

Vulcan Laser Programme**JOURNAL PUBLICATIONS, BOOKS AND PUBLISHED PROCEEDINGS**

Y Abou-Ali, Q L Dong, A Demir, R E King, G J Pert, G J Tallents

Quantitative simulations of short pulse x-ray laser experiments

J Phys B-AT Mol Opt 37 (14): 2855-2868 Jul 28 2004

F N Beg, M S Wei, A E Dangor, A Gopal, M Tatarakis, K Krushelnick, P Gibbon, E L Clark, R G Evans, K L Lancaster, P A Norreys, K W D Ledingham, P McKenna, M Zepf

Target charging effects on proton acceleration during high-intensity short-pulse laser-solid interactions

Appl Phys Lett 84 (15): 2766-2768 Apr 12 2004

F N Beg, M S Wei, E L Clark, A E Dangor, R G Evans, P Gibbon, A Gopal, K L Lancaster, K W D Ledingham, P McKenna, P A Norreys, M Tatarakis, M Zepf, K Krushelnick

Return current and proton emission from short pulse laser interactions with wire targets

Phys Plasmas 11 (5): 2806-2813 May 2004

F N Beg, E L Clark, M S Wei, A E Dangor, R G Evans, A Gopal, K L Lancaster, K W D Ledingham, P McKenna, P A Norreys, M Tatarakis, M Zepf, K Krushelnick

Fast plasma heating in a cone-attached geometry - towards fusion ignition

Phys Rev Lett 92 (9): art. no. 095001 Mar 5 2004

E Breschi, M Borghesi, M Galimberti, D Giulietti, L A Gizzi, G Romagnani, A Schiavi, O Willi

Spectral and angular characterization of laser-produced proton beams from dosimetric measurements

Laser Part Beams 22 (4): 393-397 Dec 2004

P M Celliers, G W Collins, D G Hicks, M Koenig, E Henry, A Benuzzi-Mounaix, D Batani, D K Bradley, L B Da Silva, R J Wallace, S J Moon, J H Eggert, K K M Lee, L R Benedetti, R Jeanloz, I Masclet, N Dague, B Marchet, Rabec M Le Gloahec, C Reverdin, J Pasley, O Willi, D Neely, C N Danson

Electronic conduction in shock-compressed water

Physics of Plasmas, Vol 11, No 8, 41-44, Aug 2004

C Courtois, R A D Grundy, A D Ash, D M Chambers, N C Woolsey, R O Dendy, K G McClements

Experiment on collisionless plasma interaction with applications to supernova remnant physics

Phys Plasmas 11 (7): 3386-3393 Jul 2004

A Demir, G J Tallents, N Kenar

Comparison of simulated X-ray conversion efficiency of laser produced iron plasma with experimental results

Appl Phys B-Lasers O 78 (7-8): 945-948 May 2004

R D Edwards, E L Clark, R Clarke, R T Eagleton, A M Dunne, R G Evans, W J Garbett, T J Goldsack, S James, D Neely, C Smith, B R Thomas

Experimental investigation of the transport of electron beams generated by the Vulcan Petawatt laser

Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 373-377, Aug 2004

S Eliezer, J T Mendonca, R Bingham, P A Norreys

A new diagnostic for very high magnetic fields in expanding plasmas

Physics Letters A 336 (4-5): 390-395 Mar 14 2005

S Eliezer, P A Norreys, J T Mendonca, K Lancaster

Effects of Landau quantization on the equations of state in intense laser plasma interactions with strong magnetic fields

Physics of Plasmas 12 (5): Art. No. 052115 May 2005

R G Evans, E L Clark, R T Eagleton, A M Dunne, R D Edwards, W J Garbett, T J Goldsack, S James, C C Smith, B R Thomas, R Clarke, D J Neely, S J Rose

Rapid heating of solid density material by a Petawatt laser

Appl Phys Lett 86 (19): art. no. 191505 May 9 2005

P Gibbon, F N Beg, E L Clark, R G Evans, M Zepf

Tree-code simulations of proton acceleration from laser-irradiated wire targets

Phys Plasmas 11 (8): 4032-4040 Aug 2004

H Habara, K L Lancaster, S Karsch, C D Murphy, P A Norreys, R G Evans, M Borghesi, L Romagnani, M Zepf, T Norimatsu, Y Toyama, R Kodama, J A King, R Snavelly, K Akli, B Zhang, R Freeman, S Hatchett, A J MacKinnon, P Patel, M H Key, C Stoeckl, R B Stephens, R A Fonseca, L O Silva

Ion acceleration from the shock front induced by hole boring in ultraintense laser-plasma interactions

Phys Rev E 70 (4): art. no. 046414 Part 2 Oct 2004

J Hawreliak, D M Chambers, S H Glenzer, A Gouveia, R J Kingham, R S Marjoribanks, P A Pinto, O Renner, P Sondhaus, S Topping, E Wolfrum, P E Young, J S Wark

Thomson Scattering Measurements of Heat Flow in a Laser-Produced Plasma

J Phys B At Mol Opt 37 (7) 1541-1551, Apr 2004

R Jung, J Osterholz, K Lowenbruck, S Kiselev, G Pretzler, A Pukhov, O Willi, S Kar, M Borghesi, W Nazarov, S Karsch, R Clarke, D Neely

Study of electron-beam propagation through preionized dense foam plasmas

Phys Rev Lett 94 (19): art. no. 195001 May 20 2005

M H Key, F Amiranoff, C Andersen, D Batani, S D Baton, T Cowan, N Fisch, R Freeman, L Gremillet, T Hall, S Hatchett, J Hill, J King, R Kodama, J Koch, M Koenig, B Lasinski, B Langdon, A MacKinnon, E Martinolli, P A Norreys, P Parks, E Perelli-Cippo, Rabec Le Gloahec, M Rosenbluth, C Rousseaux, J J Santon, F Scianitti, R Snavelly, M Tabak, K Tanaka, R Town, T Tsutumi, R Stephens

Studies of electron isochoric heating and its applicability to fast ignition

Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 373-377, Aug 2004

J A King, K Akli, B Zhang, R R Freeman, M H Key, C D Chen, S P Hatchett, J A Koch, A J MacKinnon, P K Patel, R Snavelly, R P J Town, M Borghesi, L Romagnani, M Zepf, T Cowan, H Habara, R Kodama, Y Toyama, S Karsch, K Lancaster, C Murphy, P A Norreys, R Stephens, C Stoeckl

TiK alpha radiography of Cu-doped plastic microshell implosions via spherically bent crystal imaging

Appl Phys Lett 86 (19): art. no. 191501 May 9 2005

- J A King, K Akli, R A Snavely, B Zhang, M H Key, C D Chen, M Chen, S P Hatchett, J A Koch, A J MacKinnon, P K Patel, T Phillips, R P J Town, R R Freeman, M Borghesi, L Romagnani, M Zepf, T Cowan, R Stephens, K L Lancaster, C D Murphy, P A Norreys, C Stoeckl
Characterization of a picosecond laser generated 4.5 keV TiK-alpha source for pulsed radiography
Review of Scientific Instruments 76 (7): Art. No. 076102 Jul 2005
- J A King, R R Freeman, M H Key, K Akli, M Borghesi, R Clarke, T Cowan, H Habara, H Heathcote, S Karsch, R Kodama, K L Lancaster, A MacKinnon, C D Murphy, P A Norreys, P Patel, L Romagnani, R Snavely, R Stephens, C Stoeckl, Y Toyama, M Zepf, B Zhang
Ti K - alpha radiography of imploding Cu doped CD shells and coned shells
Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 373-377, Aug 2004
- R King, G J Pert, K M Aggarwal, F P Keenan, S J Rose
An investigation into the use of atomic datasets in simulations of the Ni-like gadolinium x-ray laser
J Phys B-AT Mol Opt 37 (1): 225-236 Jan 14 2004
- R J Kingham, A R Bell
An implicit Vlasov-Fokker-Planck code to model non-local electron transport in 2-D with magnetic fields
J Comput Phys 194 (1): 1-34 Feb 10 2004
- R Kodama, H Azechi, H Fujita, H Habara, Y Izawa, T Jitsuno, T Jozaki, Y Kitagawa, K Krushelnick, T Matsuoka, K Mima, N Miyanaga, K Nagai, H Nagatomo, M Nakai, H Nishimura, T Norimatsu, P A Norreys, K Shigemori, H Shiraga, A Sunahara, K A Tanaka, M Tanpo, Y Toyama, K Tsubakimoto, T Yamanaka, M Zepf
Fast plasma heating in a cone-attached geometry - towards fusion ignition
Nuclear Fusion 44 (12): S276-S283 Dec 2004
- M Koenig, E Henry, G Huser, A Benuzzi-Mounaix, B Faral, E Martinolli, S Lepape, T Tinci, D Batani, M Tomasini, B Telaro, P Loubeyre, T Hall, P Celliers, G Collins, L DaSilva, R Cauble, D Hicks, D Bradley, A Mackinnon, P Patel, J Eggert, J Pasley, O Willi, D Neely, M M Notley, C N Danson, M Borghesi, L Romagnani, T Boehly, K Lee
High pressures generated by laser driven shocks: applications to planetary physics
IAEA Journal of Nuclear Fusion, 44 (2004) S208-S214
- M Koenig, E Henr, A Benuzzi-Mounaix, G Huser, B Faral, E Martinolli, S Lepape, P Audebert, T Vinci, D Batani, M Tomasini, B Telaro, B Marchet, I Masclet, M Rabec, Ch Reverdin, P Loubeyre, T Hall, P Celliers, G Collins, L DaSilva, R Cauble, D Hicks, D Bradley, A Mackinnon, P Patel, J Eggert, J Pasley, O Willi, D Neely, M M Notley, C N Danson, M Borghesi, L Romagnani, T Boehly, K Lee
Recent developments in high pressure physics using laser driven shocks
Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 897-901, Aug 2004
- K L Lancaster, S Karsch, H Habara, F N Beg, E L Clark, R Freeman, M H Key, J A King, R Kodama, K Krushelnick, K W D Ledingham, P McKenna, C D Murphy, P A Norreys, R Stephens, C Stoeckl, Y Toyama, M S Wei, M Zepf
Characterization of Li-7(p,n)Be-7 neutron yields from laser produced ion beams for fast neutron radiography
Phys Plasmas 11 (7): 3404-3408 Jul 2004
- K W D Ledingham, P McKenna, T McCanny, S Shimizu, J M Yang, L Robson, J Zweit, J M Gillies, J Bailey, G N Chimon, R J Clarke, D Neely, P A Norreys, J L Collier, R P Singhal, M S Wei, S P D Mangles, P Nilson, K Krushelnick, M Zepf
High power laser production of short-lived isotopes for positron emission tomography
Journal of Physics D-Applied Physics 37 (16): 2341-2345 Aug 21 2004
- Y T Li, J Zhang, X Lu, Z Jin, D A Pepler, C N Danson
Generation of axial line-focus using a binary-phase Fresnel zone plate
Acta Physica Sinica 54 (5): 2030-2033 May 2005
- P Loubeyre, P M Celliers, D G Hicks, E Henry, A Dewaele, J Pasley, J Eggert, M Koenig, F Occelli, K M Lee, R Jeanloz, D Neely, A Benuzzi-Mounaix, D Bradley, M Bastea, S Moon, G W Collins
Coupling static and dynamic compressions: First measurements in dense hydrogen
High Pressure Research 24 (1): 25-31 Mar 2004
- A J Mackinnon, P K Patel, R P Town, M J Edwards, T Phillips, S C Lerner, D W Price, D Hicks, M H Key, S Hatchett, S C Wilks, M Borghesi, L Romagnani, S Kar, T Toncian, G Pretzler, O Willi, M Koenig, E Martinolli, S Lepape, A Benuzzi-Mounaix, P Audebert, J C Gauthier, J King, R Snavely, R R Freeman, T Boehly
Proton radiography as an electromagnetic field and density perturbation diagnostic (invited)
Rev Sci Instrum 75 (10): 3531-3536 Part 2 Oct 2004
- P McKenna, K W D Ledingham, S Shimizu, J M Yang, L Robson, T McCanny, J Galy, J Magill, R J Clarke, D Neely, P A Norreys, R P Singhal, K Krushelnick, M S Wei
Broad energy spectrum of laser-accelerated protons for spallation-related physics
Phys Rev Lett 94 (8) No 084801 Mar 2005
- P McKenna, K W D Ledingham, J M Yang, L Robson, T McCanny, S Shimizu, R J Clarke, D Neely, K Spohr, R Chapman, R P Singhal, K Krushelnick, M S Wei, P A Norreys
Characterization of proton and heavier ion acceleration in ultrahigh-intensity laser interactions with heated target foils
Physical Review E 70 (3): Art. No. 036405 Part 2, Sep 2004
- M J Mead, D Neely, J Gauoin, R Heathcote, P Patel
Electromagnetic pulse generation within a petawatt laser target chamber
Review of Scientific Instruments 75 (10): 4225-4227 Part 2, Oct 2004
- J T Mendonca, P A Norreys, R Bingham, J R Davies
Beam instabilities in laser-plasma interaction: Relevance to preferential ion heating
Physical Review Letters 94 (24): Art. No. 245002 Jun 24 2005

- D Neely, R J Clarke, P Brummitt, J L Collier, C N Danson, C B Edwards, R D Edwards, A J Frackiewicz, J A C Govans, S Hancock, P Hatton, S Hawkes, R Heathcote, C Hernandez-Gomez, P Holligan, C J Hooker, M H R Hutchinson, A Kidd, W J Lester, D McAllister, J McLaughlan, D Neville, P A Norreys, D A Pepler, M R Pitts, C J Reason, I N Ross, R Wellstood, B E Wyborn, T B Winstone, P N M Wright, R W W Wyatt, C Ziener
Radiological characterisation of Petawatt laser interactions
Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 373-377, Aug 2004
- P A Norreys, K L Lancaster, C D Murphy, H Habara, S Karsch, R J Clarke, J Collier, R Heathcote, C Hernandez-Gomez, S Hawkes, D Neely, M H R Hutchinson, R G Evans, M Borghesi, L Romagnani, M Zepf, K Akli, J A King, B Zhang, R R Freeman, A J MacKinnon, S P Hatchett, P Patel, R Snavely, M H Key, A Nikroo, R Stephens, C Stoeckl, K A Tanaka, T Norimatsu, Y Toyama, R Kodama
Integrated implosion/heating studies for advanced fast ignition
Phys Plasmas 11 (5): 2746-2753 May 2004
- P A Norreys, K M Krushelnick, M Zepf
PW lasers: matter in extreme laser fields
Plasmas Physics and Controlled Fusion 46: B13-B21 Sp. Iss. SI Suppl. 12B, Dec 2004
- J Pasley, P Nilson, L Willingale, M G Haines, M M Notley, M K Tolley, D Neely, W Nazarov, O Willi
X-UV imaging of indirectly driven foam-foil packages
Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 373-377, Aug 2004
- G L Pert
Refraction limited saturated X-ray lasers
Opt Commun 236 (1-3): 173-182 Jun 1 2004
- M Roth, E Brambrink, P Audebert, A Blazevic, R Clarke, J Cobble, T E Cowan, J Fernandez, J Fuchs, M Geissel, D Habs, M Hegelich, S Karsch, K Ledingham, D Neely, H Ruhl, T Schlegel, J Schreiber
Laser accelerated ions and electron transport in ultra-intense laser matter interaction
Laser and Particle Beams 23 (1): 95-100 Mar 2005
- R A Snavely, F Amiranoff, C Andersen, D Batani, S D Baton, T Cowan, N Fisch, R Freeman, L Gremillet, T Hall, S Hatchett, J Hill, M H Key, J King, J Koch, M Koenig, B Lasinski, B Langdon, A MacKinnon, E Martinolli, P A Noreys, P Parks, E Perelli-Cippo, M Rabec Le Gloahec, M Rosenbluth, C Rousseaux, J J Santos, F Scianitti, M Tabak, R Town, R Stephens
Relativistic electron beam transport and characteristics in solid density plasmas
Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 373-377, Aug 2004
- R B Stephen, R A Snavely, Y Aglitskiy, F Amiranoff, C Andersen, D Batani, S D Baton, T Cowan, R R Freeman, T Hall, S P Hatchett, J M Hill, M H Key, J A King, J A Koch, M Koenig, A J MacKinnon, K L Lancaster, E Martinolli, P A Norreys, E Perelli-Cippo, M R Le Gloahec, C Rousseaux, J J Santos, F Scianitti
K-alpha fluorescence measurement of relativistic electron transport in the context of fast ignition (vol 69, art no 066414, 2004)
Physical Reviews E 71 (3): Art. No. 039901 Part 2, Mar 2005
- C Stoeckl, W Theobald, T C Sangster, M H Key, P Patel, B B Zhang, R Clarke, S Karsch, P A Norreys
Operation of a single-photon-counting x-ray charge-coupled device camera spectrometer in a petawatt environment
Review of Scientific Instruments 75 (10): 3705-3707 Part 2, Oct 2004
- G L Tallents, Y Abou-Ali, A Demir, Q Dong, M H Edwards, P Mistry, G J Pert
Experiments and Simulations of short-pulse laser-pumped extreme ultraviolet lasers
IEEE J SEL Top Quant 10 (6): 1373-1381 Nov-Dec 2004
- K A Tanaka, R Kodama, Y Kitagawa, K Kondo, K Mima, H Azechi, Z Chen, S Fujioka, H Fujita, T Johzaki, A Lei, T Matsuoka, K Mima, N Miyanaga, K Nagai, H Nagatomo, H Nishimura, T Norimatsu, K Shigemori, H Shiraga, M Tanpo, Y Tohyama, T Yabuuchi, J Zheng, Y Izawa, P A Norreys, R Stephens, S Hatchett
Progress and perspectives of fast ignition
Plasmas Physics and Controlled Fusion 46: B41-B49 Sp. Iss. SI Suppl. 12B, Dec 2004
- U Wagner, M Tatarakis, A Gopal, F N Beg, E L Clark, A E Dangor, R G Evans, M G Haines, S P D Mangles, P A Norreys, M S Wei, M Zepf, K Krushelnick
Laboratory measurements of 0.7 GG magnetic fields generated during high-intensity laser interactions with dense plasmas
Phys Rev E 70 (2): art. no. 026401 Part 2 Aug 2004
- M S Wei, F N Beg, E L Clark, A E Dangor, R G Evans, A Gopal, K W D Ledingham, P McKenna, P A Norreys, M Tatarakis, M Zepf, K Krushelnick
Observations of the filamentation of high-intensity laser-produced electron beams
Phys Rev E 70 (5): art. no. 056412 Part 2 Nov 2004
- M S Wei, S P D Mangles, Z Najmudin, B Walton, A Gopal, M Tatarakis, A E Dangor, E L Clark, R G Evans, S Fritzler, R J Clarke, C Hernandez-Gomez, D Neely, W Mori, M Tzoufras, K Krushelnick
Ion acceleration by collisionless shocks in high-intensity-laser-underdense-plasma interaction
Phys Rev Lett 93 (15): art. no. 155003 Oct 8 2004
- N C Woolsey, C Courtois, R O Dendy
Laboratory plasma astrophysics simulation experiments using lasers
Plasmas Phys Contr F 46: B397-B405 Sp. Iss. SI Suppl. 12B Dec 2004

N C Woolsey, A D Ash, D M Chambers, C Courtois,
R A D Grundy, R O Dendy, K G McClements
*Collisionless laboratory experiments with applications to
shock physics.*

Inertial Fusion Sciences and Applications 2003, American
Nuclear Society, Editors: BA Hammel, DD Meyerhofer,
J Meyer-ter-Vehn and H Azechi, 373-377, Aug 2004

J M Yang, P McKenna, K W D Ledingham, T McCanny,
S Shimizu, L Robson, R J Clarke, D Neely, P A Norreys,
M S Wei, K Krushelnick, P Nilson, S P D Mangles,
R P Singhal
*Nuclear reactions in copper induced by protons from a
petawatt laser-foil interaction*
Appl Phys Lett 84 (5), 675-677, Feb 2004

J M Yang, P McKenna, K W D Ledingham, T McCanny,
L Robson, S Shimizu, R P Singhal, M S Wei,
K Krushelnick, R J Clarke, D Neely, P A Norreys
*Neutron production by fast protons from ultraintense laser-
plasma interactions*
J Appl Phys 96 (11), 6912-6918, Dec 2004

CONFERENCE PRESENTATIONS

XXVIII ECLIM, 28th European Conference on Laser Interaction with matter, Rome, Italy Sept. 6 - 10, 2004

M Borghesi
*High-intensity laser-plasma interaction studies employing
laser-driven proton probes (Invited)*

32nd EPS meeting Plasma Physics Conference, Tarragona 27 June – 1 July 2005

M Koenig, A Benuzzi-Mounaix, T Vinci, N Ozaki,
D Batani, P Loubeyre, E Henry, G Huser, T Hall,
P Celliers, G Collins, D Hicks, D Bradley, A MacKinnon,
P Patel, J Eggert, D Neely, M Notley, R Heathcote,
M Borghesi, L Romagnani
Progress in the study of warm dense matter

Deutsche Physikalische Gesellschaft (DPG) Spring Meeting, Berlin, 4-9 March 2005

R Jung, J Osterholz, O Willi, M Borghesi, S Kar,
L Romagnani, M Galimberti, R Heathcote, C A Cecchetti,
J Fuchs
*Investigation of high-intensity laser interaction with
gaseous targets and the consequent plasma evolution*

R Jung, J Osterholz, K Lowenbruck, S Kiselev, A Pukhov,
G Pretzler, O Willi, S Kar, M Borghesi, S Karsch, R Clarke,
D Neely, W Nazarov
Study of electron beam propagation in dense plasmas

32nd IOP Plasma Physics Conference, Clarendon Laboratory, University of Oxford, UK, 21-24 March 2005

I O Musgrave, P A Brummitt, D J Canny, R J Clarke,
C N Danson, A M Dunne, B Fell, A J Frackiewicz,
S Hancock, S Hawkes, C Hernandez-Gomez, P Holligan,
M H R Hutchinson, A Kidd, W J Lester, D Neely,
D R Neville, P A Norreys, D A Pepler, C J Reason,
W Shaikh, T B Winstone, R W W Wyatt, B E Wyborn
Vulcan Petawatt - Operation and Development

S Hawkes, A Dunster, C N Danson
*Retro-reflected energy measurements from petawatt laser
interactions*

B Walton
*Experiments with the short-pulse beat-wave accelerator
using the Vulcan CPA laser system*

P A Norreys
Recent Advances in Fast Ignition Studies

P A Norreys, K L Lancaster, H Habara, J R Davies,
J T Mendonca, R J Clarke, B Dromey, A Gopal, S Karsch,
R Kodama, K Krushelnick, S D Moustazis, C Stoeckl,
M Tatarakis, M Tampo, N Vakakis, M S Wei, M Zepf
*Observation of Ion Temperatures Exceeding Electron
Temperatures in PetaWatt Laser-Solid Experiments*

J Howe
*Observation of periodic features modifying the He β line
profile from aluminium plasma produced using a
picosecond laser pulse*

P K Patel, A J Mackinnon, M Allen, R J Clarke,
M E Foord, R Heathcote, M H Key, J King, R A Snavely,
R Town, S C Wilks, B Zhang
*Ultrafast proton heating as a means of creating high energy
density plasma states*

D Whittaker, G J Tallents, G Pert, M Edwards, P Mistry,
N Booth
The Radiative Opacity of High Density Plasmas

Z Najmudin, B Walton, K Krushelnick, S P D Mangles,
J Faure, V Malka, A E Dangor
Optical probing of magnetic fields in under-dense plasmas

F M Kerr, S J Rose, J S Wark
*Spectral line intensity ratios as a diagnostic of plasma
geometry*

T Ball, G Pert
*Computer Simulation of Grazing-Incidence Pumping in
X-Ray Lasers*

P Nilson, L Willingale, M S Wei, M Kaluza, C Kamberides,
M Tatarakis, R Kingham, R G Evans, A E Dangor,
K Krushelnick
*Self-Generated Magnetic Field Distributions in Multiple-
Beam Produced Plasmas*

M M Notley, D Neely, R J Clarke, P S Foster, R Heathcote,
S Bandyopadhyay
Plasma Diagnostic Developments at the CLF

A G R Thomas, C D Murphy, S P D Mangles, Z Najmudin,
A E Dangor, K Krushelnick
*Wakefield acceleration by the interaction of two
co-propagating laser pulses*

9th International Conference On X-ray Lasers, Beijing, China, May 24-28 2004

G J Pert
*Refraction and Saturation Effects in CPA Pumped
Collisional Lasers*

Y Abou-Ali, Q L Dong, A Demir, G J Pert, G J Tallents
*Pumping laser energy absorption in X-ray laser
experiments*

G J Tallents, M H Edwards, P Mistry, O Guilband, A Klisnick, D Ros
Towards the Fourier transform limit: can picosecond duration x-ray lasers be used for real applications?

IOP Plasma Physics Conference, University of York, UK, April 2004

D Neely, R Clarke, J Collier, C N Danson, C B Edwards, R D Edwards, A Frackiewicz, S Hancock, P Hatton, S Hawkes, R Heathcote, C Hernandez-Gomez, P Holligan, C Hooker, M H R Hutchinson, A Kidd, W Lester, P Norreys, D A Pepler, I N Ross, T B Winstone, P N M Wright, R W W Wyatt, B E Wyborn, C Ziener
Radiological Characterisation of Petawatt Laser Interactions

THESIS

J J Angulo Garetta
Simulation of Kilovolt X-ray Scattering from strongly-coupled dense plasmas and the diagnostics of electron-ion equilibration
 PhD Thesis, Queen's University of Belfast

A Gopal
Measurements of Ultra Strong Magnetic fields in Laser Produced Plasmas

R A D Grundy
Investigations of Counter Propagating Laser Produced Plasmas in a Collision Free system in the Presence of a Strong Magnetic Field
 Phd Thesis, University of York

S P D Mangles
Measurements of Relativistic Electrons from Intense Laser-Plasma Interactions

J Pasley
Hydrodynamics of Soft X-ray Driven Ablative Targets

M S Wei
Measurements of Energetic Ions and Return Current Effects from High Intensity Laser Plasma Interactions

Astra Laser Programme

JOURNAL PUBLICATIONS, BOOKS AND PUBLISHED PROCEEDINGS

K Krushelnick, Z Najmudin, S P D Mangles, A G R Thomas, M S Wei, B Walton, A Gopal, E L Clark, A E Dangor, S Fritzler, C D Murphy, P A Norreys, W B Mori, J Gallacher, D Jaroszynski, R Viskup
Laser plasma acceleration of electrons: Towards the production of monoenergetic beams
 Phys Plasmas 12 (5): art. no. 056711 May 2005

S P D Mangles, C D Murphy, Z Najmudin, A G R Thomas, J L Collier, A E Dangor, E J Divall, P S Foster, J G Gallacher, C J Hooker, D A Jaroszynski, A J Langley, W B Mori, P A Norreys, F S Tsung, R Viskup, B R Walton, K Krushelnick
Monoenergetic beams of relativistic electrons from intense laser-plasma interactions
 Nature 431 (7008): 535-538 Sep 30 2004

D Riley, F Y Khattak, O A M B Percie du Sert, R J Clarke, E J Divall, M Edwards, P S Foster, C J Hooker, A J Langley, P Mistry, D Neely, J M Smith, C Spindloe, G J Tallents, M K Tolley
Efficient K-alpha and He-alpha emission from Ti foils irradiated with 400 nm, 45 fs laser pulses
 J Quant Spectrosc Radiat Transfer

D Riley, J J Angulo-Gareta, F Y Khattak, M J Lamb, P S Foster, E J Divall, C J Hooker, A J Langley, R J Clarke, D Neely
K alpha yields from Ti foils irradiated with ultrashort laser pulses
 Phys Rev E 71 (1): art. no. 016406 Part 2 Jan 2005

I C E Turcu, R Allot, N Lisi, D Batani, F Bortolotto, A Masani, M Milani, M Ballerini, L Ferraro, A Pozzi, F Previdi, L Rebonato
An ensemble of new techniques to study soft-X-ray-induced variations in cellular metabolism
 Laser and Particle Beams 22, 323-333 (2004)

CONFERENCE PRESENTATIONS

CCLRC High Power Laser User Meeting (15th – 17th December 2004, Abingdon, UK)

W A Bryan, E M L English, S L Stebbings, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, E J Divall, C J Hooker, A J Langley, J M Smith, I C E Turcu
Precise control of ultrafast intense-field dissociation of H₂⁺

J McKenna, M Suresh, B Srigengan, I D Williams, J Wood, E M L English, S L Stebbings, W A Bryan, W R Newell, E J Divall, C J Hooker, A J Langley, J M Smith, I C E Turcu
Dissociative ionization of N₂ in an ultrafast strong field

W A Bryan, J Wood, E M L English, S L Stebbings, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, E J Divall, C J Hooker, A J Langley, J M Smith, I C E Turcu
Ultrafast dissociation dynamics: an experimental comparison between H₂⁺ and H²

M Suresh, J McKenna, B Srigengan, I D Williams, J Wood, E M L English, S L Stebbings, W A Bryan, W R Newell, E J Divall, C J Hooker, A J Langley, J M Smith, I C E Turcu
Interaction of intense ultra short laser fields with H₂⁺ and D₂⁺ ions

W A Bryan, E M L English, S L Stebbings, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, E J Divall, C J Hooker, A J Langley, J M Smith, I C E Turcu
Precise control of ultrafast intense-field dissociation of H₂⁺

E M L English, S L Stebbings, W A Bryan, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, E J Divall, C J Hooker, A J Langley, J M Smith, I C E Turcu
Observing momentum and intensity selective process in CO_2^+

"SHARP at RAL" (SHARP - Berlin) 22-24 May 2004

J L Collier, E J Divall, C J Hooker, A J Langley, I N Ross
Suppression over high dynamic range of ase at the rising edge of ultra-intense femtosecond pulses

ICPEAC (20th – 26th August 2005, Rosario, Argentina)

J McKenna, M Suresh, B Srigengan, I D Williams, E M L English, S L Stebbings, W A Bryan, W R Newell, I C E Turcu
Evidence for rescattering in molecular dissociation

E M L English, J Wood, S L Stebbings, W A Bryan, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, I C E Turcu
Controlling non-sequential double ionization using elliptically polarized ultrafast laser pulses

W A Bryan, E M L English, J Wood, S L Stebbings, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, A J Langley, I C E Turcu
Strong-field tunnel ionization as a gauge of electron wavelength

W A Bryan, E M L English, J Wood, S L Stebbings, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, A J Langley, I C E Turcu
Observation of atomic excitation during ultrafast tunnel ionization

M Suresh, J McKenna, B Srigengan, I D Williams, L-Y Peng, J F McCann, J Wood, E M L English, S L Stebbings, W A Bryan, W R Newell, I C E Turcu
Dissociation of fast pre-ionized H_2^+ in intense ultrafast laser pulses

I D Williams, J McKenna, M Suresh, B Srigengan, J Wood, E M L English, S L Stebbings, W A Bryan, W R Newell, I C E Turcu
Laser driven electron-ion recombination in intense ultrafast pulses

J McKenna, M Suresh, B Srigengan, I D Williams, E M L English, S L Stebbings, W A Bryan, W R Newell, I C E Turcu
Ultrafast intense field dissociative ionization study of N_2^+

J Wood, E M L English, S L Stebbings, W A Bryan, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, A J Langley, I C E Turcu
Diffraction in an arbitrary optical system: Geometry-independent ionization probabilities in an high-intensity laser focus

ECAMP (6th – 10th July 2004, Rennes, France)

W A Bryan, E M L English, S L Stebbings, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, E J Divall, C J Hooker, A J Langley, J M Smith, I C E Turcu
Precise control of ultrafast intense-field dissociation of H_2^+

E M L English, S L Stebbings, W A Bryan, W R Newell, J McKenna, M Suresh, B Srigengan, I D Williams, E J Divall, C J Hooker, A J Langley, J M Smith, I C E Turcu
Observing momentum and intensity selective process in CO_2^+

Advanced Accelerator Concepts 11th Advance Accelerator Concepts Workshop, Stony Brook, New York 21-26 June 2004

C D Murphy, S P D Mangles, Z Najmudin, A G R Thomas, J L Collier, A E Dangor, E J Divall, P S Foster, J G Gallacher, C J Hooker
Observation of mono-energetic structures in the spectrum of laser wakefield accelerated electrons

32nd IOP Plasma Physics Conference, Clarendon Laboratory, University of Oxford, UK, 21-24 March 2005

K Krushelnick
Laser plasma acceleration of electrons: towards the generation of high quality, monoenergetic, relativistic beams

P S Foster, D Neely, J Collier, J Smith, A Langley, C J Hooker, E J Divall
Plasma Interaction Conditions achievable using Astra

Lasers for Science Facility Programme

JOURNAL PUBLICATIONS BOOKS AND PUBLISHED PROCEEDINGS

K Attenborough, T R Law, O Umnova, H-C Shin
Sonic cleaning using laser-generated acoustic shocks
Proc. IOA 2004

K F Bowes, I P Clark, J M Cole, M Gourlay, A M E Griffin, M F Mahon, L L Ooi, A W Parker, P R Raithby, H A Sparkes, M Towrie
A new polymorph of terpyridine: Variable temperature X-ray diffraction studies and solid state photophysical properties
Cryst Eng Com 7 269-275 (2005)

C Brady, P L Callaghan, Z Ciunik, C G Coates, A Dossing, A Hazell, J J McGarvey, S Schenker, H Toftlund, A X Trautwein
Molecular structure and vibrational spectra of spin-crossover complexes in solution and colloidal media: Resonance Raman and time-resolved resonance Raman studies
Inorg Chem 43 4289-4299 (2004)

W R Browne, C G Coates, C Brady, P Matousek, M Towrie, S W Botchway, A W Parker, J G Vos, J J McGarvey
Isotope effects on the picosecond time-resolved emission spectroscopy of tris(2,2'-bipyridine)ruthenium (II)
J Am Chem Soc 126 10190 (2004)

M Busby, A Gabrielsson, P Matousek, M Towrie, A J Di Bilio, H B Gray, A Vlcek Jr
Excited-state dynamics of fac-[RE1(L)(CO)3(phen)]⁺ and fac-[Re(1)(L)(CO)3(5-NO₂-phen)]⁺ (L=imidazole 4-ethylpyridine; phen =1,10-phenanthroline) complexes
Inorg Chem 43 4994-5002 (2004)

- M Busby, P Matousek, M Towrie, I P Clark, M Matevalli, F Hartl, A Vlcek Jr
Rhenium-to-benzoylpyridine and rhenium-to-bipyridine MLCT excited states of fac-[Re(Cl)(4-benzoylpyridine)₂(CO)₃] and fac-[Re(4-benzoylpyridine)(CO)₃(bpy)]⁺: A time-resolved spectroscopic and spectroelectrochemical study
Inorg Chem **43** 4523-4530 (2004)
- M Busby, P Matousek, M Towrie, A Vlcek Jr
Ultrafast excited-state dynamics preceding a ligand trans-cis isomerization of fac-[Re(CO)₃(t-styrylpyridine)] and fac-[Re(t-styrylpyridine)(CO)₃(2,2'-bipyridine)]⁺
J Phys Chem A **109** 3000-3008 (2005)
- P Carcabal, R T Kroemer, L C Snoek, J P Simons, J M Bakker, I Compagnon, G Meijer, G V Helden
Hydrated complexes of tryptophan: ion dip infrared spectroscopy in the 'molecular fingerprint' region, 100-2000 cm⁻¹
PCCP **6** 4546-4552 (2004)
- D Cunningham, R E Littleford, W E Smith, D Graham, M Towrie, P Matousek
Surface enhanced resonance Raman scattering detection by fluorimeter
Analyst **130** 472-473 (2005)
- S Dad, R H Bisby, I P Clark, A W Parker
Identification and reactivity of the triplet state of 5-hydroxytryptophan
J Photochem Photobiol B: Biology **28** 245-251 (2005)
- R Emery, N A Macleod, L C Snoek, J P Simons
Conformational preferences in model antiviral compounds: A spectroscopic and computational study of phenylurea and 1,3-diphenylurea
PCCP **6** 2816-2820 (2004)
- A Gabrielsson, S Zalis, P Matousek, M Towrie, A Vlcek
Ultrafast photochemical dissociation of an equatorial CO ligand from trans(XX)-[Ru(X)₂(CO)₂(bpy)] (X = Cl, Br, I): A picosecond time-resolved infrared spectroscopic and DFT computational study
Inorg Chem **43** 7380 (2004)
- R J Hopkins, L Mitchem, A D Ward, J P Reid
Control and characterisation of a single aerosol droplet in a single beam gradient force optical trap
PCCP **6** 4924-4927 (2004)
- R A Jockusch, F O Talbot, N Asano, G W Fleet, J P Simons
Gas-phase structure and conformation of the glycosidase and ceramide glucosyltransferase inhibitor N-benzyl deoxyojirimycin
PCCP **6** 5283-5287 (2004)
- R A Jockusch, R T Kroemer, F O Talbot, L C Snoek, P Carcabal, J P Simons, M Havenith, J M Bakker, I Compagnon, G Meijer
Probing the glycosidic linkage: UV and IR ion-dip spectroscopy of a lactoside
J Am Chem Soc **126** 5709-5714 (2004)
- M D King, K C Thompson, A D Ward
Laser tweezers Raman study of optically trapped aerosol droplets of seawater and oleic acid reacting with ozone: Implications for cloud-droplet properties
J Am Chem Soc **126** 16170-16711 (2004)
- M K Kuimova, J Dyer, M W George, D C Grills, J M Kelly, P Matousek, A W Parker, X Z Sun, M Towrie, A M Whelan
Monitoring the effect of ultrafast deactivation of the electronic excited states of DNA bases and polynucleotides following 267 nm laser excitation using picosecond time-resolved infrared spectroscopy
Chem Commun 1182-1184 (2005)
- M K Kuimova, D C Grills, P Matousek, A W Parker, X Z Sun, M Towrie, M W George
Picosecond time-resolved infrared investigation into the nature of the lowest excited state of fac-[Re(Cl)(CO)₃(CO₂Et-dppz)] (CO₂Et-dppz=dipyrido[3,2a:2',3'c]phenazine-11-carboxylic ethyl ester
Vib Spec **35** 219-223 (2004)
- L H Lie, S N Patole, A R Pike, B A Connolly, A D Ward, E M Tuite, A Houlton, B R Horrocks
Immobilisation and synthesis of DNA on Si(111) nanocrystalline porous silicon and silicon nanoparticles
Faraday Discuss **125** 235-249 (2004)
- R E Littleford, P Matousek, M Towrie, A W Parker, G Dent, R Lacey, W E Smith
Raman spectroscopy of street samples of cocaine obtained using Kerr gated fluorescence rejection
Analyst **129** 505-506 (2004)
- N A Macleod, J P Simons
Neurotransmitters in the gas phase: Infrared spectroscopy and structure of protonated ethanolamine
PCCP **6** 2821-2826 (2004)
- N A Macleod, J P Simons
Beta-blocker conformations in the gas phase: 2-phenoxy ethylamine its hydrated clusters and 3-phenoxy propanolamine
PCCP **6** 2878-2884 (2004)
- P Matousek, N Everall, M Towrie, A W Parker
Depth profiling in diffusely scattering media using Raman spectroscopy and picosecond Kerr gating
Appl Spectrosc **59** 200-205 (2005)
- P Matousek, I P Clark, E R C Draper, M D Morris, A E Goodship, N Everall, M Towrie, W F Finney, A W Parker
Subsurface probing in diffusely scattering media using spatially offset Raman spectroscopy
Appl Spectrosc **59** 393-400 (2005)
- M D Morris, P Matousek, M Towrie, A W Parker, A E Goodship, E R C Draper
Kerr-gated time-resolved Raman spectroscopy of equine cortical bone tissue.
J Biomed Optics **10** 014012-1-7 (2004)
- P Portius, J Yang, X Z Sun, D C Grills, P Matousek, A W Parker, M Towrie, M W George
Unravelling the photochemistry of Fe(CO)₅ in solution: Observation of Fe(CO)₃ and the conversion between ³Fe(CO)₄ and ¹Fe(CO)₄(Solvent)
J Am Chem Soc **126** 10713-10720 (2004)
- Q Qin, K Attenborough
Characteristics and applications of laser-generated acoustic shock waves in air
Appl Ac **65** 325-340 (2004)

- A M Saariaho, A S Jaaskelainen, P Matousek, M Towrie, A W Parker, T Vuorinen
Resonance Raman spectroscopy of highly fluorescing lignin containing chemical pulps: Suppression of fluorescence with an optical Kerr gate
Holzforschung **58** 82-90 (2004)
- J Silver, R Withnall
Probes of structural and electronic environments of phosphor activators: Mössbauer and Raman spectroscopy
Chem Rev **104** 2833-2855 (2004)
- P F Taday
Applications of terahertz spectroscopy to pharmaceutical sciences
Phil Trans R Soc Lond A **362** 351-364 (2004)
- M Towrie, A Gabriellson, P Matousek, A W Parker, A M Blanco Rodriguez, A Vlcek Jr
A high-sensitivity femtosecond to microsecond time-resolved infrared vibrational spectrometer
Appl Spectrosc **59** 467-473 (2005)
- O Umnova, K Attenborough, H C Shin, A Cummings
Deduction of tortuosity and porosity from acoustic reflection and transmission on thick sample of rigid-porous materials
Appl Ac **66** 607-624 (2005)
- C E Valdivia, C L Sones, J G Scott, S Mailis, R W Eason, D A Scrymgeour, V Gopalan, T Jungk, E Soergel, I P Clark
Nanoscale surface domain formation on the +z face of lithium niobate by pulsed ultraviolet laser illumination
Appl Phys Lett **86** 022906 (2005)
- F W Vergeer, P Matousek, M Towrie, P J Costa, M J Calhorda, F Hartl
Low-lying excited states and primary photoproducts of $[Os_3(CO)_{10}(s-cis-L)]$ ($L=cyclohexa-1,3-diene$ buta-1,3-diene) clusters studied by picosecond time-resolved UV/VIS and IR spectroscopy and by density functional theory
Chem Eur J **10** 3451-3460 (2004)
- F W Vergeer, C J Kleverlaan, P Matousek, M Towrie, D J Stufkens, F Hartl
Redox control of light-induced charge separation in a transition metal cluster: Photochemistry of a methyl viologen-substituted $[Os_3(CO)_{10}(\alpha\text{-diimine})$ cluster
Inorg Chem **44** 1319-1331 (2005)
- K Vikman, H Iitti, P Matousek, M Towrie, A W Parker, T Vuorinen
Kerr gated resonance Raman spectroscopy in light fastness studies of ink jet prints
Vib Spec **37** 123-131 (2005)
- G P Williams
High-power terahertz synchrotron sources
Phil Trans R Soc Lond A 362403-414 (2004)
- R Withnall, J Silver, E Barrett, M Rebollo-Pedruelo, R Janes
Laser excitation of photoluminescent phosphors in the near ultraviolet
Proceedings of EL, 248-252 (2004)
- R Withnall
Lasers in chemistry and chemical engineering: Raman spectroscopy
Encyclopedia of Modern Optics (invited chapter) 119-134 (2004)
- S Zalis, M Busby, T Kotrba, P Matousek, M Towrie, A Vlcek Jr
Excited-state characters and dynamics of $[W(CO)_5(4\text{-cyanopyridine})]$ and $[W(CO)_5(\text{piperidine})]$ studied by picosecond time-resolved IR and resonance Raman spectroscopy and DFT calculations: Roles of W-L and W-CO MLCT and LF excited states revised
Inorg Chem **43** 1723-1734 (2004) PUBLISHED DURING 2003/2004
- A C Benniston, A W Parker, P Matousek, M Towrie
Exploring the intimacies of charge-recombination fluorescence
J Phys Chem A **107** 4347-4353 (2003)
- G O Edwards, J K Chipman, C W Wharton, S W Botchway, G J Hirst, R A Meldrum
Gap junction communication dynamics and bystander effects from ultrasoft X-rays
British Journal of Cancer **90** 1450-6 (2004)
- W M Kwok, M W George, D C Grills, C Ma, P Matousek, A W Parker, D Phillips, W T Toner, M Towrie
Direct observation of a hydrogen bonded charge-transfer state of 4-dimethylaminobenzonitrile (DMABN) in methanol by time-resolved spectroscopy
Angew Chem Int Ed **42** 1826-1830 (2003)
- W M Kwok, C Ma, P Matousek, A W Parker, D Phillips
Time-resolved spectroscopy study of the triplet state of 4-diethylaminobenzonitrile (DEABN)
PCCP **5** 3643-3652 (2003)
- C A T Laia, S M B Costa, D Phillips, A W Parker
Spectroscopy of photoinduced charge-transfer reactions between tetrasulfonated aluminium phthalocyanine and methyl viologen
Photochem Photobiol Sci **2** 555-562 (2003)
- A G Michette, S J Pfauntsch, A K Powell, T Graf, D Losinski, C D McFaul, A Ma, G J Hirst, W Shaikh
Progress with the King's college laboratory scanning x-ray microscope
J Phys IV France **104** 123-126(2003)
- M D Morris, A E Goodship, E R Draper, P Matousek, M Towrie, A W Parker
Kerr-gated picosecond Raman spectroscopy and Raman photon migration of equine bone tissue with 400 nm excitation
SPIE **5321** 164-169 (2004)
- IN PRESS AT END OF 2004/2005**
- K Attenborough, Q Qin, M J Fagan, H-C Shin
Measurements of tortuosity in stereolithographical bone replicas using audio-frequency pulses
J of Acoust Soc Am, submitted (2005)
- J Dyer, C G Coates, C M Creely, J D Gavey, D C Grills, S Hudson, W J Blau, J M Kelly, P Matousek, J J McGarvey, J McMaster, A W Parker, M Towrie, J A Weinstein, M W George
Picosecond IR measurements in supercritical fluids: from a new approach to coherent control to fundamental reaction rates of C-H activation of alkanes to organometallic complexes
Photochem Photobiol Sci in press (2004)

I Hünig, A J Painter, R A Jockusch, P Çarçabal, E M Marzluff, L C Snoek, D P Gamblin, B G Davis, J P Simons
Adding water to sugar: a spectroscopic and computational study of α - and β -phenylxyloside in the gas phase
PCCP **7** in press (2005)

A K King, S M Bellm, C J Hammond, K L Reid, M Towrie, P Matousek
Picosecond time-resolved photoelectron spectroscopy as a means of elucidating mechanisms of intramolecular vibrational energy redistribution in electronically excited states of small aromatic molecules
Molecular Physics, in press (2005)

Y A Kovalenkov, A J Blake, M W George, P Matousek, M Ya. Mel'nikov, A W Parker, X Z Sun, M Towrie, J Weinstein
Pt(II) mono-carbonyl complexes of a cyclometallating 2-(2'-thienyl-pyridinato-C,³N') ligand: nature and dynamics of the lowest excited state of the chloro- and thiolato-complexes
Daltron Trans, submitted (2004)

M Kriek, I P Clark, D C Neylon, A W Parker, P L Roach
Simple set-up for Raman spectroscopy on frozen samples
Rev Sci Instrumen, submitted (2005)

P Matousek, M Towrie, A W Parker
Simple reconstruction algorithm for shifted excitation Raman difference spectroscopy
Appl Spectrosc, in press (2005)

P Matousek, M D Morris, N Everall, I P Clark, M Towrie, E Draper, A Goodship, A W Parker
Numerical simulations of subsurface probing in diffusely scattering media using spatially offset Raman spectroscopy
Appl Spectrosc, submitted (2005)

C D Mellor, M A Sharp, C D Bain, A D Ward
Probing interactions between colloidal particles with oscillating optical tweezers
J Appl Phys, in press (2005)

A Pozo Ramajo, S A Petty, M Volk
Fast folding dynamics of α -helical peptides – Effect of solvent additives and pH
Chemical Physics (Special edition on “Nonequilibrium Dynamics in Biomolecules”), submitted (2005)

F W Vergeer, M J Calhorne, P Matousek, M Towrie, A Vlcek Jr, F Hartl
Site-selective photoreactivity of the triangular mixed-metal cluster [Os₂Rh(CO)₉(hapto-5-C₃Me₅)]
European Journal of Chemistry Submitted (2004)

J Weinstein
Nature and dynamics of the lowest excited-state of Pt(II) thiolates - a combined transient absorption, emission and time-resolved resonance Raman study
J Chem Soc Dalton Trans, submitted (2004)

CONFERENCE PRESENTATIONS

5th Informal Conference on Reaction Kinetics and Atmospheric Chemistry, Helsingør Denmark June 2004

P A Cleary, K McGee, M Blitz, P Seakins, L Wang, M Pilling
Reaction kinetics of OH + C₂H₄ from 200-300K

18th International Symposium on Gas Kinetics, Bristol August 2004

P A Cleary, K McGee, M Blitz, P Seakins, L Wang, M Pilling
Reaction kinetics of OH + C₂H_{2n} from 200-300K

XX IUPAC Symposium on Photochemistry, Granada, Spain, July 2004, OC-63, p. 133.

M Ya Melnikov, P M W Gill, P Matousek, A W Parker, M Towrie, J A Weinstein
Tuning excited states of metal chromophores: Structural reorganization via 3-electron S...S bonding

49th Annual Meeting of the Biophysical Society, Feb 12-16, 2005, Long Beach, CA, USA

B Nolan, E Gooding, S Sharma, M Volk
The helix-coil transition in polyglutamic acid

CLEO/Europe Munich 17-12 June 2005

C E Valdivia, C L Sones, J G Scott, S Mailis, R W Eason, D A Scrymgeour, V Gopalan, I Clark
Nano-scale ultraviolet laser-induced ferroelectric surface domains in lithium niobate

COST D-14 WG 006-99 Meeting, Newcastle, April 2005

J Weinstein
Light-induced structural reorganization: Tuning charge-separated excited states

Faraday Discussions 130 - Atmospheric Chemistry conference April 2005

M King
Laser tweezers Raman study of optically trapped aerosol droplets of seawater and oleic acid reacting with ozone: Implications for cloud droplet properties

Faraday Discussion 130, University of Leeds April 2005

P A Cleary, M T Baeza Romero, K McKee, M A Blitz, P W Seakins, L Wang, D W Heard, M J Pilling
Reaction kinetics of OH + C₂H_{2n}

FRIS 2004 Burgos Spain 2004

S Dad
Multiphoton excitation of 5-hydroxytryptophan

FRRF, CCLRC, Daresbury, October 2004 Free Radicals and Excited States in Aqueous and Non-Aqueous Solutions

M Ya Melnikov, S-H Chen, P M W Gill, P Matousek, A W Parker, M Towrie, J A Weinstein
Transient 3-electron S...S bond: A “radical” feature of charge-separated excited states of metal chromophores?

Gordon Conference on Multiphoton processes 2004

K Reid
Photoelectron spectroscopy of excited states

Inorganic Biochemistry Discussion Group and the British Biophysical Society on Protein Dynamics and Function, Leicester, Jan 2005

A Pozo-Ramajo, S Petty, M Volk, S M Decatur
Time-resolved isotope-edited infrared spectroscopy: Detailed insight into the fast folding dynamics of α -helical peptides

MICRA, Nottingham September 2004

M Ya Melnikov, S-H Chen, P M W Gill, P Matousek, A W Parker, M Towrie, J A Weinstein
Tuning excited states of metal chromophores

THESIS

C M Creely
Ultrafast studies of DNA-bound photosensitisers
PhD Thesis, University of Dublin (2004)

F Jamme
Vibrational spectroscopy of molecules on metal and semiconductor surfaces
PhD Thesis, University of Nottingham (2004)

L Guerin
Photoinduced electron transfer between ruthenium (II) polypyridyl complexes and polyoxometalates
PhD Thesis, Dublin Institute of Technology (2004)

S Kunanandam,
PhD Thesis, The University of York (2004)

A J Painter
Structure and spectroscopy of bio-active molecules in the gas phase
Part 2 Thesis, University of Oxford (2004)

J Robinson
Time-resolved optical properties of InGaN quantum dots
PhD Thesis, University of Oxford (2004)

REPORTS

M Hatfield
Propagation of acoustic shocks near surfaces
Final year engineering project report
University of Hull, 2005

J Salje
*Probing the putative H-channel of cytochrome c oxidase from *paracoccus denitrificans* using site-directed mutagenesis*
University of Oxford, 2005

Laser Science and Developments

JOURNAL PUBLICATIONS, BOOKS AND PUBLISHED PROCEEDINGS

J L Collier, I N Ross, L Cardoso, O Chekhlov, M M Notley, C Hernandez-Gomez, P Matousek, C N Danson, D Neely, S Hancock
Progress towards Petawatt level OPCPA
Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 603-607, Aug 2004

C N Danson, P A Brummitt, R J Clarke, J L Collier, B Fell, A J Frackiewicz, S Hancock, S Hawkes, C Hernandez-Gomez, P Holligan, M H R Hutchinson, A Kidd, W J Lester, I O Musgrave, D Neely, D R Neville, P A Norreys, D A Pepler, C J Reason, W Shaikh, T B Winstone, R W W Wyatt, B E Wyborn
Vulcan Petawatt – an ultra-high intensity interaction facility
IAEA Journal of Nuclear Fusion, 44 (2004) S239-S246

C N Danson, P A Brummitt, J L Collier, R J Clarke, M Dominey, C B Edwards, R Edwards, A J Frackiewicz, J A C Govans, S Hancock, P E Hatton, S Hawkes, R Heathcote, C Hernandez-Gomez, P Holligan, C J Hooker, M H R Hutchinson, A Jackson, A Kidd, W J Lester, J Monk, D Neely, D R Neville, P A Norreys, M M Notley, D A Pepler, M R R Pitts, C J Reason, D Robinson, K J Rodgers, D Rose, I N Ross, A J Ryder, M R Selley, D Shepherd, T Strange, M K Tolley, R Wellstood, G N Wiggins, T B Winstone, P N M Wright, R W W Wyatt, B E Wyborn, C Ziener
The Vulcan Petawatt interaction facility
Inertial Fusion Sciences and Applications 2003, American Nuclear Society, Editors: BA Hammel, DD Meyerhofer, J Meyer-ter-Vehn and H Azechi, 512-516, Aug 2004

C N Danson, P A Brummitt, R J Clarke, J L Collier, B Fell, A J Frackiewicz, S Hawkes, C Hernandez-Gomez, P Holligan, M H R Hutchinson, A Kidd, W J Lester, I O Musgrave, D Neely, D R Neville, P A Norreys, D A Pepler, C J Reason, W Shaikh, T B Winstone, R W W Wyatt, B E Wyborn
Vulcan Petawatt – Design, Operation and Interactions at $5.10^{20} \text{ Wcm}^{-2}$
Laser and Particle Beams (2005), 23, 87-93

T B Winstone
Vulcan Petawatt - Handling and Operational Experience of large optics
Infrastructure Cooperation Networks, Enhancing Access to Research Infrastructures, Human Potential Programme, European Coordinated Network of Laser Infrastructures (LASERNET) 4th Annual Report, HPRI-2000-CT-40016, Annexe 4

CONFERENCE PRESENTATIONS

32nd IOP Plasma Physics Conference, Clarendon Laboratory, University of Oxford, UK, 21-24 March 2005

J L Collier, O Chekhlov, R J Clarke, E J Divall, K Ertel, B D Fell, P S Foster, S J Hancock, C J Hooker, A Langley, B Martin, D Neely, J Smith, B E Wyborn
The Astra Gemini Project - A High Repetition Rate Dual Beam Petawatt Laser Facility

9th International Conference On X-ray Lasers, Beijing, China, May 24-28 2004

C N Danson
High Power Laser Development at RAL for X-ray Laser Research

Y T Li, X Lu, Z Jin, D A Pepler, C N Danson
Production of a line-focus in the laser axis direction using Fresnel zone plate

IOP Plasma Physics Conference, University of York, UK, April 2004

S Hawkes, P A Brummitt, R J Clark, C N Danson, B Fell, A J Frackiewicz, C Hernandez-Gomez, P Holligan, M H R Hutchinson, A Kidd, W J Lester, I O Musgrave, D Neely, D R Neville, P A Norreys, D A Pepler, C J Reason, T B Winstone, R W W Wyatt, B E Wyborn
'Vulcan Petawatt – Design and Operation.'

1st International Conference for Ultra-high Intensity Lasers (ICUIL - Tahoe City USA) 3-7 October 2004

E J Divall, J L Collier, I N Ross
A New Linear Contrast Enhancement Technique