Publications
Vulcan

Journal Papers

A.P.L. Robinson, D. Neely, P. McKenna and R.G. Evans
Spectral control in proton acceleration with multiple laser pulses

Reentrant cone angle dependence of the energetic electron slope temperature in high-intensity laser-plasma interactions

Bright multi-keV harmonic generation from relativistically oscillating plasma surfaces

A.P.L. Robinson and M. Sherlock
Poster at ‘QuAMP2007’ int conference, University College London, Sept 2007

Spectrally resolved X-ray scatter from laser-shock-driven plasmas

Direct observation of strong ion coupling in laser-driven shock-compressed targets

Wide angle crystal spectrometer for angularly and spectrally resolved X-ray scattering experiments

M. Sherlock, A.R. Bell, R.J. Kingham, A.P.L. Robinson and R. Bingham
Non-spitzer return currents in intense laser-plasma interactions

Surface heating of wire plasmas using laser-irradiated cone geometries

\textbf{Bright multi-keV harmonic generation from relativistically oscillating plasma surfaces} (2007).

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M. Sherlock, A.R. Bell, R.J. Kingham, A.P.L. Robinson and R. Bingham
Non-spitzer return currents in intense laser-plasma interactions

Dynamics of charge-displacement channeling in intense laser-plasma interactions

Surface heating of wire plasmas using laser-irradiated cone geometries

M. Sherlock, S.J. Rose and A.P.L. Robinson
Prediction of net energy gain in deuterium-beam interactions with an inertially confined plasma

Active manipulation of the spatial energy distribution of laser-accelerated proton beams

Dynamics of charge-displacement channeling in intense laser-plasma interactions

A.P.L. Robinson, M. Sherlock and P.A. Norreys
Artificial collimation of fast-electron beams with two laser pulses

A.P.L. Robinson, M. Sherlock and P.A. Norreys
Artificial collimation of fast-electron beams with two laser pulses

High resolution imaging of colliding blast waves in cluster media

High harmonics from relativistically oscillating plasma surfaces – a high brightness attosecond source at keV photon energies

G.A. Mourou, C.L. Labaune, M. Dunne, N. Naumova and V.T. Tikhonchuk
Relativistic laser-matter interaction: from attosecond pulse generation to fast ignition

Full-trajectory diagnosis of laser-driven radiative blast waves in search of thermal plasma instabilities

Nuclear activation as a high dynamic range diagnostic of laser-plasma interactions

P.A. Norreys
Physics – complexity in fusion plasmas

M. Sherlock
A Monte-Carlo method for coulomb collisions in hybrid plasma models

Dynamic control of laser-produced proton beams

Observation of synchrotron radiation from electrons accelerated in a Petawatt-laser-generated plasma cavity

Astrophysical jet experiments with colliding laser-produced plasmas

Fast ignition relevant study of the flux of high intensity laser-generated electrons via a hollow cone into a Laser-imploded plasma

G. Gregori, A. Ravasio, A. Höll, S.H. Glenzer and S. J. Rose
Derivation of the static structure factor in strongly coupled non-equilibrium plasmas for X-ray scattering studies

D.S. Whitaker, M.H. Edwards and G.I. Tallents
Simulations and experimental determinations of hot, dense iron plasma opacity at 89 eV

Thomson scattering from near-solid density plasmas using soft X-ray free electron lasers

Laser development
Minimization of the impact of a broad bandwidth high-gain nonlinear preamplifier to the amplified spontaneous emission pedestal of the Vulcan Petawatt laser facility

Astra/Gemini
M. Zepf, B. Dromey, M. Landreman, P. Foster and S.M. Hooker
Bright quasi-phase-matched soft-x-ray harmonic radiation from argon ions

GeV plasma accelerators driven in waveguides

Absorption of short laser pulses on solid targets in the ultrarelativistic regime


Laser-driven acceleration of electrons in a partially ionized plasma channel


Space charge effects in the axis-photonic X-ray streak camera


X-ray lasers as probes to measure plasma ablation rates


Characterisation of the grazing incidence pumped nickel-like molybdenum X-ray laser and experimental investigation into lasing from high Z targets


Electric field measurements in picosecond laser-produced plasma via X-ray spectroscopy


Astra/Artemis


Measurement of electronic structure from high harmonic generation in non-adiabatically aligned polyatomic molecules

New Journal Of Physics, 10, 025008 (2008).


Dynamic imaging of molecules using high order harmonic generation


R. Torres and J.P. Marangos

Mapping of orbital structure from high generation through the molecular dipole moment


Photodissociation imaging of D2+ in intense ultrafast laser pulses


Mapping the evolution of optically generated rotational wave packets in a room-temperature ensemble of D2


Excited ions in intense femtosecond laser pulses: laser-induced recombination


Isolated vibrational wavepackets in D2+: defining superposition conditions and wavepacket distinguishability


Controlling dissociation processes in the D+2 molecular ion using high-intensity, ultrashort laser pulses


Above threshold dissociation of vibrationally cold HD+ molecules


Probing orbital structure of polyatomic molecules by high-order harmonic generation


Controlling dissociation processes in the D2+ molecular ion using high-intensity, ultrashort laser pulses


Imaging quantum vibrations on an ultrashort timescale: the deuterium molecular ion

Dynamic imaging of a dissociative D2+ nuclear wavepacket in intense laser fields

Observing time-dependent vibrational quantum dynamics in deuterium hydride molecular ions

Vulcan

Characterization of the backscattered radiation from Petawatt laser matter interactions

Minimization of the impact of a broad bandwidth high gain non-linear pre-amplifier to the ASE pedestal of the Vulcan Petawatt laser facility

Theses

Philip Nilson
Measurements of the dynamics of laser and soft X-ray heated targets by XUV and optical probing
Imperial College, 2007

Alexander Thomas
Studies of laser propagation and mono-energetic electron beam injection in laser wakefield accelerators
Imperial College, 2007

Christopher Murphy
Diagnosis of high energy electron beams produced by laser wakefield accelerators
Imperial College, 2007

Louise Willingale
Ion acceleration from high intensity laser plasma interactions: measurements and applications
Imperial College, 2007

Jonathan Howe
Laser-plasma coupling effects on spectral line shapes
Univ. York, 2007

Christopher David Gregory
Astrophysical jet experiments with laser-produced plasmas
Univ. York, 2007

Conference Presentations

**Astra/Artemis**

Astra-Artemis facility for ultrafast time resolved science

Astra-Artemis facility development for ultrafast time resolved science

**Target Fabrication**

M. Tolley, C. Spindloe, R. Stevens, A. Malik, J. Spencer, M. Beardsley and P. Hiscock
Programmatic developments in microtarget fabrication at RAL to meet future requirements of high rep rate high power lasers
Poster presentation at IFSA 2007, Kobe, Japan, 9-14 September 2007.

C. Spindloe
Target fabrication at the Rutherford Appleton Laboratory
Oral presentation at 3rd MWTA, Moscow; 15-19 October 2007.

M. Tolley and C. Spindloe
The targetry package of HiPER
Oral presentation (given by Chris Spindloe) at 3rd MWTA, Moscow, 15-19 October 2007.

M. Tolley, J. Perin, M. Perlado, G. Schurtz and M. Dunne
Microtarget requirements for HiPER

C. Spindloe, H. Lowe, M. Tolley, P. Hiscock and J. Spencer
Recent advances in micro-fabrication of targets for studies on the Vulcan Petawatt laser at the Rutherford Appleton Laboratory
Poster presentation at 18th TFM, Lake Tahoe, USA, 11-15 May 2008.

**Vulcan**

Development of 10PW OPCPA capability on the Vulcan laser
Development of 10PW OPCPA capability on the Vulcan laser  

Novel ultra-fast broadband laser source at 910nm for Vulcan 10PW OPCPA laser system  
CLEO 2008, San Jose, 4-9 May 2008.  

Poster Presentations  
Vulcan  
Development of 10PW OPCPA capability on the Vulcan laser  

D.A. Pepler, E.D. Vernon and C.S. Burton  
Versatile diffractive optic design program in LabVIEW for focal spot shaping of high power lasers  
Diffractive Optics 2007, University of Barcelona, Barcelona, Spain, November 2007.  

W. Shaikh, I. Musgrave and C. Hernandez-Gomez  
Activation of a kilo joule energy variable shape long pulse system for the Vulcan glass laser  

Lasers for Science Facility  
Publications  
Probing the excited states of d(6) metal complexes containing the 2,2'-bipyrimidine ligand using time-resolved infrared spectroscopy. 1. Mononuclear and homonuclear systems  

Probing the mechanism of carbon-hydrogen bond activation by photochemically generated hydridotris(pyrazolyl)borato carbonyl rhodium complexes: new experimental and theoretical investigations  

R. Baker, P. Matousek, K.L. Ronayne, A.W. Parker, K. Rogers and N. Stone  
Depth profiling of calcifications in breast tissue using picosecond Kerr-gated Raman spectroscopy  

Salvation-driven excited-state dynamics of \{Re(4-Et-Pyridine)(CO)_2(2,2'-bipyridine)\}^+ in imidazolium ionic liquids. A time-resolved infrared and phosphorescence study  

S.W. Botchway, A.G. Crisostomo, A.W. Parker and R.H. Bisby  
Near infrared multiphoton-induced generation and detection of hydroxyl radicals in a biochemical system  

S.W. Botchway, A.W. Parker, R.H. Bisby and A.G. Crisostomo  
Real-time cellular uptake of serotonin using fluorescence lifetime imaging with two-photon excitation  

M. Busby, P. Matousek, M. Towrie and A. Vlček Jr  

C.M. Coats, Z. Chang, Z. and P.D. Williams  
Excitation of thermoacoustic oscillations by premixing domestic gas burners  

Conformational choice and selectivity in singly and multiply hydrated monosaccharides in the gas phase  

Coordination chemistry of saturated molecules special feature: time-resolved infrared (TRIR) study on the formation and reactivity of organometallic methane and ethane complexes in room temperature solution  

A.G. Crisostomo, R.B. Moreno, S. Navaratnam, J.A. Wilkinson and R.H. Bisby  
Generation of reactive oxygen species from a-tocopherolquinone and analogues  

Solvent dependent photophysics of fac-{Re(CO)(3)(11,12-X(2)dppz)(py)}(+). (X = H, F or Me)  

Photoinduced energy transfer in a conformationally flexible Re(1)/Ru(II) dyad probed by time-resolved infrared spectroscopy: Effects of conformation and spatial localization of excited states


Photooxidation of guanine by a ruthenium dipyridophenazine complex intercalated in a double-stranded polynucleotide monitored directly by picosecond visible and infrared transient absorption spectroscopy

C. Eliasson, M. Claybourn and P. Matousek

Deep subsurface Raman spectroscopy of turbid media by defocussed collection system

C. Eliasson, N.A. Macleod and P. Matousek

Non-invasive detection of concealed liquid explosives using Raman spectroscopy

C. Eliasson, N.A. Macleod and P. Matousek

Non-invasive detection of cocaine dissolved in beverages using displaced Raman spectroscopy

C. Eliasson and P. Matousek

A non-invasive method for deep Raman spectroscopy of living tissue and powders
American Laboratory 39, 42 (2007).

C. Eliasson and P. Matousek

Hidden depths? - new techniques for sub-surface spectroscopy
Spectroscopy Europe 19, 7 (2007).

C. Eliasson and P. Matousek

Non-invasive authentication of pharmaceutical products through packaging using spatially offset Raman spectroscopy

C. Eliasson and P. Matousek

Spatial offset broadens applications for Raman spectroscopy


A multifunctional light switch: DNA binding and cleavage properties of a heterobimetallic ruthenium-rhenium dipyridophenazine complex


Ultrafast excited state dynamics of Pt(II) chromophores bearing multiple IR absorbers

G. Hancock and M. Saunders

Vibrational distribution in NO (X^2Π) formed by self quenching of NO A ^2Σ^+ (v = 0)


The early picosecond photophysics of Ru(II) polypyridyl complexes: a tale of two timescales


Photophysical and structural properties of cyanoruthenate complexes of hexaaazatriphenylene

M.D. King, K.C. Thompson, A.D. Ward, C. Pfirang and B.R. Hughes

Oxidation of biogenic and water-soluble compounds in aqueous and organic aerosol droplets by ozone: a kinetic and product analysis approach using laser Raman tweezers

V.V. Kruglyak, R.J. Hicken, P. Matousek and M. Towrie

Spectroscopic study of optically induced ultrafast electron dynamics in gold


Picosecond time-resolved infrared study of 2-aminopurine ionisation in solution


Determination of the triplet state energies of a series of conjugated porphyrin oligomers
Photochemical & Photobiological Sciences 6 (6), 675 (2007).

M.K. Kuiumova, X-Z. Sun, P. Matousek, D.C. Grills, A.W. Parker, M. Towrie and M.W. George

Probing intraligand and charge transfer excited states of fac-{Re(8) / CO} / (3) / (CO2Et-dppz) / (+) ( R = py, 4-Me2N-py; CO2Et-dppz = dipyrido[3,2-a:2',3'-c] phenazine-11-carboxylic ethyl ester) using time-resolved infrared spectroscopy
Photochemical & Photobiological Sciences 6, 1158 (2007).

W.M. Kwock, C. Ma, M.W. George, D.C. Grills, P Matousek, A.W. Parker, D. Phillips, W.T. Toner and M. Towrie

Solvent effects on the charge transfer excited states of 4-dimethylaminobenzonitrile (DMABN) and 4-dimethylamino-3, 5-dimethylbenzonitrile (TMABN) studied by time-resolved infrared spectroscopy: a direct observation of hydrogen bonding interactions
P. Matousek
Raman signal enhancement in deep spectroscopy of turbid media

P. Matousek
Revealing the hidden depths
Photochemical and Photobiological Sciences 6, B63 (2007).

P. Matousek
Review of deep non-invasive Raman spectroscopy of living tissue and powders
Chemical Society Reviews 36, 1292 (2007).

P. Matousek and A.W. Parker
Non-invasive probing of pharmaceutical capsules using transmission Raman spectroscopy

P. Matousek and N. Stone
Prospects for the diagnosis of breast cancer by non-invasive probing of calcifications using transmission Raman spectroscopy

Picosecond infrared probing of the vibrational spectra of transients formed upon UV excitation of stacked G-tetrad structures
Chemical Communications 5158 (2007).

A.W. Parker, A. Jones and A. Beeby
Introduction to the special issue dedicated to David Phillips
Photochemical & Photobiological Sciences 6, 931 (2007).

C. Ricci, C. Eliasson, N.A. Macleod, P.N. Newton, P. Matousek and S.G. Kazarian
Characterization of genuine and fake artesunate anti-malarial tablets using Fourier transform infrared imaging
Infrared Spectroscopy 38, 1525 (2007).

S. Sato, A. Sekine, Y. Ohashi, O. Ishitani, A.M. Blanco-Rodriguez, A. Vlček Jr., T. Unno and K. Koike
Photochemical ligand substitution reactions of fac-[Re(bpy)(CO)$_3$] and derivatives

Infrared spectral signatures of aromatic-sugar complexes: probing carbohydrate-protein interactions


Carbohydrate molecular recognition: a spectroscopic investigation of carbohydrate-aromatic interactions

Ultrafast structural dynamics in BLUF domains: transient infrared spectroscopy of AppA and its mutants

N. Stone, R. Baker, K. Rogers, A.W. Parker and P. Matousek
Subsurface probing of calcifications with spatially offset Raman spectroscopy (SORS): future possibilities for the diagnosis of breast cancer
 Analyst 132 (9), 899 (2007).

Ultrafast electronic and vibrational dynamics of stabilized a state mutants of the green fluorescent protein (GFP): snipping the proton wire
Chemical Physics (Special Issue Femtochemistry) 350, 193 (2008).

Ultrafast structural dynamics in BLUF domains: transient infrared spectroscopy of AppA and its mutants

X.Z. Sun, P. Portius, D.C. Grills, A.J. Cowan and M.W. George
Cell design for picosecond time-resolved infrared spectroscopy in high-pressure liquids and supercritical fluids

Desorption of hot molecules from photon irradiated interstellar ices

Surface science investigations of photo processes in model interstellar ices

Infrared spectroscopy and structure of photochemically protonated biomolecules in the gas phase: a noradrenaline analogue, lysine and alanyl alanine

Intramolecular interactions in protonated peptides: H+PheGlyGly and H+GlyGlyPhe

Vibrational spectroscopy and conformational structure of protonated polyalanine peptides isolated in the gas phase
J.J. van Thor, K.L. Ronayne and M. Towrie  
_Formation of the early photoproduct Lumi-R of cyanobacterial phytochrome Cph1 observed by ultrafast mid-infrared spectroscopy_  

_Balance between ultrafast parallel reactions in the green fluorescent protein has a structural origin_  

_Ultrafast IR spectroscopy of the short-lived transients formed by UV excitation of cytosine derivatives_  
Chemical Communications **21**, 2130 (2007).

K. Ghandi, I.P. Clark, J.S. Lord and S.P. Cottrell  
_Laser-muon spin spectroscopy in liquids – A technique to study the excited state chemistry of transients_  

N.M. Shaaleev, H. Adams, J. Best and J.A. Weinstein  
_Platinum (II) phosphate complexes with acetylene ligands containing 1,4,5,8-naphthalenediimide: synthesis, crystal structure and electrochemistry_  

_Anthracene as a sensitisier for near-infrared luminescence in complexes of Nd(III), Er(III) and Yb(III): an unexpected sensitisation mechanism based on electron transfer_  

S. Lepadatu, J. Wu, C. Bunce, and X. Zou, D. Niu, Y. B. Xu, R. Chantrell and G. P. Ju  
_Ultrafast optically induced spin dynamics in patterned single-crystal Fe dot arrays_  

K. Gallo, C.B.E. Gawith, I.T. Wellingotn, S. Mailis, R.W. Eason, P.G.R. Smith and D.J. Richardson,  
_Ultraviolet writing of channel waveguides in proton-exchanged LiNbO3_  

**Publications in progress**

_Non-invasive quantitative assessment of the content of pharmaceutical capsules using transmission Raman spectroscopy_  

J.V. Harper, E.L. Leatherbarrow, P. Reynolds, S.W. Botchway, A.W. Parker and P.O’Neill  
_Development of a NIR multi-photon micro-beam: protein recruitment to DNA damage in mammalian cells_  

P. Matousek  
_The enhancement of laser radiation coupled into turbid media using a ‘unidirectional’ mirror_  
Journal of the Optical Society of America B, Submitted.

_Probing the glycosidic linkage: secondary structures in the gas phase_  

_Solvent interactions and conformational choice in a core N-glycan segment: gas phase conformation of the central, branching trimannose unit and its singly hydrated complex_  

J.V. Harper, P. Reynolds, E.L. Leatherbarrow, S.W. Botchway, A.W. Parker and P. O’Neill  
_Induction of persistent double strand breaks following multi-photon irradiation of cycling and G1-arrested mammalian cells: replication-induced double strand breaks_  
Manuscript submitted to Photochemistry & Photobiology

K. Buckley, A. Goodship, N.A. Macleod, A.W. Parker and P. Matousek  
_Fluorescence and Raman signal enhancement in spectroscopy of turbid media_  
In preparation

_Classification of fixed urological cell lines using Raman tweezers_  

T.J. Dines  
_Resonance hyper-Raman scattering and DFT calculations of fluorescein_  
In preparation

T.J. Dines  
_Electronic excited states of all-trans-retinal: resonance hyper-Raman depolarization ratios and ab initio calculations_  
In preparation

C. Eliasson, N.A. Macleod and P. Matousek  
_Non-invasive detection of powders concealed within diffusely scattering plastic containers_  
Vibrational Spectroscopy, In press

C. Eliasson and P. Matousek  
_Passive signal enhancement in spatially offset Raman spectroscopy_  
Journal of Raman Spectroscopy, In press

_Spectral discrimination of live prostate and bladder cancer cell lines using Raman optical tweezers_  
In press
M. Kuimova et al
Imaging intracellular viscosity in photodynamic therapy of cancer manuscript
In preparation

N.A. Macleod and P. Matousek
Emerging non-invasive Raman methods in process control and forensic applications
Pharmaceutical Research, In press.

C. Lee, E. Tyrode, C. Bain, A. Ward, and J.M. Sanderson
Raman spectra of gramicidin in saturated and unsaturated membranes

C.D. Stubbs
Mapping cell membrane dynamics
In preparation

M. Hippler
Analysis of the cyclo-propane bands, of liquid water Raman spectroscopy (droplets) and PARS spectroscopy of some compounds in the gas phase
In preparation

J. M. Chamberlain
Broadband terahertz tomography using a CAT geometry
Journal of Applied Physics Submitted

J. Wu York
Laser induced ultrafast magnetisation switching in films with perpendicular anisotropy
In preparation

Structure and vibrational dynamics of model compounds of the [FeFe]-hydrogenase enzyme system via ultrafast two-dimensional infrared spectroscopy

Conference Presentations

Invited lecture, 2nd Iberian Photochemistry meeting, Faro (July 2007)
Multiphoton excitation photochemistry of serotonin – from hydroxyl radical detection to fluorescence lifetime imaging in cells
R.H. Bisby

Invited lecture, Trombay Symposium on Radiation and Photochemistry (TRSP2008), India (January 2008)
R.H. Bisby

RSC Photochemistry Group – Young Researchers’ Meeting, Longborough, UK (2007)
Generation and detection of hydroxyl radicals in a biochemical system using multiphoton excitation
R.H. Bisby

Intracelluar imaging of neuropharmacological drugs using fluorescence lifetime multiphoton microscopy, Focus on Microscopy (Japan 2008)
R.H. Bisby

International Conference on Surface and Interface Processes at the Molecular Level, Il Ciocco, Italy (2008)
A laboratory study of the morphology and processing of benzene ice in the interstellar medium
J.D. Thrower, M.P. Collings and M.R.S. McCoustra

20th International Gas Kinetics Symposium, Manchester, UK (2008)
Photodesorption processes involving model interstellar ices

Surface science investigations of photoprocesses in model interstellar ices

International Conference on Perspectives in Vibrational Spectroscopy 2008, Trivandrum, India
(24th-28th February 2008)
Analysis of prostate and bladder cells using Raman tweezers
P. Gardner

Gas Kinetics Group, Leeds (September 2007)
G. Hancock

DASIM Workshop, Paris, France (September 2007)
A preliminary investigation in the spectral discrimination of live prostate and bladder cells using Raman tweezers
T. Harvey

CLEO Europe, Munich (2007)
UV laser direct writing of ferroelectric domains in lithium niobate
R.W. Eason

International Conference on Perspectives in Vibrational Spectroscopy 2008 (ICOPVS2008), Trivandrum, India
(February 2008)
Raman tweezer analysis of prostate and bladder cell lines
T. Harvey

Raman tweezer analysis of urological cells
T. Harvey

Invited seminar for this period, supported by a laser loan from the Central Laser Facility
(May 2006 to September 2007)
M. Hippler

Seminar, University College of London
(22nd November 2007)
New techniques for the laser spectroscopy of molecules and clusters: from high-resolution spectroscopy to ultrafast intramolecular dynamics
M. Hippler
TCD One Day Symposium on Vibrational Spectroscopy.
Infrared and Raman Discussion Group Meeting, Dublin
(17th April 2008)
A picosecond time-resolved vibrational spectroscopy study of
nucleic acid systems
S. Quinn

International Forum on Process Analytical Technology
(IFPAC 2008), Baltimore, USA (January 2008)
Emerging analytical tools: transmission and spatially offset
Raman spectroscopy for rapid non-invasive analysis of
pharmaceutical products
P. Matousek

Federation of Analytical Chemistry and Spectroscopy
Societies Conference (FACSS 2007), Memphis, USA
(October 2007)
Raman signal enhancement in deep spectroscopy of turbid
media
P. Matousek

International Conference on Advanced Vibrational
Spectroscopy (ICAVS 2007), Corfu, Greece (June 2007)
Deep probing of tissue and powders using spatially offset
Raman spectroscopy (SORS)
P. Matousek

LAONCA – Lasers in the Conservation of Artworks
(LACONCA 2007), Madrid (September 2007)
A new method for deep non-invasive Raman spectroscopy of
diffusely scattering media
P. Matousek

The Heidelberg PAT Conference 2007, Heidelberg
(October 2007)
Raman spectroscopy in process analytical applications
(PAT)
P. Matousek

Commendation for Excellence in Technical
Communications, Laser Focus World (2007)
In connection with the article: C. Eliasson, P. Matousek,
‘Spatial Offset Broadens Applications for Raman
C. Eliasson and P. Matousek

Poster Presentations
Spectroscopy and Dynamics Groups Meeting, UEA, UK
(December 2007)
A. Hudson

Transatlantic Frontiers of Chemistry Symposium, Cranage
Hall, Cheshire, UK (July 2008)
A. Hudson

Radiation Research Society: 53rd Annual Conference in
Philadelphia, USA (5th-8th November 2006)
The induction of DNA damage/repair responses in
mammalian cells by α-particle and femto-second near
infrared laser microbeam irradiation
P. Lauder, J.V. Harper, S.W. Botchway, A.W. Parker and P. O’Neill

Repair Meeting: from Molecular Mechanism to Human
Disease, Noordwijkhout, Holland (2nd-7th April 2006)
Investigation into the induction of DNA damage/repair
induced in mammalian cells by near infrared multi-photon
absorption
J.V. Harper, E.L. Leatherbarrow, S.W. Botchway, M.
Dillingham, P Lauder, A.W. Parker and P. O’Neill

10th International Wolfsberg Meeting on the Molecular
Radiation Biology/Oncology, Ermitingen, Switzerland
(12th-14th May 2007)
Radiation induced DNA DSBs: contribution from stalled
replication forks?
W. Parker and P. O’Neill

Miller Conference on Radiation Chemistry, Buxton, UK
(April 2007)
Free radical generation and detection with near infrared
femto-second pulses by multiphoton absorption
A.W. Parker, S.W. Botchway, A. Crisostomo
and R.H. Bisby

Focus on Microscopy, Osaka, Japan (April 2008)
A.Crisostomo

Abcam: Maintenance of Genome Stability Conference,
Puerto Vallarta, Mexico (4th-7th March 2008)
DNA damage signalling and repair following near infra-red
multiphoton laser microbeam irradiation in cycling and G1
arrested V79-4 cells
P. Reynolds, J.V. Harper, S.W. Botchway, A. W. Parker
and P. O’Neill

Abcam: Maintenance of Genome Stability Conference,
Puerto Vallarta, Mexico (4th-7th March 2008)
Radiation induced DNA DSBs: contribution from stalled
replication forks

Seminar, University College of London (22th November 2007)
New techniques for the laser spectroscopy of molecules and
clusters: from high-resolution spectroscopy to ultrafast
intramolecular dynamics
M. Hippler

20th High Resolution Molecular Spectroscopy Colloquium,
Dijon, France (3rd-7th September 2007)
High-resolution stimulated Raman photoacoustic
spectroscopy of gas phase molecules
C. Mohr and M. Hippler

Intracellular imaging of neuropharmacological drugs using
fluorescence lifetime multiphoton microscopy, Focus on
Microscopy, Japan (2008)
R.H. Bisby

Miller Conference, Buxton (2007)
Free radical formation from multiphoton irradiation of
solutions
M. Hippler

DASIM Workshop, Dublin, Republic of Ireland (June 2008)
Classification of fixed urological cells using Raman tweezers
T. Harvey
European Biophysics Congress, London, UK (July 2007)

Porphyrin oligomers for photodynamic therapy via two-photon excitation


Understanding the conformational landscape of carbohydrates in the gas phase


Towards understanding of the shapes of gas-phase peptides

Biological Molecules in the Gas Phase: Gordon Conference (July 2007)

Understanding the conformational landscape of carbohydrates in the gas phase
E.J. Cocinero

Ultrafast phenomena 08 Stresa, Italy (2008)

A time-resolved vibrational spectroscopy study on adenine/thymine based nucleic acid systems
S. Quinn, G.W. Doorley, D.A. McGovern, A.W. Parker, K.L. Ronayne, M. Towrie and J.M. Kelly

ISPCC TCD (June 07)

Picosecond transients from oxidation of guanine by a ruthenium complex intercalated in double-stranded DNA

Femto8, Oxford (July 07)

Ultrafast IR spectroscopy of the short-lived transients formed by UV excitation of cytosine derivatives

CSCB TCD (December 2007)

Ultrafast IR spectroscopy of the short-lived transients formed by UV excitation of cytosine derivatives

Oxidative Damage, DCU (March 2008)

Ultrafast IR spectroscopy of the short-lived transients formed by UV excitation of cytosine derivatives

Femto8 Oxford (July 2007)

Picosecond infrared study of guanosine derivatives
D.A. McGovern, G.W. Doorley, S. Quinn, A.M. Whelan, K. Ronayne, A.W. Parker and J.M. Kelly

CSCB TCD (December 2007)

Picosecond infrared study of guanosine derivatives
D.A. McGovern, G.W. Doorley, S. Quinn, A.M. Whelan, K. Ronayne, A.W. Parker and J.M. Kelly

Oxidative Damage, DCU (March 2008)

Picosecond infrared study of guanosine derivatives
D.A. McGovern, G.W. Doorley, S. Quinn, A.M. Whelan, K. Ronayne, A.W. Parker and J.M. Kelly

Gas Kinetics Conference, Leeds (September 2007)

Internal energy distribution of the products of quenching of $NO A^2\Sigma^+$ ($v = 0$)
G. Hancock

Thesis

H. Collins
Photodynamic therapy via two photon excitation
DPhil, University of Oxford, to be submitted 2008

T. Harvey
The development of vibrational of spectroscopic cytology for prostate cancer diagnosis
University of Manchester, 2008

A. Crisostomo
Thesis in preparation on investigations of serotonin
University of Salford, 2008

M. Saunders
Chemical processes studied by time resolved FTIR
DPhil, University of Oxford, 2008

C. Mohr
New experiments for high-resolution laser spectroscopy
Sheffield, Chemistry PhD, to be submitted 2008.

Awards and Prizes

2007 Royal Society Davy Medal
J.P. Simons

2007 RSC Liversidge Medal and Lectureship
J.P. Simons

Best Poster Prize Infrared and Raman Discussion Group, Dublin (April 2008)

Ultrafast IR spectroscopy of the short-lived transients formed by UV excitation of cytosine derivatives

Best Poster Prize European Biophysics Congress, London, UK (July 2007)

Porphyrin oligomers for photodynamic therapy via two-photon excitation