

Academic staff

Brief research profiles of the key members of the team are included below, showing discipline and the keywords illustrative of their research on the physical sciences at the Life Sciences Interface.

Director of the EPSRC Research and Training Centre in Physical Sciences for Health

[Professor M Hannon \(/staff/profiles/chemistry/hannon-michael.aspx\)](/staff/profiles/chemistry/hannon-michael.aspx)

Chemistry; molecular probe design; fluorescence; DNA recognition.

Steering committee

[Professor L Grover](/staff/profiles/chemical-engineering/grover-liam.aspx)

[\(/staff/profiles/chemical-engineering/grover-liam.aspx\)](/staff/profiles/chemical-engineering/grover-liam.aspx) Chemical engineering; bioresponsives, orthopaedic applications.

[Dr N Hodges \(/staff/profiles/biosciences/hodges-nik.aspx\)](/staff/profiles/biosciences/hodges-nik.aspx)

Biosciences; repair of oxidative DNA damage; mechanisms of secondary genotoxicity related to oxidative stress.

[Professor G Nash \(/staff/profiles/cem/CVRS/Nash-Gerard.aspx\)](/staff/profiles/cem/CVRS/Nash-Gerard.aspx)

Medicine; haemodynamics, vascular biology, blood rheology.

[Dr I Styles \(http://www.cs.bham.ac.uk/~ibs/\)](http://www.cs.bham.ac.uk/~ibs/)

Computer science; medical image analysis; biomedical optics; model-based image interpretation; computational modelling.

[Professor D Walmsley](/staff/profiles/dentistry/walmsley-damien.aspx)

[\(/staff/profiles/dentistry/walmsley-damien.aspx\)](/staff/profiles/dentistry/walmsley-damien.aspx) Dentistry; ultrasonics, bioeffects; imaging of vibration characteristics; biological effects of low-frequency (kHz) ultrasonic instruments.

Mentor panel

[Professor E Claridge](http://www.cs.bham.ac.uk/~exc/)

[\(http://www.cs.bham.ac.uk/~exc/\)](http://www.cs.bham.ac.uk/~exc/) Computer science; multispectral imaging, physics of image formation, quantitative fluorescence microscopy, biomedical image analysis, modelling.

[Dr H Dehghani](http://www.cs.bham.ac.uk/~dehghan/)

[\(http://www.cs.bham.ac.uk/~dehghan/\)](http://www.cs.bham.ac.uk/~dehghan/) Computer science; physiological measurements; optical imaging; image reconstruction; molecular imaging.

Dr Rob Neely

[\(/staff/profiles/chemistry/pikramenou-zoe.aspx\)](/staff/profiles/chemistry/pikramenou-zoe.aspx) Chemistry; Fluorescence spectroscopy and microscopy

[Professor Z Pikramenou \(/staff/profiles/chemistry/pikramenou-zoe.aspx\)](/staff/profiles/chemistry/pikramenou-zoe.aspx)

Chemistry; lanthanide fluorescent markers/labels; MRI contrast agents.

[Professor C Thomas](/staff/profiles/biosciences/thomas-chris.aspx)

[\(/staff/profiles/biosciences/thomas-chris.aspx\)](/staff/profiles/biosciences/thomas-chris.aspx) Biosciences; replication, stability, gene spread and global regulation of bacterial plasmids; polyketide antibiotic synthesis.

[Professor S Watson](/staff/profiles/cem/CVRS/Watson-Steve.aspx)

[\(/staff/profiles/cem/CVRS/Watson-Steve.aspx\)](/staff/profiles/cem/CVRS/Watson-Steve.aspx) Cardiovascular sciences and cellular pharmacology; physiological and pathological features and roles of platelets in activation by glycoprotein receptors; actin polymerisation; angiogenesis; cancer metastasis; major organ dysfunction; stem cell recruitment.

Associated people

[Dr A Bagshaw](/staff/profiles/psychology/bagshaw-andrew.aspx)

[\(/staff/profiles/psychology/bagshaw-andrew.aspx\)](/staff/profiles/psychology/bagshaw-andrew.aspx) Psychology; EEG and fMRI to provide more precise spatial and temporal localisation of brain activity.

[Professor R Beale](http://www.cs.bham.ac.uk/~rxb/)

[\(http://www.cs.bham.ac.uk/~rxb/\)](http://www.cs.bham.ac.uk/~rxb/) Computer science; theories of interaction; usability; mobile and pervasive computing; intelligent agents; genetic algorithms; neural networks; e-learning and HCI education.

[Dr K Brain](/staff/profiles/cem/neubio/Brain-Keith.aspx)

[\(/staff/profiles/cem/neubio/Brain-Keith.aspx\)](/staff/profiles/cem/neubio/Brain-Keith.aspx) Physiology and pharmacology of autonomic junctional transmission; confocal microscopy; electrophysiology; immunohistochemistry.

[Dr M Britton](/staff/profiles/chemistry/britton-melanie.aspx)

[\(/staff/profiles/chemistry/britton-melanie.aspx\)](/staff/profiles/chemistry/britton-melanie.aspx) Chemistry; Nuclear Magnetic Resonance (NMR); Magnetic Resonance Imaging (MRI); oscillatory and autocatalytic reactions; chemical waves and patterns; magnetic field effects.

[Dr S Brogna](/staff/profiles/biosciences/brogna-saverio.aspx)

[\(/staff/profiles/biosciences/brogna-saverio.aspx\)](/staff/profiles/biosciences/brogna-saverio.aspx) Biosciences; RNA processing and translation.

[Dr J Bunch \(/staff/profiles/chemistry/bunch-josephine.aspx\)](/staff/profiles/chemistry/bunch-josephine.aspx)

Chemistry; mass spectrometry imaging; MALDI-MS; LA-ICP-MS; drug distribution studies.

[Dr M Chidgey](/staff/profiles/cancer/chidgey-martyn.aspx)

[\(/staff/profiles/cancer/chidgey-martyn.aspx\)](/staff/profiles/cancer/chidgey-martyn.aspx) Cancer sciences; cancer cell biology; cardiovascular research; skin diseases; molecular basis of desmosomal adhesion.

[Dr Y L Chiu](/staff/profiles/metallurgy/chiu-yulung.aspx)

[\(/staff/profiles/metallurgy/chiu-yulung.aspx\)](/staff/profiles/metallurgy/chiu-yulung.aspx) Metallurgy; microstructural details governing plasticity of advanced structural and functional materials.

[Dr A Chowdhury \(/staff/profiles/psychology/chowdhury-alimul.aspx\)](/staff/profiles/psychology/chowdhury-alimul.aspx)

Psychology. Magnetic Resonance Imaging (MRI) and Spectroscopy (MRS)

[Dr P Cooper](/staff/profiles/dentistry/cooper-paul.aspx)

[\(/staff/profiles/dentistry/cooper-paul.aspx\)](/staff/profiles/dentistry/cooper-paul.aspx) Dentistry; tissue injury, repair and regeneration.

Dr N Davies
Child health; functional Imaging and metabolomics of childhood cancer; magnetic resonance spectroscopy metabolite profiles for characterising childhood tumours.

Dr Larissa Fabritz (</staff/profiles/cem/CVRS/Fabritz-Larissa.aspx>)

Novel mechanisms of heart disease and performs translational research towards mechanism-based therapies of cardiovascular diseases.

Dr A Filer

[\(/staff/profiles/iandi/filer-andrew.aspx\)](/staff/profiles/iandi/filer-andrew.aspx) Inflammation and inflammatory disease; predictive and therapeutic approaches to the treatment of inflammatory arthritis including roles of stromal fibroblast cells in regulating the switch to persistence.

Professor P Fryer

[\(/staff/profiles/chemical-engineering/fryer-peter.aspx\)](/staff/profiles/chemical-engineering/fryer-peter.aspx) Chemical engineering for the food industry including product safety assurance and palatability.

Professor J Frampton

[\(/staff/profiles/iandi/frampton-jon.aspx\)](/staff/profiles/iandi/frampton-jon.aspx) Stem cell biology; processes causing failures of stem cell regulation.

Professor J Heath

[\(/staff/profiles/biosciences/heath-john.aspx\)](/staff/profiles/biosciences/heath-john.aspx) Biosciences; structure and function of growth factors and their receptors.

Dr A Hidalgo

[\(/staff/profiles/biosciences/hidalgo-alicia.aspx\)](/staff/profiles/biosciences/hidalgo-alicia.aspx) Developmental neuro-plasticity; neurotrophins; glial cells.

Professor R Johnston

[\(/staff/profiles/chemistry/johnston-roy.aspx\)](/staff/profiles/chemistry/johnston-roy.aspx) Chemistry; simulation of solids, surfaces and clusters; modelling cluster growth and dynamics; nanoalloy clusters; electronic structures of inorganic and organic solids.

Dr A Kaban

[\(http://www.cs.bham.ac.uk/~axk/\)](http://www.cs.bham.ac.uk/~axk/) Computer science; statistical machine learning; data mining; high dimensional data spaces; probabilistic modelling of data; Bayesian inference.

Dr N Kahlia

[\(/staff/profiles/cem/CVRS/Kalia-Neena.aspx\)](/staff/profiles/cem/CVRS/Kalia-Neena.aspx) Cardiovascular sciences; pathophysiological mechanisms underlying ischemia-reperfusion (I/R) injury including contributory roles of platelets.

Dr J Kirkman-Brown

[\(/Images/Staff/profiles/cem/KirkmanBrown,Jackson.jpg\)](/Images/Staff/profiles/cem/KirkmanBrown,Jackson.jpg) Clinical and experimental medicine; calcium signalling; fluid dynamics.

Dr J Kreft

[\(/staff/profiles/biosciences/kreft-jan-ulrich.aspx\)](/staff/profiles/biosciences/kreft-jan-ulrich.aspx) Biosciences; anaerobic demethylation; individual-based modelling of microorganisms.

Dr N Krone

[\(/staff/profiles/cem/EDM/Krone-Nils.aspx\)](/staff/profiles/cem/EDM/Krone-Nils.aspx) Clinical science; genetic analysis; interaction of cytochrome P450 enzymes affected in CAH; development of a gonad-specific POR knock-out mouse.

Professor G Landini

[\(/staff/profiles/dentistry/landini-gabriel.aspx\)](/staff/profiles/dentistry/landini-gabriel.aspx) Dentistry; applied fractal principles to study morphological complexity; image segmentation; quantitative measurement and focusing.

Professor L Macaskie (</staff/profiles/biosciences/macaskie-lynn.aspx>)

Biosciences; MRI biofilms; bioreactors, biomedical devices, ESEM biofilms, AFM biominerals, confocal microscopy biofilms, Proton Induced X-ray Emission (PIXIE) elemental mapping.

Professor R May

[\(/staff/profiles/biosciences/may-robin.aspx\)](/staff/profiles/biosciences/may-robin.aspx) Biosciences; evolution and molecular basis of host-pathogen interactions.

Professor P Mendes

[\(/Images/Staff/profiles/eps/chem-eng/mendes-paula.jpg\)](/Images/Staff/profiles/eps/chem-eng/mendes-paula.jpg) Chemistry; nanoscience and nanotechnology; biomimetic materials for studies of cell behaviour; applications in medical imaging and catalysis.

Dr F Mueller

[\(/staff/profiles/cem/RGD/Mueller-Ferenc.aspx\)](/staff/profiles/cem/RGD/Mueller-Ferenc.aspx) Reproduction, genes and development; molecular mechanisms of transcription regulation in the vertebrate embryo; comparative and functional genomic tools to address the interaction specificity of transcription factors.

Dr E Odintsova

[\(/staff/profiles/cancer/odintsova-elena.aspx\)](/staff/profiles/cancer/odintsova-elena.aspx) Cancer sciences; tetraspanins and receptor signalling.

Professor M Overduin

[\(/staff/profiles/cancer/overduin-michael.aspx\)](/staff/profiles/cancer/overduin-michael.aspx) Cancer studies and biomolecular NMR; FYVE domains; phox homology; tetraspanin signaling; SHD1 adaptation; GTPase signaling; SH2 domains.

Dr T Overton

[\(/staff/profiles/chemical-engineering/overton-tim.aspx\)](/staff/profiles/chemical-engineering/overton-tim.aspx) Biochemical engineering; microbial physiology and gene regulation in bioprocesses.

Dr A Peacock

[\(/staff/profiles/chemistry/peacock-anna.aspx\)](/staff/profiles/chemistry/peacock-anna.aspx) Bioinorganic chemistry; medicinal chemistry; metallodrugs; de novo peptide design; chemical biology.

Professor R Palmer

[\(/staff/profiles/physics/palmer-richard.aspx\)](/staff/profiles/physics/palmer-richard.aspx) Physics; immobilisation of individual protein molecules with size-selected clusters, liquid phase atomic force microscopy, electrospray deposition of mass-selected protein beams.

Dr A Peet

[\(/staff/profiles/cancer/peet-andrew.aspx\)](/staff/profiles/cancer/peet-andrew.aspx) Academic paediatrics and child health; magnetic resonance spectroscopy; magic angle spinning NMR; childhood brain tumours.

Professor J Preece

[\(/staff/profiles/chemistry/preece-jon.aspx\)](/staff/profiles/chemistry/preece-jon.aspx) Supramolecular chemistry; nanoscale materials science for (i) electron beam resists; (ii) assembly of inorganic/ organic hybrid nanoparticles with novel electro-optic, structural and medicinal properties (gene delivery); (iii) liquid crystals; (iv) surfaces used in technological applications.

Dr J Rappoport (</staff/profiles/biosciences/rappoport-joshua.aspx>)

[\(/staff/profiles/cem/CVRS/Rainger-Ed.aspx\)](#) Biosciences; polarised trafficking in cell migration; clathrin-mediated endocytosis

Professor G E Rainger

[\(/staff/profiles/cem/CVRS/Rainger-Ed.aspx\)](#) Chronic inflammation.

Dr J Renshaw

[\(/staff/profiles/gees/renshaw-joanna.aspx\)](#) Earth and environmental sciences; microbial transformations of radionuclides and metals; biogeochemistry of metals and organic pollutants in groundwater.

Dr J Rowe

[\(http://www.cs.bham.ac.uk/~jer/\)](http://www.cs.bham.ac.uk/~jer/) Evolutionary computation; multi-agent systems; artificial life and other complex adaptive systems.

Dr R Shelton

[\(/staff/profiles/dentistry/shelton-richard.aspx\)](#) Dentistry; tissue-engineering approaches for bone and oral mucosal replacement; influence of plasma proteins on setting characteristics of mineral trioxide.

Dr P Tino

[\(/http://www.cs.bham.ac.uk/about/people/Peter%20Tino\)](http://www.cs.bham.ac.uk/about/people/Peter%20Tino) Artificial intelligence; machine learning; neural networks; evolutionary computation; bioinformatics; computational biology; intelligent methods for pattern recognition; molecular biology, computational models of dynamical systems.

Dr C Tselepis

[\(/staff/profiles/cancer/tselepis-chris.aspx\)](#) Cancer sciences; structural biology and biomarkers; cancer and chronic disease epidemiology; gastrointestinal disease and medical decision-making.

Professor J Tucker

[\(/staff/profiles/chemistry/tucker-james.aspx\)](#) Chemistry; synthesis of tagged DNA (fluorescent and redox labels); sensors for nucleobase variations (SNPs) and base modifications; switchable binding systems.

Dr D Ward

[\(/staff/profiles/cancer/ward-douglas.aspx\)](#) Cancer sciences; structural biology and biomarkers.

Dr J Wilkie

[\(/staff/profiles/chemistry/wilkie-john.aspx\)](#) Computational bio-organic chemistry with applications in biomedical visualisation and experimental interpretation.

Professor G Worth

[\(/staff/profiles/chemistry/worth-graham.aspx\)](#) Non-adiabatic effects in photochemistry; quantum dynamics using the MCTDH algorithm; controlling chemistry using laser fields.

Prof X Yao

[\(http://www.cs.bham.ac.uk/~xin/\)](http://www.cs.bham.ac.uk/~xin/) Computer science/CERCIA; evolutionary computation; neural network ensembles; complex adaptive systems.

Professor L Young

Cancer sciences; different forms of EBV latency in virus-associated tumours; EBV gene expression in post-transplant lymphomas; Hodgkin's lymphoma and nasopharyngeal carcinoma; signalling functions of EBV-encoded latent proteins.

