Publications

Journal Papers

Artemis

C Sayers, G Cerullo, Y Zhang, C Sanders, R Chapman, A Wyatt, G Chatterjee, E Springate, D Wolverson, E Da Como, E Carpene
Exploring the charge density wave phase of 1*T*-$TaSe_2$: Mott or charge-transfer gap?
PHYSICAL REVIEW LETTERS, 130, 156401 (2023)

CALTA

M De Vido, G Quinn, D Clarke, L McHugh, P Mason, J Spear, JM Smith, M Divoky, J Pilar, O Denk, TJ Butcher, C Edwards, T Mocek, JL Collier
Demonstration of stable, long-term operation of a nanosecond pulsed DPSSL at 10 J, 100 Hz
OPTICS EXPRESS, 32, 11907 (2024)

S Banerjee, J Spear
Enhancement of compressive stresses by application of shaped temporal pulses in confinement layer free nanosecond laser shock peening
OPTICS & LASER TECHNOLOGY, 175, 110790 (2024)

P Mason, H Barrett, S Banerjee, T Butcher, J Collier
Generation of joule-level green bursts of nanosecond pulses from a DPSSL amplifier
OPTICS EXPRESS, 31, 19510 (2023)

M De Vido, PJ Phillips, D Meissner, S Meissner, G Quinn, S Banerjee, M Divoky, PD Mason
High energy, high pulse rate laser operation using crystalline adhesive-free bonded Yb:YAG slabs
OPTICS EXPRESS, 31, 28101 (2023)

D Clarke, J Phillips, M Divoky, J Pilar, P Navratil, M Hanus, P Severova, O Denk, T Paliesek, M Smrz, P Mason, T Butcher, C Edwards, J Collier, T Mocek
Improved stability second harmonic conversion of a diode-pumped Yb:YAG laser at the 0.5 kW level
OPTICS LETTERS, 48, 6320 (2023)

M Divoky, J Phillips, J Pilar, M Hanus, P Navratil, O Denk, T Paliesek, P Severova, D Clarke, M Smrz, T Butcher, C Edwards, J Collier, T Mocek
Kilowatt-class high-energy frequency conversion to 95 J at 10 Hz at 515 nm
HIGH POWER LASER SCIENCE AND ENGINEERING, 11, e65 (2023)

EPAC

J Phillips, J Smith, P Mason, M De Vido, T Butcher, C Hernandez-Gomez, J Collier, A Wojtusiak
Extreme photonics applications centre: high energy DPSSL pump for a 10 Hz PW-level laser
PROCEEDINGS OF SPIE, 12577, 1257707 (2023)

CD Armstrong, GG Scott, S Richards, JK Patel, K Fedorov, RJ Gray, K Welsby, PP Rajeev
X-ray detector requirements for laser–plasma accelerators
FRONTIERS IN PHYSICS, 11, 1286442 (2023)

Gemini

S Feister, K Cassou, S Dann, A Döpp, P Gauron, AJ Gonsalves, A Joglekar, V Marshall, O Neveu, H Schlenvoigt, MJV Streeter, CAJ Palmer
Control systems and data management for high-power laser facilities
HIGH POWER LASER SCIENCE AND ENGINEERING, 11, e56 (2023)

A Doherty, S Fourmaux, A Astolfo, R Ziesche, J Wood, O Finlay, W Stolpe, D Batey, I Manke, F Légaré, M Boone, D Symes, Z Najmudin, M Endrizzi, A Olivo, S Cipiccia
Femtosecond multimodal imaging with a laser-driven X-ray source
COMMUNICATIONS PHYSICS, 6, 288 (2023)

J Jonnerby, A von Boetticher, J Holloway, L Corner, A Picksley, AJ Ross, RJ Shalloo, C Thornton, N Bourgeois, R Walczak, SM Hooker
Measurement of the decay of laser-driven linear plasma wakefields
PHYSICAL REVIEW E, 108, 055211 (2023)

K Põder, J Wood, N Lopes, J Cole, S Alatabi, M Backhouse, P Foster, A Hughes, C Kamperidis, O Kononenko, S Mangles, C Palmer, D Rusby, A Sahai, G Sarri, D Symes, J Warwick, Z Najmudin
Multi-GeV electron acceleration in wakefields strongly driven by oversized laser spots
PHYSICAL REVIEW LETTERS, 132, 195001 (2024)

B John, K Middleman, OB Malyshev, X Gu, DR Symes, DR Emerson
Numerical investigation of transmission probability characteristics in the first low-density region of a laser wakefield accelerator
MICROFLUIDICS AND NANOFLUIDICS, 27, 52 (2023)

AJ Ross, J Chappell, JJ van de Wetering, J Cowley, E Archer, N Bourgeois, L Corner, DR Emerson, L Feder, XJ Gu, O Jakobsson, H Jones, A Picksley, L Reid, W Wang, R Walczak, SM Hooker
Resonant excitation of plasma waves in a plasma channel
PHYSICAL REVIEW RESEARCH, 6, L022001 (2024)

Plasma Physics

AR Bell, M Sherlock
The fast VFP code for solution of the Vlasov–Fokker–Planck equation
PLASMA PHYSICS AND CONTROLLED FUSION, 66, 035014 (2024)

I Turcu, D Margarone, L Giuffrida, A Picciotto, C Spindloe, A Robinson, D Batani
Borane (BmHn), Hydrogen rich, Proton Boron fusion fuel materials for high yield laser-driven Alpha sources
JOURNAL OF INSTRUMENTATION, 19, C03065 (2024)

G Vacalis, G Marocco, J Bamber, R Bingham, G Gregori
Detection of high-frequency gravitational waves using high-energy pulsed lasers
CLASSICAL AND QUANTUM GRAVITY, 40, 155006 (2023)

RW Paddock, TS Li, E Kim, JJ Lee, H Martin, RT Ruskov, S Hughes, SJ Rose, CD Murphy, RHH Scott, R Bingham, W Garbett, VV Elisseev, BM Haines, AB Zylstra, EM Campbell, CA Thomas, T Goffrey, TD Arber, R Aboushelbaya, MW Von der Leyen, RHW Wang, AA James, I Ouatu, R Timmis, S Howard, E Atonga, PA Norreys
Energy gain of wetted-foam implosions with auxiliary heating for inertial fusion studies
PLASMA PHYSICS AND CONTROLLED FUSION, 66, 025005 (2023)

D Batani, A Colaïtis, F Consoli, CN Danson, LA Gizzi, JJ Honrubia, T Kühl, S Le Pape, J Miquel, JM Perlado, RHH Scott, M Tatarakis, V Tikhonchuk, L Volpe
Future for Inertial Fusion Energy in Europe: A roadmap
HIGH POWER LASER SCIENCE AND ENGINEERING, 11, e83 (2023)

S Krishnamurthy, S Chintalwad, APL Robinson, RMGM Trines, B Ramakrishna
Observation of proton modulations in laser-plasma interaction
PLASMA PHYSICS AND CONTROLLED FUSION, 65, 085020 (2023)

APL Robinson
Reduction of fast ion drag in the presence of 'hollow' non-Maxwellian electron distributions
PLASMA PHYSICS AND CONTROLLED FUSION, 66, 035017- (2024)

A Mondal, R Sabui, S Tata, RMGM Trines, SV Rahul, F Li, S Sarkar, W Trickey, RY Kumar, D Rajak, J Pasley, Z Sheng, J Jha, M Anand, R Gopal, APL Robinson, M Krishnamurthy
Shaped liquid drops generate MeV temperature electron beams with millijoule class laser
COMMUNICATIONS PHYSICS, 7, 85 (2024)

RY Kumar, R Sabui, R Gopal, F Li, S Sarkar, W Trickey, M Anand, J Pasley, Z Sheng, RMGM Trines, RHH Scott, APL Robinson, V Sharma, M Krishnamurthy
Tailored mesoscopic plasma accelerates electrons exploiting parametric instability
NEW JOURNAL OF PHYSICS, 26, 033027 (2024)

Vulcan

D Bailie, S White, R Irwin, C Hyland, R Warwick, B Kettle, N Breslin, SN Bland, DJ Chapman, SPD Mangles, RA Baggot, ER Tubman, D Riley
K-Edge Structure in Shock-Compressed Chlorinated Parylene
ATOMS, 11, 135 (2023)

P Martin, H Ahmed, D Doria, M Cerchez, F Hanton, D Gwynne, A Alejo, J Fernandez-Tobias, J Green, A Macchi, D Maclellan, P McKenna, J Ruiz, M Swantusch, O Willi, S Zhai, M Borghesi, S Kar
Narrow-band acceleration of gold ions to GeV energies from ultra-thin foils
COMMUNICATIONS PHYSICS, 7, 3 (2024)

W Yao, M Nakatsutsumi, S Buffechoux, P Antici, M Borghesi, A Ciardi, SN Chen, E d'Humières, L Gremillet, R Heathcote, V Horný, P McKenna, MN Quinn, L Romagnani, R Royle, G Sarri, Y Sentoku, H Schlenvoigt, T Toncian, O Tresca, L Vassura, O Willi, J Fuchs
Optimizing laser coupling, matter heating, and particle acceleration from solids using multiplexed ultraintense lasers
MATTER AND RADIATION AT EXTREMES, 9, 047202 (2024)

Target Fabrication

I Turcu, D Margarone, L Giuffrida, A Picciotto, C Spindloe, A Robinson, D Batani
Borane (BmHn), Hydrogen rich, Proton Boron fusion fuel materials for high yield laser-driven Alpha sources
JOURNAL OF INSTRUMENTATION, 19, C03065 (2024)

M King, A Higginson, C McGuffey, R Wilson, G Schaumann, T Hodge, JB Ohland, S Gales, MP Hill, SF Pitt, C Spindloe, CN Danson, MS Wei, FN Beg, M Roth, D Neely, RJ Gray, P McKenna
Geometry effects on energy selective focusing of laser-driven protons with open and closed hemisphere-cone targets
PLASMA PHYSICS AND CONTROLLED FUSION, 66, 015001 (2023)

Ultra

AEJ Hoffman, W Temmerman, E Campbell, AA Damin, I Lezcano-Gonzalez, AM Beale, S Bordiga, J Hofkens, V Van Speybroeck
A critical assessment on calculating vibrational spectra in nanostructured materials
JOURNAL OF CHEMICAL THEORY AND COMPUTATION, 20, 513-531 (2023)

AJ Auty, PA Scattergood, T Keane, T Cheng, G Wu, H Carson, J Shipp, A Sadler, T Roseveare, IV Sazanovich, AJHM Meijer, D Chekulaev, PIP Elliot, M Towrie, JA Weinstein
A stronger acceptor decreases the rates of charge transfer: ultrafast dynamics and on/off switching of charge separation in organometallic donor-bridge-acceptor systems
CHEMICAL SCIENCE, 14, 11417-11428 (2023)

N Thirö, G Chatterjee, Y Pertot, O Albert, G Karras, Y Zhang, AS Wyatt, M Towrie, E Springate, GM Greetham, N Forget
A versatile high-average-power ultrafast infrared driver tailored for high-harmonic generation and vibrational spectroscopy
SCIENTIFIC REPORTS, 13, 18874 (2023)

NT Hunt
Biomolecular infrared spectroscopy: making time for dynamics
CHEMICAL SCIENCE, 15, 414-430 (2024)

PM Donaldson, GM Greetham, CT Middleton, BM Luther, MT Zanni, P Hamm, AT Krummel
Breaking barriers in ultrafast spectroscopy and imaging using 100 kHz amplified Yb-laser systems
ACCOUNTS OF CHEMICAL RESEARCH, 56, 2062-2071 (2023)

W Whitaker, IV Sazanovich, Y Kwon, W Jeon, MS Kwon, AJ Orr-Ewing
Characterization of the reversible intersystem crossing dynamics of organic photocatalysts using transient absorption spectroscopy and time-resolved fluorescence spectroscopy
JOURNAL OF PHYSICAL CHEMISTRY A, 127, 10775-10788 (2023)

PM Keane, C Zehe, FE Poynton, SA Bright, S Estayalo-Adrián, SJ Devereux, PM Donaldson, IV Sazanovich, M Towrie, SW Botchway, CJ Cardin, DC Williams, T Gunnlaugsson, C Long, JM Kelly, SJ Quinn
Correction: Time-resolved infra-red studies of photo-excited porphyrins in the presence of nucleic acids and in HeLa tumour cells: insights into binding site and electron transfer dynamics
PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 25, 23316-23317 (2023)

S Maiti, LDA Siebbeles
Developments and challenges involving triplet transfer across organic/inorganic heterojunctions for singlet fission and photon upconversion
JOURNAL OF PHYSICAL CHEMISTRY LETTERS, 14, 11168-11176 (2023)

Y He, JT Collado, JN Iuliano, HA Woroniecka, CR Hall, AA Gil, SP Laptenok, GM Greetham, B Illarionov, A Bacher, M Fischer, JB French, A Lukacs, SR Meech, PJ Tonge
Elucidating the signal transduction mechanism of the blue-light-regulated photoreceptor YtvA: From photoactivation to downstream regulation
ACS CHEMICAL BIOLOGY, 19, 696-706 (2024)

M Stitch, D Avagliano, D Graczyk, IP Clark, L González, M Towrie, SJ Quinn
Good vibrations report on the DNA quadruplex binding of an excited state amplified Ruthenium Polypyridyl IR probe
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, 145, 21344-21360 (2023)

G Bressan, IA Heisler, GM Greetham, A Edmeades, SR Meech
Half-broadband two-dimensional electronic spectroscopy with active noise reduction
OPTICS EXPRESS, 31, 42687 (2023)

AP Hawkins, AE Edmeades, CDM Hutchison, M Towrie, RF Howe, GM Greetham, PM Donaldson
Laser induced temperature-jump time resolved IR spectroscopy of zeolites
CHEMICAL SCIENCE, 15, 3453-3465 (2024)

DJ Shaw, LC Waters, SL Strong, MED Schulze, GM Greetham, M Towrie, AW Parker, CE Prosser, AJ Henry, ADG Lawson, MD Carr, RJ Taylor, NT Hunt, FW Muskett
Modulation of IL-17 backbone dynamics reduces receptor affinity and reveals a new inhibitory mechanism
CHEMICAL SCIENCE, 14, 7524-7536 (2023)

A Karunakaran, KJ Francis, C Bowen, RJ Ball, Y Zhao, L Wang, NB McKeown, M Carta, PJ Fletcher, R Castaing, MA Isaacs, LJ Hardwick, G Cabello, IV Sazanovich, F Marken
Nanophase-photocatalysis: Loading, storing, and release of H_2O_2 using graphitic carbon nitride
CHEMICAL COMMUNICATIONS, 59, 7423-7426 (2023)

SH Rutherford, CDM Hutchison, GM Greetham, AW Parker, A Nordon, MJ Baker, NT Hunt
Optical screening and classification of drug binding to proteins in human blood serum
ANALYTICAL CHEMISTRY, 95, 17037-17045 (2023)

AM Gardner, G Neri, B Siritanaratkul, H Jang, KH Saeed, PM Donaldson, AJ Cowan
Potential dependent reorientation controlling activity of a molecular electrocatalyst
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, 146, 7130-7134 (2024)

G Cabello, IV Sazanovich, I Siachos, M Bilton, BL Mehdi, AR Neale, LJ Hardwick
Simultaneous surface-enhanced Raman scattering with a Kerr gate for fluorescence suppression
JOURNAL OF PHYSICAL CHEMISTRY LETTERS, 15, 608-615 (2024)

J Tolentino Collado, E Bodis, J Pasitka, M Szucs, Z Fekete, N Kis-Bicskei, E Telek, K Pozsonyi, SM Kapetanaki, G Greetham, PJ Tonge, SR Meech, A Lukacs
Single amino acid mutation decouples photochemistry of the BLUF domain from the enzymatic function of OaPAC and drives the enzyme to a switched-on state
JOURNAL OF MOLECULAR BIOLOGY, 436, 168312 (2024)

E Plackett, C Robertson, A De Matos Loja, H McGhee, G Karras, IV Sazanovich, RA Ingle, MJ Paterson, RS Minns
Structural dynamics around a hydrogen bond: Investigating the effect of hydrogen bond strengths on the excited state dynamics of carboxylic acid dimers
THE JOURNAL OF CHEMICAL PHYSICS, 160, 124311 (2024)

PM Donaldson
The 2D-IR spectrum of hydrogen-bonded silanol groups in pyrogenic silica
THE JOURNAL OF CHEMICAL PHYSICS, 160, 104204 (2024)

JB Eastwood, TJ Burden, LA Hammarback, C Horbaczewskyj, TFN Tanner, IP Clark, G Greetham, M Towrie, IJS Fairlamb, JM Lynam
The importance of understanding (pre)catalyst activation in versatile C-H bond functionalisations catalysed by $[Mn_2(CO)_{10}]$
CHEMICAL SCIENCE, 15, 9183-9191 (2024)

IS Camacho, E Wall, IV Sazanovich, E Gozzard, M Towrie, NT Hunt, S Hay, AR Jones
Tuning of B_{12} photochemistry in the CarH photoreceptor to avoid radical photoproducts
CHEMICAL COMMUNICATIONS, 59, 13014-13017 (2023)

B Procacci, SLD Wrathall, AL Farmer, DJ Shaw, GM Greetham, AW Parker, Y Rippers, M Horch, JM Lynam, NT Hunt
Understanding the [NiFe] hydrogenase active site environment through ultrafast infrared and 2D-IR spectroscopy of the subsite analogue $K[CpFe(CO)(CN)_2]$ in polar and protic solvents
JOURNAL OF PHYSICAL CHEMISTRY B, 128, 1461-1472 (2024)

E Nicolaidou, AW Parker, IV Sazanovich, M Towrie, SC Hayes
Unraveling excited state dynamics of a single-stranded DNA-assembled conjugated polyelectrolyte
JOURNAL OF PHYSICAL CHEMISTRY LETTERS, 14, 9794-9803 (2023)

NA Lau, D Ghosh, S Bourne-Worster, R Kumar, WA Whitaker, J Heitland, JA Davies, G Karras, IP Clark, GM Greetham, GA Worth, AJ Orr-Ewing, HH Fielding
Unraveling the ultrafast photochemical dynamics of nitrobenzene in aqueous solution
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, 146, 10407-10417 (2024)

IJS Fairlamb, JM Lynam
Unveiling mechanistic complexity in manganese-catalyzed C–H bond functionalization using IR spectroscopy over 16 orders of magnitude in time
ACCOUNTS OF CHEMICAL RESEARCH, 57, 919-932 (2024)

Octopus

EM Fletcher, BC Bateman, SW Botchway, AD Ward, IA Sparkes
Applying optical tweezers with TIRF microscopy to quantify physical interactions between organelles in the plant endomembrane system
CURRENT PROTOCOLS, 3 (2023)

SH Jones, MD King, AR Rennie, AD Ward, RA Campbell, AV Hughes
Aqueous radical initiated oxidation of an organic monolayer at the air–water interface as a proxy for thin films on atmospheric aerosol studied with neutron reflectometry
JOURNAL OF PHYSICAL CHEMISTRY A, 127, 8922-8934 (2023)

C Qiu, Y Odarchenko, Q Meng, H Dong, IL Gonzalez, M Panchal, P Olalde-Velasco, F Maccherozzi, L Zanetti-Domingues, ML Martin-Fernandez, AM Beale
Compositional evolution of individual CoNPs on Co/TiO_2 during CO and syngas treatment resolved through soft XAS/X-PEEM
ACS CATALYSIS, 13, 15956-15966 (2023)

RM Lees, B Pichler, AM Packer
Contribution of optical resolution to the spatial precision of two-photon optogenetic photostimulation in vivo
NEUROPHOTONICS, 11, 015006 (2024)

RS Iyer, SR Needham, I Galdadas, BM Davis, SK Roberts, RCH Man, LC Zanetti-Domingues, DT Clarke, GO Fruhwirth, PJ Parker, DJ Rolfe, FL Gervasio, ML Martin-Fernandez
Drug-resistant EGFR mutations promote lung cancer by stabilizing interfaces in ligand-free kinase-active EGFR oligomers
NATURE COMMUNICATIONS, 15, 2130 (2024)

A Kobiela, L Hovhannisyan, P Jurkowska, JB de la Serna, A Bogucka, M Deptuía, AA Paul, K Panek, E Czechowska, M Rychíowski, A Królicka, J Zieliński, S Gabrielsson, M Pikuía, M Trzeciak, GS Ogg, D Gutowska-Owsiak
Excess filaggrin in keratinocytes is removed by extracellular vesicles to prevent premature death and this mechanism can be hijacked by *Staphylococcus aureus* in a TLR2-dependent fashion
JOURNAL OF EXTRACELLULAR VESICLES, 12, 12335 (2023)

BM Davis, SR Needham, C Tynan, S Roberts, E Garcia-Gonzalez, M Martin-Fernandez, DJ Rolfe
FLImP-assisted MINFLUX overcomes molecular localization errors to reveal the structure of heterogeneous membrane protein systems
BIOPHYSICAL JOURNAL, 123, 434a (2024)

A Milsom, AM Squires, AD Ward, C Pfrang
Molecular self-organization in surfactant atmospheric aerosol proxies
ACCOUNTS OF CHEMICAL RESEARCH, 56, 2555-2568 (2023)

JM Rowland, TL van der Plas, M Loidolt, RM Lees, J Keeling, J Dehning, T Akam, V Priesemann, AM Packer
Propagation of activity through the cortical hierarchy and perception are determined by neural variability
NATURE NEUROSCIENCE, 26, 1584-1594 (2023)

AM Mackenzie, HE Smith, RR Mould, JD Bell, AV Nunn, SW Botchway
Rooting out ultraweak photon emission a-mung bean sprouts
JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY, 19, 100224 (2024)

HE Smith, AM Mackenzie, C Seddon, R Mould, I Kalampouka, P Malakar, SR Needham, K Beis, JD Bell, A Nunn, SW Botchway
The use of NADH anisotropy to investigate mitochondrial cristae alignment
SCIENTIFIC REPORTS, 14, 5980 (2024)

RR Mould, AM Mackenzie, I Kalampouka, AVW Nunn, EL Thomas, JD Bell, SW Botchway
Ultra weak photon emission – a brief review
FRONTIERS IN PHYSIOLOGY, 15, 1348915 (2024)

B Zhang, KD Richards, BE Jones, AR Collins, R Sanders, SR Needham, P Qian, A Mahadevegowda, C Ducati, S Botchway, RC Evans
Ultra-small air-stable triplet-triplet annihilation upconversion nanoparticles for anti-stokes time-resolved imaging
ANGEWANDTE CHEMIE INTERNATIONAL EDITION, 62, e202308602 (2023)

DL Jones, MB Andrews, SW Botchway, A Ward, JR Lloyd, LS Natrajan
An investigation into the role of c-type cytochromes and extracellular flavins in the bioreduction of uranyl(VI) by *Shewanella oneidensis* using fluorescence spectroscopy and microscopy
ENVIRONMENTAL RADIOCHEMICAL ANALYSIS ed. N. Evans, Royal Society of Chemistry, vol. 357, ch. 15, pp. 158-174 (2023)

V Kriechbaumer, SW Botchway
Immunoprecipitation and FRET-FLIM to determine metabolons on the plant ER
METHODS IN MOLECULAR BIOLOGY, 2772, pp.169-177 (2024)

C Pain, V Kriechbaumer, A Candeo
Observing ER dynamics over long timescales using Light Sheet Fluorescence Microscopy
METHODS IN MOLECULAR BIOLOGY, 2772, pp. 323-335 (2024)

C Pain, C Tynan, SW Botchway, V Kriechbaumer
Variable-angle epifluorescence microscopy for single-particle tracking in the plant ER
METHODS IN MOLECULAR BIOLOGY, 2772, pp. 273-283 (2024)

Individual Contributions and Collaborative Science

O Alexander, JCT Barnard, EW Larsen, T Avni, S Jarosch, C Ferchaud, A Gregory, S Parker, G Galinis, A Tofful, D Garratt, MR Matthews, JP Marangos
Observation of recollision-based high-harmonic generation in liquid isopropanol and the role of electron scattering
PHYSICAL REVIEW RESEARCH, 5, 043030 (2023)

G Gregori, G Marocco, S Sarkar, R Bingham, C Wang
Measuring Unruh radiation from accelerated electrons
EUROPEAN PHYSICAL JOURNAL C: PARTICLES AND FIELDS, 84, 475 (2024)

G Vacalis, A Higuchi, R Bingham, G Gregori
Classical Larmor formula through the Unruh effect for uniformly accelerated electrons
PHYSICAL REVIEW D, 109, 024044 (2024)

MJ Green, H Ge, SE Flower, C Pourzand, SW Botchway, H Wang, N Kuganathan, G Kociok-Kohn, M Li, S Xu, TD James, SI Pascu
Fluorescent naphthalimide boronates as theranostics: structural investigations, confocal fluorescence and multiphoton fluorescence lifetime imaging microscopy in living cells
RSC CHEMICAL BIOLOGY, 4, 108-1095 (2023)

R Waite, CT Adams, DR Chisholm, CHC Sims, JG Hughes, E Dias, EA White, K Welsby, SW Botchway, A Whiting, GJ Sharples, CA Ambler
The antibacterial activity of a photoactivatable diarylacetylene against Gram-positive bacteria
FRONTIERS IN MICROBIOLOGY, 14, 1243818 (2023)

SC Gillespie, M van der Laan, D Poonia, S Maiti, S Kinge, LDA Siebbeles, P Schall
Optical signatures of charge- and energy transfer in TMDC/TMDC and TMDC/perovskite heterostructures
2D MATERIALS, 11, 022005 (2024)

S Mosca, Q Lin, R Stokes, T Bharucha, B Gangadharan, R Clarke, LG Fernandez, M Deats, J Walsby-Tickle, BY Arman, SR Chunekar, KD Patil, S Gairola, K Van Assche, S Dunachie, HA Merchant, R Kuwana, A Maes, J McCullagh, C Caillet, N Zitzmann, PN Newton, P Matousek
Innovative method for rapid detection of falsified COVID-19 vaccines through unopened vials using handheld Spatially Offset Raman Spectroscopy (SORS)
VACCINE, 41, 6960-6968 (2023)

M Dooley, J Luckett, MR Alexander, P Matousek, H Dehghani, AM Ghaemmaghami, I Notingher
Optimization of diffuse Raman spectroscopy for in-vivo quantification of foreign body response in a small animal model
BIOMEDICAL OPTICS EXPRESS, 14, 6592 (2023)

T Bharucha, B Gangadharan, R Clarke, LG Fernandez, BY Arman, J Walsby-Tickle, M Deats, S Mosca, Q Lin, R Stokes, S Dunachie, HA Merchant, A Dubot-Pérès, C Caillet, J McCullagh, P Matousek, N Zitzmann, PN Newton
Repurposing rapid diagnostic tests to detect falsified vaccines in supply chains
VACCINE, 42, 1506-1511 (2024)

B Gardner, J Haskell, P Matousek, N Stone
Guided principal component analysis (GPCA): a simple method for improving detection of a known analyte
ANALYST, 149, 205-211 (2023)

A Botteon, M Vermeulen, L Cristina, S Bruni, P Matousek, C Miliani, M Realini, L Angelova, C Conti
Advanced microspatially offset Raman Spectroscopy for noninvasive imaging of concealed texts and figures using Raman signal, fluorescence emission, and overall spectral intensity
ANALYTICAL CHEMISTRY, 96, 4535-4543 (2024)

GP Robertson, S Mosca, C Castillo-Blas, FA Son, OK Farha, DA Keen, S Anzellini, TD Bennett
Survival of zirconium-based metal–organic framework crystallinity at extreme pressures
INORGANIC CHEMISTRY, 62, 10092-10099 (2023)

S Šušnjar, F Martelli, S Mosca, SK Venkata Sekar, J Swartling, N Reistad, A Farina, A Pifferi
Two-layer reconstruction of Raman spectra in diffusive media based on an analytical model in the time domain
OPTICS EXPRESS, 31, 40573 (2023)

CW Patrick, Y Gao, P Gupta, AL Thompson, AW Parker, HL Anderson
Masked alkynes for synthesis of threaded carbon chains
NATURE CHEMISTRY, 16, 193-200 (2023)

AM Taylor, JH Matthews, AR Bell
UHECR echoes from the Council of Giants
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, 524, 631-642 (2023)

A Grubišić-Čabo, M Michiardi, CE Sanders, M Bianchi, D Curcio, D Phuyal, MH Berntsen, Q Guo, M Dendzik
In situ exfoliation method of large-area 2D materials
ADVANCED SCIENCE, 10, 2301243 (2023)

D Curcio, CE Sanders, A Chikina, HE Lund, M Bianchi, V Granata, M Cannavacciuolo, G Cuono, C Autieri, F Forte, G Avallone, A Romano, M Cuoco, P Dudin, J Avila, C Polley, T Balasubramanian, R Fittipaldi, A Vecchione, P Hofmann
Current-driven insulator-to-metal transition without Mott breakdown in Ca_2RuO_4
PHYSICAL REVIEW B, 108, L161105 (2023)

AL Soenarjo, Z Lan, IV Sazanovich, YS Chan, M Ringholm, A Jha, DR Klug
The transition from unfolded to folded g-quadruplex dna analyzed and interpreted by two-dimensional infrared spectroscopy
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, 145, 19622-19632 (2023)

G Zeraouli, DA Mariscal, R Hollinger, SZ Anaraki, EN Folsom, E Grace, D Rusby, MP Hill, GJ Williams, GG Scott, B Sullivan, S Wang, J King, KK Swanson, RA Simpson, BZ Djordjevic, S Andrews, R Costa, B Cauble, F Albert, JJ Rocca, T Ma
Flexible tape-drive target system for secondary high-intensity laser-driven sources
REVIEW OF SCIENTIFIC INSTRUMENTS, 94, 123306 (2023)

H Abu-Shawareb et al.
Achievement of target gain larger than unity in an inertial fusion experiment
PHYSICAL REVIEW LETTERS, 132, 065102 (2024)

MJ Rosenberg, AA Solodov, JF Myatt, S Hironaka, J Sivajeyan, RK Follett, T Filkins, AV Maximov, C Ren, S Cao, P Michel, MS Wei, JP Palastro, RHH Scott, K Glize, SP Regan
Effect of overlapping laser beams and density scale length in laser-plasma instability experiments on OMEGA EP
PHYSICS OF PLASMAS, 30, 042710 (2023)

JF Ong, P Ghenuche, ICE Turcu, A Pukhov, KA Tanaka
Ultra-high-pressure generation in the relativistic transparency regime in laser-irradiated nanowire arrays
PHYSICAL REVIEW E, 107, 065208 (2023)

P Svensson, T Campbell, F Graziani, Z Moldabekov, N Lyu, VS Batista, S Richardson, SM Vinko, G Gregori
Development of a new quantum trajectory molecular dynamics framework
PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A: MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES, 381, 20220325 (2023)

RY Engel, O Alexander, K Atak, U Bovensiepen, J Buck, R Carley, M Cascella, V Chardonnet, GS Chiuzbaian, C David, F Döring, A Eschenlohr, N Gerasimova, Fd Groot, LL Guyader, OS Humphries, M Izquierdo, E Jal, A Kubec, T Laarmann, C Lambert, J Lüning, JP Marangos, L Mercadier, G Mercurio, PS Miedema, K Ollefs, B Pfau, B Rösner, K Rossnagel, N Rothenbach, A Scherz, J Schlappa, M Scholz, JO Schunck, K Setoodehnia, C Stamm, S Techert, SM Vinko, H Wende, AA Yaroslavtsev, Z Yin, M Beye
Electron population dynamics in resonant non-linear x-ray absorption in nickel at a free-electron laser
STRUCTURAL DYNAMICS, 10, 054501 (2023)

T Gawne, T Campbell, A Forte, P Hollebon, G Perez-Callejo, OS Humphries, O Karnbach, MF Kasim, TR Preston, HJ Lee, A Miscampbell, QY van den Berg, B Nagler, S Ren, RB Royle, JS Wark, SM Vinko
Investigating mechanisms of state localization in highly ionized dense plasmas
PHYSICAL REVIEW E, 108, 035210 (2023)

J Krása, T Burian, V Hájková, J Chalupský, Š Jelínek, K Frantálová, M Krupka, Z Kuglerová, SK Singh, V Vozda, L Vyšín, M Šmíd, P Perez-Martin, M Kühlman, J Pintor, J Cikhardt, M Dreimann, D Eckermann, F Rosenthal, SM Vinko, A Forte, T Gawne, T Campbell, S Ren, Y Shi, T Hutchinson, O Humphries, T Preston, M Makita, M Nakatsutsumi, X Pan, A Köhler, M Harmand, S Toleikis, K Falk, L Juha
Ion emission from warm dense matter produced by irradiation with a soft x-ray free-electron laser
MATTER AND RADIATION AT EXTREMES, 9, 016602 (2024)

T Gawne, SM Vinko, JS Wark
Quantifying ionization in hot dense plasmas
PHYSICAL REVIEW E, 109, L023201 (2024)

P Jimenéz-Calvo, Y Naciri, A Sobolewska, M Isaacs, Y Zhang, A Leforestier, J Degrouard, S Rouzière, C Goldmann, D Vantelon, S Hettler, NJ Zaluzec, R Arenal, P Launois, MN Ghazzal, E Paineau
Ti-modified imogolite nanotubes as promising photocatalyst 1D nanostructures for H_2 production
SMALL METHODS, 8, 2301369 (2023)

Laser Science and Development

S Buck, D Reid, M Galimberti
Automated control and stabilization of ultrabroadband laser pulse angular dispersion
APPLIED OPTICS, 63, 1613 (2024)

J Morse, W Carter, P Oliveira, M Galimberti
Automated long-term stability of a high-energy laser
OPTICS, 4, 595-601 (2023)

P Oliveira, M Galletti, C Suciu, M Galimberti
Maximum operational fluence limits for temporally shaped nanosecond long pulses
APPLIED SCIENCES, 14, 4211 (2024)

Theses

Artemis

Abma, G
Isomer-resolved spectroscopy and imaging of biomolecules
Radboud University (2024)

Majchrzak, P
Manipulating electronic structures of quantum materials at extreme time- and length-scales
Aarhus University (2023)

Gemini

Hughes, A
Models of X-rays and electron beams from laser wakefield accelerators
Imperial College London (2024)

Ross, A
Resonant excitation of plasma wakefields in long plasma channels
University of Oxford (2023)

Los, E
Applications of Bayesian inference to radiation reaction experiments
Imperial College London (2023)

Xu, N
Development of high repetition rate intense laser driver and laser driven particle sources
Imperial College London (2023)

Vulcan

Charlwood, M
Photoionised plasmas in the laboratory
Queen's University Belfast (2024)

Dollier, E
Advancing laser-driven ion acceleration: optimising with machine learning and investigating sources of instability
University of Strathclyde (2024)

Goodman, J
Optimisation of proton acceleration and synchrotron radiation in ultraintense laser-solid interactions
University of Strathclyde (2024)

McCallum S
Methods for dosimetric measurement and characterisation of laser-driven ion beams
Queen's University Belfast (2023)

McMurray, A
Irradiation of 3D cell models at ultra-high dose rates
Queen's University Belfast (2023)

Hume, E
Investigation of ultra-intense laser interactions with long scale length pre-plasmas and nanowire targets via escaped electrons
University of York (2023)

Paddock, R
A study of foam targets for direct-drive inertial confinement fusion
University of Oxford (2023)

Ultra

O'Neill, J
A photophysical and time-resolved investigation into Porphyrin and BODIPY dyes as photosensitisers towards Solar Fuel Generation and Antimicrobial Activity
Dublin City University (2024)

Kearney, L
Synthesis and photophysics of novel molecular photo- and electrocatalysts for CO_2 valorisation and hydrogen generation: advancing sustainable solutions to climate change
Dublin City University (2024)

Pagano, K
Molecular-structure dependent electron-phonon coupling in organic semiconductors
Imperial College London (2024)

Royle, C
The ultrafast dynamics of platinum-based complexes
University of Sheffield (2024)

Cerpentier, F
The use of spectroscopic, electrochemical and spectroelectrochemical techniques in the development of improved photocatalysts for the production of solar fuels
Dublin City University (2023)

Eastwood, J
A time-resolved infrared spectroscopy led mechanistic study into the reactivity of Manganese Carbonyl complexes: with a focus on routes of precatalyst activation relating to application in C–H bond functionalisation reactions
University of York (2023)

Burden, T
An investigation into the application and mechanisms of Manganese(I) in C–H functionalisation and organic synthesis
University of York (2023)

Octopus

Lewns, F
Sol to scaffold: Novel hybrid formulations for 3D biofabrication of in vitro tissue models
University of Birmingham (2024)

Noakes, F
New approaches to biological imaging, anticancer therapeutics and pancreatic cancer diagnostics based on Phenazine Cations, related transition metal complexes, and G-coupled protein receptors
University of Sheffield (2024)

Hitchman, C
Complexes that mitigate or mediate fibrosis: Structural and biophysical characterisation of the ERAD checkpoint and the gal-3-fibrosome
University of Leicester (2024)

Chu-Antypas, A
Investigating the interactions of cell surface receptors in brain development
University of Oxford (2023)