

# Laser for Science Facility User Meeting 27<sup>th</sup> – 29<sup>th</sup> April 2010

## PROGRAMME



# Lasers for Science Facility User Meeting 27 – 29 April 2010 Abingdon - The Guildhall and The Cosener's House

TUESDAY 27<sup>TH</sup> APRIL: The Guildhall, Abbey Close, Abingdon

9.30 - 10.15 REGISTRATION & COFFEE AT THE GUILDHALL

### Ultrafast Spectroscopy Training & User Consultation

10.15	Tony Parker - Science & Technology Facilities Council Introduction to the User meeting and posing the questions for the day
<b>Session 1 Advanced Spectroscopy Requirements future developments - Chair Prof Tony Parker</b>	
10.30	Tony Parker - Science & Technology Facilities Council ULTRA Summary
10.40	Mike Towrie – Science & Technology Facilities Council Time resolved multiple probe spectroscopy (TR <sup>M</sup> PS)
11:00	Neil Hunt – University of Strathclyde Ultrafast 2D-IR Spectroscopy - Method development and future directions
11.20	Steve Meech – University of East Anglia Dynamics in photoactive proteins – ULTRA-sensitive ultrafast dynamics
11:40	Andrew Orr-Ewing - University of Bristol Chemical reaction dynamics in solution
12.30	Susan Quinn – University of Dublin A picosecond transient infrared study of dinucleotides and their role in the excited state dynamics of DNA
12:45	<b>LUNCH – The Cosener's House</b>
<b>Session 2 Data Analysis and Theoretical Modelling - Chair Prof Andrew Orr-Ewing</b>	
13:45	Greg Greetham – Science & Technology Facilities Council Intro to ULTRA programme and readout software
14.05	Andras Lukacs - University of East Anglia Ultrafast dynamics of BLUF proteins revealed by TRIR: special aspects of data analysis using singular value decomposition
14:25	Jonathan Hirst - University of Nottingham Computing ultrafast 2D spectra of proteins in the IR and UV
15:05	Paul Sherwood - Science & Technology Facilities Council The Hartree Centre - Update and prospects for collaboration
15:25	<b>COFFEE/TEA – The Guildhall</b>
<b>Session 3 Further Science Programmes – Chair Prof Mike Towrie</b>	
15:50	Tony Vlcek – Queen Mary College, London Excited-state relaxation dynamics and function
16:10	Paul Raithby - University of Bath Photocrystallography – Structure determinations across the time domains
16.30	Trevor Dines – University of Dundee Resonance hyper-Raman spectroscopy of fluorescein and all-trans-retinal
16:50	Discussion
17:00	<b>SESSION ENDS</b>
<b>The Cosener's House</b>	
18:00	<b>DINNER , Poster Parade (Chair Prof Tony Parker) and Poster Session</b>

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WEDNESDAY 28<sup>TH</sup> APRIL: The Guildhall, Abbey Close, Abingdon

### Session 4 Chair Prof Tony Parker

9.30	Welcome Tony Parker
9.40	Tony Vlcek – Queen Mary College, London Ultrafast charge separation in Re(CO) <sub>3</sub> (diimine)-labeled azurins
10.00	Peter Parker – King's College London Imaging signalling
10.20	John Kelly – University of Dublin Transient absorption studies of cadmium chalcogenide quantum dots
10.40	Roger Bisby – University of Salford Intracellular uptake and fluorescence of the beta-blocker drug propranolol using two-photon microscopy
11.00	<b>TEA/COFFEE – The Guildhall</b>

### Session 5 Chair Prof John Simons

11.20	Anita Jones – University of Edinburgh Quantitative mapping of microfluidic systems using fluorescence lifetime imaging microscopy
11:40	Armin Wagner – Diamond, Science & Technology Facilities Council Protein microcrystal manipulation with optical tweezers
12:00	Gilbert Fruhwirth – King's College London Intravital fluorescence lifetime imaging of protein-protein interactions
12.20	<b>GROUP PHOTOGRAPH AT THE GUILDHALL &amp; LUNCH AT COSENER'S HOUSE</b>

### Session 6 Chair Prof Tony Vlcek

13.30	Neil Hunt – University of Strathclyde Ultrafast multidimensional spectroscopy of enzyme model compounds
13.50	Nick Stone – Royal Hospital Gloucester Progress of deep Raman techniques for applications in cancer medicine
14.10	John Simons – University of Oxford Good vibrations: Probing carbohydrate-aminoacid interactions
14.30	Julia Weinstein – University of Sheffield Charge and energy transfer dynamics in inorganic chromophores: time-resolved and 2D IR studies
14.50	Allen Goodship – University College London & Stanmore Hospital Potential application of Raman spectroscopy in understanding the mechanobiology of the skeleton
15.10	Ian Walmsley – University of Oxford Coherence amplification: a new approach to preparing molecular states
15.30	<b>TEA/COFFEE – The Guildhall</b>

### Session 7 Chair Prof Roger Bisby

15.50	Christoph Ballestrem – University of Manchester Conformational changes of integrins in focal adhesions
16.10	Steve Faulkner – University of Oxford Luminescence microscopy and spectroscopy with metal complexes
16.30	Martin Volk – University of Liverpool Laser-induced delivery and release of biomolecules into cells using gold nanoparticles
16.50	Zoe Wilson – University of Nottingham Imaging plant fluorescent proteins using total internal reflection fluorescence microscopy (TIRF)
17.10	Dave Clarke – Science & Technology Facilities Council Developments in Functional Biosystems Imaging
17.30	Mike Towrie – Science & Technology Facilities Council Developments in Molecular Structure and Dynamics
17.45	Ian Clark – Science & Technology Facilities Council EPSRC Laser Loan Pool update
17:50	USER Consultation Meeting Mike Dunne
18.05	<b>SESSION ENDS</b>

**The Cosener's House**

18.45	<b>DINNER and Poster Session</b>
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THURSDAY 29<sup>TH</sup> APRIL: The Guildhall, Abbey Close, Abingdon

### Session 8 Chair Prof John Kelly

9.00	Welcome Tony Parker
9.05	Derren Heyes – University of Manchester The role of protein dynamics in catalysis studied using light-activated enzymes
9.25	Xiao Zou – University of York Magnetisation switching triggered within 460 fs
9.45	Marina Kuimova – Imperial College London Molecular rotors measure intracellular viscosity
10.05	Chris Hawes – Oxford Brookes University Lasers for the study of the plant endomembrane system
10.45	Tony Jackson – University of Cambridge The sodium channel beta 3 subunit: Understanding structure and function
11.05	<b>COFFEE/TEA – The Guildhall</b>

### Session 9 Chair Dr Anita Jones

11:25	Dame Louise Johnson – Diamond, Science & Technology Facilities Council Some future trends in structural biology
11.55	Chris Stubbs – Oxford Brookes University Time-resolved fluorescence anisotropy imaging studies of membrane heterogeneity
12.15	Nick Terrill - Diamond, Science & Technology Facilities Council Optical Tweezers - the ideal sample manipulation for microfocus SAXS samples
12.35	Andy Ward – Science & Technology Facilities Council Cloud chamber atmospheric aerosols
13.00	<b>LUNCH – The Cosener's House</b>

### Session 10 Chair Prof Dame Louise Johnson

14.00	Ananya Jeshtadi – Oxford Brookes University Using FRET-FLIM to investigate Fowlpox virus-host interaction in live infected cells
14.20	Ivan Ruddock – University of Strathclyde Distributed optical fibre sensing based on time-correlated two-photon excited fluorescence
14.40	Christian Pfrang – University of Reading Oxidation of atmospheric aerosol
15.00	Graham Richmond – University of Oxford Time resolved FTIR emission studies of the quenching of electronically excited nitric oxide
15.20	<b>COFFEE/TEA – The Guildhall</b>

### Session 11 Chair Dr Neil Hunt

15.40	Peter Portius – University of Sheffield Photochemistry of nitrogen-rich compounds: TRIR and 2DIR studies
16.00	John Sanderson – University of Durham Raman Tweezing of Liposomes
16:20	Peter O'Neil – University of Oxford The dynamics of recruitment of proteins involved in NHEJ of DNA double strand breaks depend on the damage complexity
16:40	Tony Parker - Meeting Close