

Condensed Matter and Materials Physics (CMMP11)

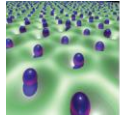
Programme

Monday 12 December

16.00	<i>The Point reception</i> Registration, exhibition and welcome reception
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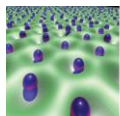
Tuesday 13 December

09.30	<i>The Point</i> Registration and exhibition					
11.00	<i>Ashes and Boundary</i> Welcome to CMMP11 and award of the Roy Prize P Weightman, The University of Liverpool, UK					
11.10	<i>Chair: I Morrison, University of Salford, UK</i> (plenary) Complex oxides: a new playground for physics and technology A Mackenzie, St Andrews University, UK					
11.50	(plenary) Colloidal monolayers on quasicrystalline surfaces C Bechinger, Universität Stuttgart, Germany					
12.30	<i>The Point</i> Lunch and exhibition					
	<i>Ashes and Boundary</i> <i>Chair: D Paul, University of Warwick, UK</i> Neutron spectroscopy I	<i>Century</i> <i>Chair: A V Zvelindovsky, University of Central Lancashire, UK</i> Computer simulation in soft matter I	<i>Maiden</i> <i>Chair: J Owers-Bradley, The University of Nottingham, UK</i> Nanoscale physics at low temperature I	<i>Members bar area</i> <i>Chair: K Bongs, University of Birmingham, UK</i> Quantum interfaces	<i>Trafford suite</i> <i>Chair: S Scheel, Imperial College London, UK</i> Atom-surface interactions	<i>Members long room</i> <i>Chair: A Nogaret, University of Bath, UK, and M Fromhold, The University of Nottingham, UK</i>



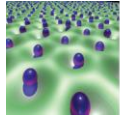
Condensed Matter and Materials
Physics (CMMP11)

			(sponsored by European Microkelvin Consortium)			Nonlinear dynamics complexity and synchronisation
13.30 13.45	(invited) Fermi surface nesting in iron-based superconductors <u>R Osborn</u> , Argonne National Laboratory, USA	(invited) Transport and pattern formation in internally actively driven systems <u>I Pagonabarraga</u> , University of Barcelona, Spain	(invited) Quantum transport in graphene nanostructures revealed using low temperature scanning probe techniques <u>C G Smith</u> , University of Cambridge, UK	(invited) Single-site-resolved detection and manipulation of atoms in an optical lattice <u>S Kuhr</u> , University of Strathclyde, UK	(invited) Atom-surface interactions on atom chips <u>P Krüger</u> , The University of Nottingham, UK	(invited) Controlling, exploiting and measuring dynamics, noise & heterogeneity in genes and networks <u>D Rand</u> , University of Warwick, UK
14.00	Itinerant spin excitations in SrFe ₂ As ₂ measured by inelastic neutron scattering <u>R Ewings</u> , ISIS Facility, UK	Molecular dynamics simulations of amphiphilic proteins <u>D L Cheung</u> , University of Warwick, UK	High-fidelity single-shot readout of heat in a driven single-electron box <u>O-P Saira</u> , Aalto University, Finland	Electrically-detected spin qubits in silicon <u>G W Morley</u> , University of Warwick, UK	Atom-surface interactions in a nanoscale cavity <u>J Keaveney</u> , Durham University, UK	Perturbation analysis of a reduced model for collective motion: effects of the initial condition <u>C F Lee</u> , Max Planck Institute for the Physics of Complex Systems, Germany
14.15	Spin waves and revised crystal structure of honeycomb iridate Na ₂ IrO ₃ <u>S Choi</u> , University of Oxford, UK	Hydrodynamic synchronisation of flagella on a microscopic swimmer <u>L Debono</u> , University of Bristol, UK	On-chip photon-assisted detection of the noise of quantum point contact <u>Y Jompol</u> , CEA Saclay, France	Deterministic teleportation between room-temperature ensembles <u>T Fernholz</u> , The University of Nottingham, UK	Using stochastic webs to control the coupling between a Bose-Einstein condensate and a vibrating surface <u>N Welch</u> , The University of Nottingham, UK	
14.30	Elucidating mixed singlet ferromagnetism of PrPtAl with neutron spectroscopy	A simulation study of the hydrodynamics and rheology of biologically active suspensions	Direct observation of a tunable band-gap in ABC-trilayer graphene <u>T Khodkov</u> , University of	Generating distributed entanglement from electron currents <u>Y Ping</u> , University of	The influence of adsorbed molecules on the electronic properties of graphene	



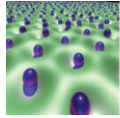
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	<u>G Abdul-Jabbar</u> , The University of Edinburgh, UK	<u>S Fielding</u> , Durham University, UK	Exeter, UK	Oxford, UK	<u>A Samuels</u> , University of Surrey, UK	
14.45	Inelastic neutron scattering study of multiferroic CuO <u>S M Gaw</u> , University of Oxford, UK	Size dependence of the propulsion velocity for catalytic janus-sphere swimmers <u>M-H Tu</u> , University of Sheffield, UK	Towards Microkelvin temperatures in nanoscale samples <u>D Maradan</u> , University of Basel, Switzerland	Atom chips based on two-dimensional electron gases in graphene and semiconductor heterostructures <u>M Fromhold</u> , The University of Nottingham, UK		
15.00		Diblock copolymer sphere morphology in ultra-thin films under shear <u>M Pinna</u> , University of Central Lancashire, UK	Tunnel spectroscopy of a proximity Josephson junction <u>M Meschke</u> , Aalto University, Finland	Generation of a quantum-smooth beam of light by four-wave mixing in an atomic vapour <u>V Boyer</u> , University of Birmingham, UK		
15.15			State-of-the-art superconducting quantum interference devices for investigating material effects at low temperatures <u>S Bechstein</u> , Physikalisch-Technische Bundesanstalt Braunschweig und Berlin, Germany	Superconducting single photon detectors for quantum information science <u>R Hadfield</u> , Heriot-Watt University, UK		
15.30	<i>The Point</i> Refreshments and exhibition					



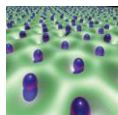
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	<p><i>Ashes and Boundary Chair: M Dove, Queen Mary, University of London, UK</i></p> <p>Neutron spectroscopy II</p>	<p><i>Century Chair: P Carbone, The University of Manchester, UK</i></p> <p>Computer simulation in soft matter II</p>	<p><i>Maiden Chair: R P Haley, Lancaster University, UK</i></p> <p>Quantum fluids and solids</p>	<p><i>Members bar area Chair: A Miller, The University of Manchester, UK</i></p> <p>Biological physics</p>	<p><i>Trafford suite Chair: R McGrath, The University of Liverpool, UK, and J Ledieu, Institut Jean Lamour, France</i></p> <p>Intermetallic alloys and their surfaces: structure, properties and applications</p>
16.00	<p>(invited) Vibrational spectroscopy with neutrons – new directions S F Parker, STFC Rutherford Appleton Laboratory, UK</p>	<p>(invited) Computer simulation of fluids with intrinsic and permanent cavities M Del Popolo, Queen's University Belfast, UK</p>	<p>(invited) Solid helium: supersolidity or quantum plasticity? J Beamish, University of Alberta, Canada</p>	<p>(invited) Dynamic, local organisation of soft-surfaces; controlling factors in biological signaling P O'Shea, The University of Nottingham, UK</p>	<p>Single-element quasicrystalline films grown on Ag-In-In quasicrystal H R Sharma, The University of Liverpool, UK</p>
16.15					<p>Elastic properties and high temperature behaviour of Pt₃Al, relative to Ni₃Al alloys A I Popoola, University of the Witwatersrand Johannesburg, South Africa</p>
16.30	<p>The partial vibrational density of states for network forming glasses P S Salmon, University of Bath, UK</p>	<p>Revealing the molecular mechanism behind the cytotoxicity of pluronics: a theoretical and experimental study S Nawaz, The University of Manchester, UK</p>	<p>Simultaneous measurements of the torsional oscillator anomaly and thermal conductivity in solid ⁴He D E Zmeev, The University of Manchester, UK</p>	<p>Protein amyloid self-assembly: nucleation, growth, and breakage C F Lee, Max Planck Institute for the Physics of Complex Systems, Germany</p>	<p>Epitaxial growth of pentacene on quasi-periodic surfaces K Young, The University of Liverpool, UK</p>
16.45	<p>Quasi-elastic neutron scattering and gravimetric measurements of the concentration dependence of Tracer and Fick's Law Diffusion</p>	<p>Hierarchical self-assembly of chiral fibers from achiral particles P Prybytak, Sheffield Hallam</p>	<p>Coherent structures in quantum turbulence C Barenghi, Newcastle University, UK</p>	<p>Active cross-links in networks of filaments K Müller-Nedebock, Stellenbosch University, South</p>	<p>The various forms of Bi islands formed on the (100) surface of the Al₁₃Co₄ complex metallic alloy V Fournée, Institut Jean</p>



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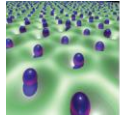
	in the β-phase of Pd/H and Pd/D <u>D Wilkinson</u> , University of Salford, UK	University, UK		Africa	Lamour, France
17.00	The application of polycrystalline coherent inelastic neutron scattering in the study of nanomaterials <u>D K Ross</u> , University of Salford, UK	Nonequilibrium crystal growth in polydisperse colloids <u>J Williamson</u> , University of Leeds, UK	Vortex interactions in superfluid ^4He in the zero temperature limit <u>P Walmsley</u> , The University of Manchester, UK	(invited) How do cells crawl? <u>T Duke</u> , London Centre of Nanotechnology, UK	Structural and compositional characterisation of single crystal and polycrystalline Co_2FeSi heusler alloy thin films <u>J Sagar</u> , The University of York, UK
17.15		Phase diagrams of knotted and unknotted polymers <u>M Allen</u> , University of Warwick, UK	Quartz tuning forks and the superfluid ^3He AB interface <u>M Fear</u> , Lancaster University, UK		(invited) Electronic properties and structure complexity of Al-based intermetallics <u>J-M Dubois</u> , Institut Jean Lamour, France
17.30		Laterally confined diblock copolymers <u>R Dessi</u> , University of Central Lancashire, UK	Itinerant ferromagnetism in an interacting Fermi gas with mass imbalance <u>G Conduit</u> , University of Cambridge, UK	Rapid simulation of protein motion: merging flexibility, rigidity and normal mode analyses <u>J E Jiminez</u> , University of Warwick, UK	
17.45		Gradient Monte Carlo: A high throughput method for computing thermodynamic properties <u>A Mehrotra</u> , Indian Institute of Technology, India	Multiparticle composites in density-imbalanced quantum fluids <u>E Burovski</u> , Lancaster University, UK	The interplay of mutations and electronic properties in disease-related genes <u>R Roemer</u> , University of Warwick, UK	
18.00	<i>The Point</i> Exhibitor's reception and buffet				
20.00	<i>Ashes and Boundary</i> Chair: <u>P Weightman</u> , University of Liverpool, UK				



Panel discussion with representatives from EPSRC, BBSRC and STFC

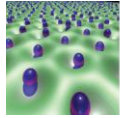
Wednesday 14 December

08.30	<i>The Point</i> Registration					
09.00	<i>Ashes and Boundary</i> Chair: P Weightman, University of Liverpool, UK (plenary) Statistical mechanics of complex networks: from the WWW to the cell <u>A-L Barabasi</u> , Northeastern University, USA					
09.40	(Mott lecture) High-temperature superconductivity and the catch-22 conundrum <u>N Hussey</u> , University of Bristol, UK					
10.20	<i>The Point</i> Refreshments and poster session					
	<i>Ashes and Boundary</i> Chair: Z Melhem, Oxford Instruments, UK Superconductivity I	<i>Century</i> Chair: J O'Shea, The University of Nottingham, UK Surfaces and interfaces I	<i>Maiden</i> Chair: A Casey, Royal Holloway, University of London, UK Nanoscale physics at low temperature II (sponsored by European Microkelvin Consortium)	<i>Members bar area</i> Chair: N Harrison, Imperial College London, UK Materials for energy I	<i>Trafford suite</i> Chair: D Cleaver, Sheffield Hallam University, UK Liquids and complex fluids	<i>Members long room</i> Chair: K G Sanderman, Imperial College London, UK Functional phase transitional physics
11.00	(invited) Is the critical current density of superconductors in high magnetic fields usilstrain, determined by the particle- or wave-like	(invited) Observing the dynamics leading to self-organisation at surfaces <u>W Allison</u> , University of Cambridge, UK	(invited) Towards quantum limited electromechanical microwave amplification <u>M Sillanpää</u> , Aalto University, Low	(invited) Energy storage and the chemical bond: challenges and opportunities for chemical and engineering catalysis	(invited) Transient shear banding in the Rolie-Poly model <u>J Adams</u> , University of Surrey, UK	(invited) Structural competitions in Bi-based multiferroics under high-pressure <u>J Kreisel</u> , CNRS - Grenoble Institute of
11.15						



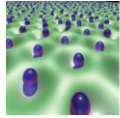
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	properties of the superelectrons? <u>D Hampshire</u> , Durham University, UK		Temperature Laboratory, Finland	<u>P Edwards</u> , University of Oxford, UK		Technology, France
11.30	Critical behaviour of mesoscopic type-I superconductors <u>S Bending</u> , University of Bath, UK	Polymerisation on stepped surfaces <u>A Saywell</u> , Fritz-Haber-Institut of the Max-Planck Society, Germany	(invited) Stressed out silicon nitride <u>J Parpia</u> , Cornell University, USA		SANS studies of magnetic orientation versus surface anchoring in liquid crystalline fd virus suspensions <u>A T Holmes</u> , University of Birmingham, UK	Asymmetry in the heat capacity of the itinerant metamagnet $\text{La}(\text{Fe},\text{Si})_{13}$ at a first order phase transition <u>K Morrison</u> , Imperial College London, UK
11.45	Superconducting nanowires for a quantum phase-slip current standard <u>J C Fenton</u> , University College London, UK, and National Physical Laboratory, UK	Growth studies of epitaxial graphene on 4H-SiC for nanoelectronics <u>A Strudwick</u> , University of Leeds, UK		Phase transition of $\text{Li}_4\text{NH}(\text{D})$ and Intermediate between $\text{Li}_4\text{NH}(\text{D})$ and $\text{Li}_2\text{NH}(\text{D})$ <u>G Baldissin</u> , University of Salford, UK	Squeezing particle-stabilized emulsions into biliquid foams <u>J Thijssen</u> , The University of Edinburgh, UK	An ab-initio theory of metallic metamagnetism: application to the orthorhombic CoMnSi antiferromagnet <u>J B Staunton</u> , University of Warwick, UK
12.00	Fabrication and measurement of combined electromechanical resonator and nanoSQUID <u>L Hao</u> , National Physical Laboratory, UK	Corrugation and dynamics at a graphene/$\text{Ru}(0001)$ surface <u>A Jardine</u> , University of Cambridge, UK	Micro/nano mechanics at low temperatures <u>E Collin</u> , CNRS, France	Scanning transmission x-ray microscopy of polymer nanoparticles: probing morphology on sub-10 nm length scales <u>P C Dastoor</u> , University of Newcastle, Australia	Osmosis in non-equilibrium simulations with active solute particles <u>T Lion</u> , The University of Edinburgh, UK	Rare earth mononictides and monochalcogenides from first principles: towards an electronic phase diagram of strongly correlated materials <u>L Petit</u> , Daresbury Laboratory, UK
12.15	Terahertz time-domain spectroscopy of the high-temperature	Two-dimensional colloidal alloys <u>A Law</u> , Max Planck	Nanoscale MRI of electron spins at millikelvin temperatures	The use of small angle neutron scattering to study porosity of	Universal solidification behaviour in liquid metals?	



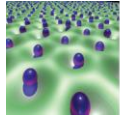
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	superconductor YBCO with highly intense terahertz pulses <u>A Glossner</u> , Terahertz Photonics Laboratory, Germany	Institute for Intelligent Systems, Germany	<u>G Wijts</u> , Leiden Institute of Physics, The Netherlands	activated carbon and pore filling process <u>Z Mileeva</u> , University of Salford, UK	<u>F Demmel</u> , STFC, UK	
12.30	<i>The Point</i> Lunch and poster session					
13.30	<i>Ashes and Boundary</i> <i>Chair: D Allwood, University of Sheffield, UK</i> (Wolfarth lecture) Frustration by design: artificial spin ice <u>C Marrows</u> , University of Leeds, UK					
14.10	<i>Chair: P Weightman, University of Liverpool, UK</i> (plenary) Molecular machinery from DNA <u>A Turberfield</u> , University of Oxford, UK					
14.50	<i>The Point</i> Refreshments and poster session					
	<i>Ashes and Boundary</i> <i>Chair: R Hadfield, Heriot-Watt University, UK</i> Superconductivity II	<i>Century</i> <i>Chair: C Nicklin, Diamond Light Source, UK</i> Surfaces and interfaces II	<i>Maiden</i> <i>Chairs: N Proukakis, Newcastle University, UK, and S Gardiner, Durham University, UK</i> Quantum gases	<i>Members bar area</i> <i>Chair: N Harrison, Imperial College London, UK</i> Materials for energy II	<i>Trafford suite</i> <i>Chair: A Zvelindovsky, University of Central Lancashire, UK</i> Polymer physics	<i>Members long room</i> <i>Chair: D Keen, STFC, UK</i> Local structure of functional materials
15.15	(invited) Photons, qubits and computers - a quantum mechanics lab on a chip <u>A Wallraff</u> , ETH Zurich, Switzerland	(invited) 2D supramolecular self-assembly at different length scales <u>G Costantini</u> , University of Warwick, UK	(invited) Optical flux lattices for ultracold atomic gases <u>N Cooper</u> , University of Cambridge, UK	(invited) Title TBC <u>T Jones</u> , University of Warwick, UK	(invited) Polymer in nanopores: translocation, recoil and escape <u>S Hanna</u> , University of Bristol, UK	(invited) Local structures of functional materials <u>M Dove</u> , Queen Mary, University of London, UK
15.30						



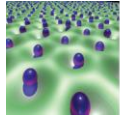
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15.45	<p>Stability of superconducting microresonators T Lindstrom, National Physical Laboratory, UK, and Royal Holloway, University of London, UK</p>	<p>Probing chemical interactions on the Si(100):H surface S Jarvis, The University of Nottingham, UK</p>	<p>Mobile impurities in one-dimensional quantum liquids D M Gangardt, University of Birmingham, UK</p>		<p>Topological glasses in ring polymers W-C Lo, University of Warwick, UK</p>	<p>Vacancy defect characterisation in donor doped epitaxial strontium titanate films D Keeble, University of Dundee, UK</p>
16.00	<p>Quantum oscillations in the superconducting LiFeAs A Coldea, University of Oxford, UK</p>	<p>Ultra-fast charge transfer from an adsorbed molecule to a TiO₂(110) surface: RIXS J N O'Shea, The University of Nottingham, UK</p>	<p>From Ramsauer-Townsend resonances to stable supersonic motion in Bose-Einstein condensates J Shearring, The University of Nottingham, UK</p>	<p>Investigation of pulsed D.C magnetron sputtering for the component layers of CuInSe₂ based solar cells S Karthikeyan, University of Salford, UK</p>	<p>Tunnelling negative differential resistance in a flexible active composite S Littlejohn University of Bath, UK</p>	<p>Magnetism and structure of new cubic Mn precipitate phase in InMnSb magnetic semiconductor P Hasnip, The University of York, UK</p>
16.15	<p>Evidence for non-unitary triplet pairing in superconducting LaNiGa₂ A Hillier, ISIS Facility, UK</p>	<p>Evidence for the observation of surface states at the Cu(110)/electrolyte interface E Barritt, The University of Liverpool, UK</p>	<p>Quantized decay of high charge vortices in an annular BEC S Beattie, University of Cambridge, UK</p>	<p>Concentration dependence on the electrical conductivity type of electrodeposited ZnS thin films A R Weerasinghe, Sheffield Hallam University, UK</p>	<p>Nanoparticle sintering as a novel adhesive switching mechanism R Gurney, University of Surrey, UK</p>	<p>Optical absorption and fluorescence of Pr₃₊ in zinc bismuth borate glasses S Khasa, Deenbandhu Chhoturam University of Science and Technology, India</p>
16.30	<p>A de Haas-van Alphen study of the Fermi surface of LiFeP C Putzke, University of Bristol, UK</p>	<p>First principles investigation of the electronic properties of extended defects in oxides K McKenna, The University of York, UK</p>	<p>Modelling phase-fluctuating quantum gas experiments S P Cockburn, Newcastle University, UK</p>	<p>Effect of different Transparent Conducting Oxides (TCOs) on electrodeposited CdTe F Fauzi, Sheffield Hallam University, UK</p>	<p>Modeling stress-strain response of semi-soft smectic-C elastomers J M Adams, University of Surrey, UK</p>	



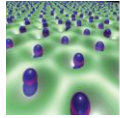
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16.45	SANS studies of flux lattice structure and melting at high fields in fully-oxygenated detwinned $\text{YBa}_2\text{Cu}_3\text{O}_7$ <u>A T Holmes</u> , University of Birmingham, UK	An <i>ab initio</i> description of the (111) surface of UO_2: resolving the surface structure <u>A Devey</u> , AWE, UK	Exciton coherence and superfluorescence in organic and inorganic solids. Analogues to BEC <u>A Monkman</u> , Durham University, UK		Transient shear banding in complex fluids <u>R Moorcroft</u> , Durham University, UK	
17.00	Unconventional superconductivity in the Heusler compound ZrNi_2Ga μSR study <u>N Parzyk</u> , University of Warwick, UK	Atomic force microscopy with unambiguous tip apexes <u>A Stannard</u> , The University of Nottingham, UK	Quantum simulators for electron-phonon interactions in deformable materials and unconventional superconductors <u>J P Hague</u> , The Open University, UK		Topological equivalence of polymers: regular isotopy in a projection geometry <u>C Rohwer</u> , Stellenbosch University, South Africa	
17.15	<i>The Point</i> Poster session and drinks reception					
19.30	<i>The Point</i> Conference buffet					



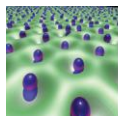
Thursday 15 December

08.30	<i>The Point</i> Registration				
09.00	<i>Ashes and Boundary</i> Award of poster prizes <u>I Morrison</u> , University of Salford, UK				
09.10	<i>Chair: I Morrison, University of Salford, UK</i> (plenary) Dynamic compression of condensed matter: scientific challenges and opportunities <u>Y Gupta</u> , Washington State University, USA				
09.50	(plenary) Control of collective quantum phenomena in metal-oxide superlattices <u>B Keimer</u> , Max-Planck-Institute for Solid State Research, Germany				
10.20	<i>The Point</i> Refreshments and poster session				
	<i>Ashes and Boundary</i> <i>Chair: N Bourne, AWE, UK</i> Matter under extreme conditions	<i>Century</i> <i>Chair: C Hooley, St Andrews University, UK</i> Topological insulators and other topological states of matter	<i>Maiden</i> <i>Chair: D Keen, STFC, UK</i> Structural studies of nanomaterials	<i>Members bar area</i> <i>Chair: T Perring, STFC, UK</i> Correlated electrons	<i>Trafford suite</i> <i>Chair: T Thomson, The University of Manchester, UK</i> Nanomagnetism/spintronics
11.00	(invited) High density metallic elements: complexity in simple systems <u>M I McMahon</u> , The University of Edinburgh, UK	Correlation effects and Luttinger physics in quantum spin Hall insulators <u>M Hohenadler</u> , University Würzburg, Germany	(invited) The origin of strain patterns in nanoparticles <u>I Robinson</u> , London Centre for Nanotechnology, UK	Study of an electronic nematic with precise control of the applied magnetic field vector <u>J Bruin</u> , University of St Andrews, UK	(invited) Domain growth in coupled and frustrated patterned magnets <u>R Stamps</u> , University of Glasgow, UK
11.15				Angle-resolved NMR: quantitative theory of ^{75}As T_1 relaxation rate in BaFe_2As_2 <u>A Smerald</u> , University of	



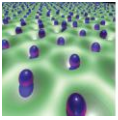
Condensed Matter and Materials
Physics (CMMP11)

				Bristol, UK	
11.30	Matter under extreme conditions: temperature diagnostics <u>C Shenton-Taylor</u> , AWE, UK	Berry curvature of Bloch electrons and the consequences for de Haas-van Alphen oscillations from first principles <u>M Gradhand</u> , University of Bristol, UK	The structure of mercaptoalkanoic acid multilayer films ligated through divalent Cu ions <u>S Johnson</u> , University of Leeds, UK	Diamagnetism, flux creep and critical currents for bilayer exciton superfluids <u>P Eastham</u> , Trinity College Dublin, Ireland	X-ray detected ferromagnetic resonance in exchange coupled magnetic multilayers <u>L Shelford</u> , Diamond Light Source, UK
11.45	Hypervelocity impacts into graphite <u>S Latunde-Dada</u> , AWE, UK	The quantum spin Hall effect in silicone <u>J Wallbank</u> , Lancaster University, UK	Determination of the composition of III-V self assembled quantum dots in three dimension by transmission electron microscopy <u>A Wahra</u> , University of Warwick, UK	Electric field control of the magnetic chiralities in ferroaxial multiferroic $\text{RbFe}(\text{MoO}_4)_2$ <u>A Hearmon</u> , University of Oxford, UK	Magnetic reversal of an artificial square ice: dipolar correlation and charge ordering <u>J P Morgan</u> , University of Leeds, UK
12.00	Surpassing the limits of the diamond anvil pressure cell: Ramp compression of Na to megabar pressures <u>E E McBride</u> , The University of Edinburgh, UK	Route to the Pfaffian state in bilayer graphene <u>K Snizhko</u> , Lancaster University, UK	Dynamic porosity as a key feature of soft nanoporous organic materials <u>J Jordanovic</u> , The University of Liverpool, UK	Phase locking of spin waves in a multi-k structure - an inelastic polarised neutron study <u>J Lim</u> , University of Birmingham, UK	Non-volatile voltage control of magnetisation and magnetic domain walls in magnetostrictive epitaxial thin films <u>D Parkes</u> , The University of Nottingham, UK
12.15		Fisher zeros and correlation functions in Ising models <u>F Beichert</u> , University of St Andrews, UK	Catalyst-free MBE growth of InAs and InAsP nanowires <u>I Isakov</u> , University College London, UK	Large violation of the Wiedemann-Franz law in the quasi-one-dimensional conductor $\text{Li}_{0.9}\text{Mo}_6\text{O}_{17}$ <u>N Wakeham</u> , University of Bristol, UK	z/z symmetry of spin-orbit coupling and weak localisation in graphene <u>E McCann</u> , Lancaster University, UK
12.30			Low temperature structural control of carbon nickel thin	Electron scattering from domain walls in ferromagnetic	Controlling the dispersion of collective spin waves in stacks



Condensed Matter and Materials
Physics (CMMP11)

			films <u>D Bosworth</u> , University of Cambridge, UK	luttinger liquids <u>N Sedlmayr</u> , University of Kaiserslautern, Germany	of magnetic nanoelements <u>V V Kruglyak</u> , University of Exeter, UK
12.45					Ideal dilute alloys for an application of the spin Hall effect <u>M Grahnd</u> , University of Bristol, UK
13.00	<i>The Point</i> Lunch and depart				
13.30	<i>Members long room</i> Nanotech Instrumentation 2011 User Conference <i>Please note, posters are on display in Members long room from 11am.</i>				



Poster programme

Biological physics

P.001 - Spatial organization of the cell cytoplasm: Mex-5 gradient and P granule localization in *C. elegans*
C F Lee, Max Planck Institute for the Physics of Complex Systems, Germany

P.002 - HIV-1 protease: the rigidity perspective
J Heal, University of Warwick, UK

P.003 - System length and contact effects on the localization in DNA ladder models
C Paez, Universidade Estadual de Campinas, Brazil

P.004 - Application of PEI modified magnetic nanoparticles as gene engineering carrier for breeding transgenic cotton
H Cui, Chinese Academy of Agricultural Sciences, China

Computer simulation in soft matter

P.005 - Interactions of patchy membranes with nanoparticles
S Y Noh, University of Warwick, UK

P.006 Folding kinetics of a flexible homopolymer chain
S Ruzicka, University of Warwick, UK

P.007 - Forces between nanoparticles in a nematic host
T Fenech, University of Bristol, UK

Liquids and complex fluids

P.008 - Shock waves in complex (colloidal) plasmas
D Samasonov, The University of Liverpool, UK

P.009 - Micro-sphere motion in the electrical switching liquid crystal phases in sandwich cell
J-Y Oh, The University of Manchester, UK

Polymer physics

P.010 - Modelling the nucleation of branched and kinked oligopeptide fibres
S Hanna, University of Bristol, UK

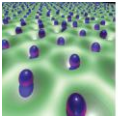
Correlated electrons

P.011 - An ab initio study of the quantum little parks effect
G Conduit, University of Cambridge, UK

P.012 - Three-dimensional lattice niplaron
A Davenport, The Open University, UK

P.013 - Electron-phonon coupling: insight from studying graphene
N Roome, Advanced Technology Institute, UK

P.014 - Farewell, pinch points: static correlations in a quantum spin ice
J Benton, University of Bristol, UK



P.015 - $\text{Cu}_3\text{Nb}_2\text{O}_8$: a multiferroic with chiral coupling to the crystal structure

A Hearmon, University of Oxford, UK

P.016 - Specific heat and transport properties of $\text{La}_{1-x}\text{Sr}_x\text{CoO}_3$

R Thakur, Barkatullah University Bhopal, India

P.017 - Spin flipping rates in spin ice

B Tomasello, Kent University, UK

P.018 - Magnetic components in the skyrmion lattice in MnSi

E Blackburn, University of Birmingham, UK

P.019 - Low temperature magnetic properties of geometrically frustrated SrHo_2O_4

O Young, University of Warwick, UK

P.020 - Transport properties of graphene bilayers and trilayers

X Chen, Lancaster University, UK

P.021 - Negative differential resistance in doped fullerenes molecular junctions

H Vanaie, Islamic Azad University, Iran

Superconductivity

P.022 - Thermoelectricity of uranium based ferromagnetic superconductors

L Malone, University of Bristol, UK

P.023 - Superconductivity in two-dimensional crystals

M El Bana, Bath University, UK

P.024 - Superconductivity in cubic systems lacking inversion

M Mazidian, University of Bristol, UK

P.025 - Milling stencils for the fabrication of superconducting nanowires of sub-20nm width

N G N Constantino, London Centre for Nanotechnology, UK

P.026 - Multigap superconductivity in co-doped 122 iron pnictide superconductors investigated by local magnetic imaging

W M Desoky, Bath University, UK

P.027 - NanoSQUIDs performance in applied magnetic fields

L Hao, National Physical Laboratory, UK

P.028 - ISTED based microbolometer for the measurement of energy deposited by proton and ion beams

L Hao, National Physical Laboratory, UK

P.029 - High precision readout of superconducting microwave resonators by Pound locking

J Burnett, National Physical Laboratory, UK, and Royal Holloway, University of London, UK

P.030 - Chromium oxide resistors for use in a quantum phase-slip circuit

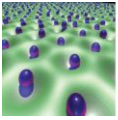
C Nash, London Centre for Nanotechnology, UK

P.031 - Measurement of a gradual disappearance of the magnetic phase in $\text{NaFe}_{1-x}\text{Co}_x\text{As}$ superconductors using muon-spin rotation and x-ray powder diffraction

J D Wright, University of Oxford, UK

P.032 - Transport in superconducting and ferromagnetic multilayers

A Voysey, University of Bristol, UK



P.033 - Investigation of the presence of two level systems in niobium-cobalt multilayers by microwave coplanar resonator technique

G M Klemencic, University of Birmingham, UK

P.034 - Damping of quantum oscillations in the superconducting state of a multigap superconductor

I Guillaumon, University of Bristol, UK

P.035 - Anisotropic energy-gaps of iron-based superconductivity from intra-band quasiparticle interference in LiFeAs

A W Rost, Cornell University, USA

P.036 - Studies of the Vortex Lattice in the phosphorus doped pnictide BaFeAsP

A S Cameron, University of Birmingham, UK

P.037 - Confirming p-wave behaviour of the URhGe order parameter

W Whitley, The University of Edinburgh, UK

P.038 - The destruction of the d-wave superconductor by an applied magnetic field: a variational study

G Conduit, TCM, UK

P.039 - Hall effect measurements under pressure in ferromagnetic superconductor UGe₂

C Lithgow, The University of Edinburgh, UK

P.040 - A novel system providing a 5.5 Tesla rotating vector combined with ultra low temperature capability to study quantum effects in semiconductor nanostructures

B Claridge, Claridge Scientific, UK

P.041 - 7 tesla cryogen-free fast ramping magnet

B Claridge, Claridge Scientific, UK

P.042 - Rapid pre-cooling of integrated dilution refrigerator and cryogen-free magnet systems utilising passive heat pipes

A J Matthews, Oxford Instruments NanoScience, UK

P.043 - Top loading cryofree dilution refrigerator mechanism for rapid sample exchange with a high field superconducting magnet

A J Matthews, Oxford Instruments NanoScience, UK

Nanomagnetism/spintronics

P.044 - Ordered two dimensional array of spins: a stable organic radical adsorbed on Cu/Au(111)

F Grillo, University of St Andrews, UK

P.045 - The interfacial structure and transport properties of Fe/GaAs(001) heterostructures

L R Fleet, The University of York, UK

P.046 - Pushing down the detection limit in nanometre sized InSb Hall sensors

V Panchal, National Physical Laboratory, UK

P.047 - Magnetosensing applications with submicron size epitaxial graphene devices

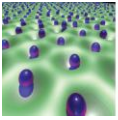
V Panchal, National Physical Laboratory, UK

P.048 - Towards quantitative low temperature magnetic force microscope

R Rajkumar, National Physical Laboratory, UK

P.049 - Spatially resolved remote sensing of giant magnetoresistance using an infrared microscope

C Kelley, The University of York, UK



P.050 - Quantum coherence effects in nano-engineered magnetic structures

R Marsh, Royal Holloway, University of London, UK

P.051 - Optically induced magnetisation dynamics in antiferromagnetically coupled exchange spring multilayers

L Shelford, Diamond Light Source, UK

P.052 - Real and effective thermodynamics in artificial spin ice

J P Morgan, University of Leeds, UK

P.053 - Co/Pt multilayers for enhanced current-induced domain wall motion

A Whiteside, University of Leeds, UK

P.054 - Hybrid-organic spintronic devices

M Wheeler, University of Leeds, UK

P.055 - Investigation of the magnetic domain structure of an itinerant ferromagnet iron tin

K Heritage, Imperial College London, UK

P.056 - Comparative growth study of the structural and magnetic properties of $\text{Fe}_3\text{O}_4(100)/\text{MgO}(100)$ thin films

J Sizeland, The University of York, UK

P.057 - Propagation and localization of magnonic modes in 2D arrays of magnetic nanoelements

V Kruglyak, University of Exeter, UK

P.058 - Semargl: Advanced tool for analysis of the output from dynamic micromagnetic simulations

V Kruglyak, University of Exeter, UK

P.059 - Magnetic and transport properties of GaSb-based diluted magnetic semiconductors

B Howells, The University of Nottingham, UK

P.060 - Exchange bias and magnetic anisotropy in IrMn/NiFe layers grown on GaAs (001)

F McGee, The University of Nottingham, UK

P.061 - Magnetostructural influences of insertion layers in crystalline CoFe(B)/MgO magnetic tunnel junctions

A T Hindmarch, Durham University, UK

P.062 - Field trip inside spin ice

G Sala, Royal Holloway, University of London, UK

Nanoscale physics at low temperature

P.063 - Driven dynamics of a resonator coupled to a single-electron transistor

P Kirton, The University of Nottingham, UK

P.064 - Excitonic Aharonov-Bohm effect in a two-dimensional quantum ring

R A Roemer, University of Warwick, UK

P.065 - Microwave power generation by magnetic superlattices

A Nogaret, University of Bath, UK

P.066 - Phonon phase diagram: localization-delocalization transition, “Boson Peak” and more

S D Pinski, University of Warwick, UK

P.067 - Novel highly conductive and transparent graphene based conductors

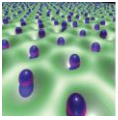
I Khrapach, University of Exeter, UK

P.068 - Fictitious gauge fields in bilayer graphene

A Pearce, University of Exeter, UK

P.069 - Observation of the “Pi junction” effect in a mesoscopic cross with three superconducting contacts

C Shelly, Royal Holloway, University of London, UK



P.070 - Andreev interferometers in a strong radio-frequency field

C Checkley, Royal Holloway, University of London, UK

P.071 - Real time readout of metastable states in a superconducting flux qubit using a hybrid quantum interferometer

A Igallo, Royal Holloway, University of London, UK

P.072 - Electron-phonon bottle neck in metallic coulomb blockade thermometer

L Casparis, University of Basel, Switzerland

P.073 - Conductivity in Bilayer graphene n-p and n-p-n junctions with uniaxial strain

D Gradinar, Lancaster University, UK

P.074 - NanoSQUIDs for millikelvin magnetometry

A Blois, University College London, UK

P.075 - Energy dissipation in supported monolayer graphene

A Price, University of Exeter, UK

P.076 - Electron overheating in graphene studied using weak localization

S Hornett, University of Exeter, UK

P.077 - SQUID detection of gold nanomechanical resonators

A Casey, Royal Holloway, University of London, UK

P.078 - Effect of rough walls on transport in mesoscopic ^3He films

P Sharma, Royal Holloway, University of London, UK

P.079 - Nonlinear mode coupling in silicon nitride NEMS

R Cousins, The University of Nottingham, UK

P.080 - Universal superconducting detector of quantum states

V Antonov, Royal Holloway, University of London, UK

P.081 - Noise spectral analysis of environmental noise in SQUID and superconducting qubit type circuits using a Cavity Bifurcation Amplifier

G P Ithier, Royal Holloway, University of London, UK

P.082 - Tungsten nanomechanical resonators grown by focused-ion-beam deposition

H Wang, London Centre for Nanotechnology, UK

P.083 - Phonon thermal transport at the nanoscale at low temperature

K Lulla, Institut NÉEL, CNRS-UJF, France

P.084 - A strategy for development of superconducting qubits with large decoherence time

V Gurtovoi, Institute of Microelectronics Technology RAS, Russia

Quantum fluids and solids

P.085 - Dynamics of an atomic quantum dot coupled to a Bose-Einstein condensate

T West, Imperial College London, UK

P.086 - Controlled flow measurements in superfluid ^3He

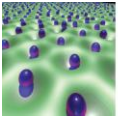
C Lawson, Lancaster University, UK

P.087 - Design and measurements of quartz tuning fork arrays for quantum turbulence studies in superfluid ^3He

E Guise, Lancaster University, UK

P.088 - Generation and detection of homogeneous quantum turbulence in superfluid $^3\text{He-B}$

P Williams, Lancaster University, UK



P.089 - Quantum turbulence and the free decay of grid oscillations in HeII

D Garg, Lancaster University, UK

P.090 - Low-Drive measurements of quartz tuning fork arrays in liquid ^4He in the temperature range 1.5-4.2K.

S Ahlstrom, Lancaster University, UK

P.091 - Quantum turbulence in superfluid ^4He generated by vibrating wires

A Woods, Lancaster University, UK

P.092 - Switching behaviour of a quartz tuning fork in superfluid ^4He

R Schanen, Lancaster University, UK

P.093 - Capture of He_2 molecules by vortex lines in superfluid ^4He at $T < 0.2$ K

D Zmeev, The University of Manchester, UK

P.094 - The transition from classical to quantum turbulence: the drag on a wire resonator in normal and superfluid ^4He

M Kumar, Lancaster University, UK

P.095 - Motion of wire moving through solid ^4He

M Kumar, Lancaster University, UK

Quantum gases

P.096 - Towards ultra cold potassium atoms in a high-finesse ring cavity

K Pahwa, University of Birmingham, UK

P.097 - Multifractal finite-size scaling and universality at the Anderson transition

R A Roemer, University of Warwick, UK

P.098 - Towards a versatile 2D quantum gas experiment

M Baumert, Midlands Ultracold Atoms Research Centre (MUARC), UK

P.099 - Tunable multiple layered Dirac cones in optical lattices

Z Lan, Heriot-Watt University, UK

P.100 - A compact system for ultracold atoms

L Torralbo-Campo, University of St Andrews, UK

P.101 - Thermal versus quantum fluctuations of optical lattice fermions

C Hooley, University of St Andrews, UK

P.102 - Collision of spin polarised fermionic clouds

C Lobo, University of Southampton, UK

P.103 - Fractional photon-assisted tunnelling of ultra-cold atoms

C Weiss, Durham University, UK

P.104 - Bright solitary wave atom interferometry in Bose-Einstein condensates

J Helm, Durham University, UK

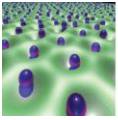
Functional phase transition physics

P.105 - SSEC: an integrated collaborative approach to magnetic cooling and magnetocaloric materials in Europe

K Sandeman, Imperial College London, UK

P.106 - A hybrid exchange density functional study of $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ as a magnetocaloric material for magnetic refrigeration

R Korotana, Imperial College London, UK



P.107 - Designed metamagnetism in $\text{CoMnGe}_{1-x}\text{P}_x$

Z Gersci, Imperial College London, UK

P.108 - The onset of L2_1 order from the B2 phases in Heusler alloys: Ab-initio estimates of the compositional ordering temperatures

J Peace, University of Warwick, UK

Matter under extreme conditions

P.109 - Crystal structures and transitions of europium at high pressures

R Husband, The University of Edinburgh, UK

P.110 - Inferring the high-pressure strength of copper by measurement of longitudinal sound speed

S D Rothman, AWE, UK

P.111 - Metamagnetic transition in PrNi – spin rotation in an induced ferromagnet?

J Schmeh, The University of Edinburgh, UK

P.112 - Computational investigation of the high pressure phase transitions of tin

M Cutler, AWE, UK and University College London, UK

P.113 - An equation of state for vanadium

S Mehta, AWE, UK

Materials for energy

P.114 - Surface state effects on N+P doped PSDS

O Esebamen, Mid Swden University, Sweden

P.115 - Carbon nanotubes based piezoresistive sensing

S Littlejohn, University of Bath, UK

P.116 - Lattice strain distribution in two-step growth of heteroepitaxial SrTiO_3 films

G Panomsuwan, Nagoya University, Japan

Neutron spectroscopy

P.117 - Investigation of the dynamics of polycrystalline C_6O GIC using coherent inelastic neutron scattering

A M Bailey, University of Salford, UK

P.118 - Simulating simple defect dynamics in polycrystalline graphite with coherent inelastic neutron scattering simulations and measurements

D K Ross, University of Salford, UK

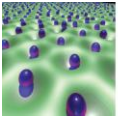
Local structures of functional materials

P.119 - Infra-red characterization and modeling of defect generation in beam and plasma implanted $^4\text{H-SiC}$ epitaxial layers

M Tabbal, American University of Beirut, Lebanon

P.120 - Electron magnetic resonance characterisation of point defects in donor doped PbTiO_3

D J Keeble, University of Dundee, UK



Structural studies of nanomaterials

P.121 - Computational investigations into micro-porous material dynamics

M Lewis, The University of Liverpool, UK

P.122 - Field-effect measurements on InAs nanowires

M Sourribes, University College London, UK

P.123 - The effects of uniaxial strain on the transport properties of graphene nanoribbons

J Baldwin, The University of York, UK

P.124 - Growth and characterization of multi-stacked CdSe/ZnSe quantum dots layers grown on GaAs(100)

M Yoneta, Okayama University of Science, Japan

P.125 - Pinch-off in epitaxial bilayer graphene

S Kopylov, Lancaster University, UK

P.126 - Understanding the mechanisms of heat generation in hyperthermia

B Weise, Technische Universität Dresden, Germany, and The University of York, UK

Surfaces and interfaces

P.127 - Development of an improved field ionization detector incorporating a secondary electron stage

P C Dastoor, University of Newcastle, UK

P.128 - A desktop supersonic free-jet beam source for a helium microscope

P C Dastoor, University of Newcastle, UK

P.129 - Study of the effect of channel thickness and Si cap passivation on hole mobility of strain Ge pMOSFETs

C Antunes Casteleiro, University of Warwick, UK

P.130 - Preparation of organic superconducting materials by alkali metal intercalation of graphene-like molecules

L M A Perdigao, The University of Nottingham, UK

P.131 - A density-functional-theory based concurrent multiscale method to study defects in metals

G Schusteritsch, Harvard University, USA

P.132 - What role does orbital overlap play in atomic manipulation?

S Jarvis, The University of Nottingham, UK

P.133 - Probing the probe: The role of the tip apex in non-contact atomic force microscopy imaging of the Si(100) surface

S Jarvis, The University of Nottingham, UK

P.134 - Interface and high energy band effects in zinc blend quantum dots: beyond standard kp model

S Tomic, University of Salford, UK

P.135 - Focused ion beam patterned thin films: a study by selective area stokes polarimetry and soft x-ray microscopy

A Heyes, University of Salford, UK

P.136 - Reconstruction on the Al₂Cu (001) surface led by covalent bonding

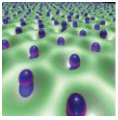
L N Serkovic, Institut Jean Lamour, France

P.137 - Imaging oxygen defects and their motion at a manganite surface

B Bryant, London Centre for Nanotechnology, UK

P.138 - Tunable graphene bandgaps from superstrate mediated interactions

J P Hague, The Open University, UK



Intermetallic alloys and their surfaces

P.139 - Ab-initio study of elastic properties of super hard and graphitic structures of C_3N_4

G S Manyali, University of Witwatersrand, South Africa

P.140 - Studies on clean surfaces of Ag-In-Yb 1/1 approximant

T P Yadav, The University of Liverpool, UK

P.141 - The growth of ordered $ZnAl_2O_4$ nanostructures using AAO as a reactive template

A Heyes, University of Salford, UK

P.142 - Dimensional crossover in URhGe

J Barraclough, University of St Andrews, UK

Nonlinear dynamics complexity and synchronization

P.143 - Soliton propagation in GaMnAs/GaAs pn nanowires

A Nogaret, University of Bath, UK

Topological insulators and other topological states of matter

P.144 - Dependence of polarization and dielectric response on epitaxial strain in $(Ba_xSr_{1-x})TiO_3$ ultrathin films from first-principles

S Binomran, King Saud University, South Africa

Additional posters

P.145 - How general are time-local master equations?

D Maldonado-Mundo, Heriot-Watt University, UK