled redistribution of vibrational population by few-cycle strong-field laser pulses William A. Bryan*, C.R. Calvert, R.B. King, J.B. Greenwood, W.R. Newell and I.D. Williams <i>Swansea University, UK</i>
Paper 21	Control of coherent excitation of neon in the extreme ultraviolet regime Jürgen Plenge*, Andreas Wirsing, Christopher Raschpichler, Bernhard Wassermann and Eckart Rühl <i>Freie Universität Berlin, Germany</i>
10:30	Morning coffee
Session 7	Open loop?
11:00 Paper 22	Optical manipulation of coherent phonons in super conducting $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ thin film Yasuaki Okano, Hiroyuki Katsuki, Yoshihiro Nakagawa, Hiroshi Takahashi, Kazutaka G. Nakamura and Kenji Ohmori* <i>Institute for Molecular Science Okazaki, Japan</i>
Paper 23	Femtosecond coherent control of thermal photoassociation of magnesium atoms Leonid Rybak, Zohar Amitay*, Saieswari Amaran, Ronnie Kosloff, Michal Tomza, Robert Moszynski and Christiane P Koch <i>Technion - Israel Institute of Technology, Israel</i>
12:30 Paper 25	Concluding remarks Herschel Rabitz* <i>Princeton University, USA</i>
13:00	Acknowledgements
13:15	Close of meeting

* Denotes presenting author to whom affiliation applies