

Summary Table - nmRC Staff expertise - 2024

Hannah Constantin	<ul style="list-style-type: none"> • Engineering background • Materials characterisation using X-ray techniques • MSc in Bioengineering; PhD in Materials Science
Expertise	<ul style="list-style-type: none"> • XPS; XRD; Nanoindentation (Engineering) • Wide variety of specimen types for XPS analysis • Use of XPS data processing & peak fitting software, e.g. CasaXPS
Equipment / Capability	XPS <ul style="list-style-type: none"> • ThermoFisher K-alpha spectrometer • Kratos Liquid Phase Photoelectron spectrometer (LIPPS)
Responsibilities	<ul style="list-style-type: none"> • XPS lab (B16) • Radiation protection supervision
Richard Cousins	<ul style="list-style-type: none"> • Physics background • Nanofabrication and the use of lithography deposition & etching tools • PhD in fabrication & measurement of nanomechanical resonators
Expertise	<ul style="list-style-type: none"> • Electron beam lithography (EBL) & Nanofabrication • Alveole Primo maskless lithography • Stensborg nano imprint lithography • Spectroscopic imaging ellipsometry
Equipment / Capability	EBL <ul style="list-style-type: none"> • Nanobeam nB5 • Accurion ep4 spectrometer for thin film characterisation SEM & Optical microscopy <ul style="list-style-type: none"> • Jeol 7000F FEG-SEM & EDX chemical microanalysis • Optical microscope suite (A05)
Responsibilities	<ul style="list-style-type: none"> • Clean room and nanofabrication facility management (A07-A08) • nmRC H&S assistant
Michael Fay	<ul style="list-style-type: none"> • Engineering / Physics background • Characterisation of inorganic materials using electron beam techniques • PhD in Materials Science using electron microscopy
Expertise	<ul style="list-style-type: none"> • (FEG)TEM operation and data analysis • EDX chemical microanalysis • STEM-EELS and 4DSTEM • <i>In situ / in operando</i> TEM, including electron tomography • Python-based EM data analysis
Equipment user / Specialist	TEM <ul style="list-style-type: none"> • Jeol 2100F, Jeol 2100Plus & Tecnai Biotwin-12 • Associated TEM holders, Gatan spectrometers, & high-performance and direct-detection electron cameras
Responsibilities	<ul style="list-style-type: none"> • All TEMs (A01, A05, A06) • TEM user community • NAS drive
Long Jiang	<ul style="list-style-type: none"> • Polymer science background • Characterisation of material surfaces using a wide range of analytical techniques • PhD in Polymer Technology
Expertise	<ul style="list-style-type: none"> • Surface and interface analysis using AFM, ToF-SIMS, XPS, SEM and EDX, 3D-optical profilometry, pico-litre water contact angle (WCA) measurements, FTIR • Thermal analysis of polymers using DSC
Equipment / Capability	XPS <ul style="list-style-type: none"> • ThermoFisher K-alpha spectrometer • Kratos liquid phase photoelectron spectrometer (LIPPS) SEM <ul style="list-style-type: none"> • Jeol IT-200; Jeol 6490 ToF-SIMS <ul style="list-style-type: none"> • OrbiSIMS (nmRC); ToF-SIMS V (Pharmacy) AFM

	<ul style="list-style-type: none"> HORIBA (nmRC); Dimension Icon (Pharmacy); Multimode (Pharmacy); MFP-3D (Pharmacy) 3D-optical profiler (Pharmacy) Pico-litre WCA (DSA100, Pharmacy) FTIR (Pharmacy)
Responsibilities	<ul style="list-style-type: none"> Commercial services work relating to surface analysis
James Kerfoot	<ul style="list-style-type: none"> Physics background Research interests in photophysical processes, as applied to organic semiconductors, layered materials and devices PhD in spectroscopy of optoelectronic materials
Expertise	<ul style="list-style-type: none"> Raman spectroscopy Photoluminescence (PL) spectroscopy Atomic force microscopy (AFM)
Equipment / Capability	Raman <ul style="list-style-type: none"> HORIBA LabRAM HR Evo Nano (DCI-TERS) Stand-alone AFM and Raman measurements SEM <ul style="list-style-type: none"> Jeol 7000F
Responsibilities	<ul style="list-style-type: none"> Tip Enhanced Raman Spectroscopy (TERS) technique development (B16a)
Jordan Kirby	<ul style="list-style-type: none"> Background in molecular microbiology Genetics and virulence pathways of infectious human diseases
Expertise	<ul style="list-style-type: none"> Optical microscopy including brightfield, fluorescent & confocal imaging
Equipment / Capability	Optical Microscopy <ul style="list-style-type: none"> Zeiss 900 CLSM Inverted microscope Zeiss 900 CLSM Upright imaging system incl. Cryolight imaging LINKAM CMS196V³ stage
Responsibilities	<ul style="list-style-type: none"> Optical light microscopy provision in CL2 area (A03) Correlative work-flows Cell culture
Anna Kotowska	<ul style="list-style-type: none"> Background in Pharmacy & surface chemical analysis PhD in protein analysis using OrbiSIMS
Expertise	<ul style="list-style-type: none"> Secondary ion mass spectrometry (SIMS) 3D chemical mapping of a range of specimen types in their native states – including biological compounds such as lipids or peptides
Equipment / Capability	SIMS <ul style="list-style-type: none"> 3D OrbiSIMS (nmRC) TOF-SIMS (Boots Science Building)
Responsibilities	<ul style="list-style-type: none"> OrbiSIMS facility manager (A14b)
Marion Limo	<ul style="list-style-type: none"> Background in biochemistry, materials chemistry and biophysics MSc in Biotechnology; PhD in Chemistry
Expertise	<ul style="list-style-type: none"> SEM EDX chemical microanalysis Probing the relationship between material/ biomolecule structure and function and applications in biotechnology, materials chemistry, biomedical engineering and product development
Equipment / Capability	SEM <ul style="list-style-type: none"> Jeol IT-200; Jeol 6490
Responsibilities	<ul style="list-style-type: none"> Commercial services work Facility management (BSB) Public engagement & outreach
Denise McClean	<ul style="list-style-type: none"> Background in histopathology Registered Scientist by the Institute of Science and Technology & Fellow of the Royal Microscopical Society
Expertise	<ul style="list-style-type: none"> Electron microscopy & Histology

	<ul style="list-style-type: none"> Biological sample preparation including fixation, negative staining, resin embedding, ultramicrotomy and cryostat sectioning
Equipment / Capability	TEM <ul style="list-style-type: none"> Tecnai BioTwin-12 Ultramicrotomes <ul style="list-style-type: none"> Leica & RMC (Cryo) Optical Microscopy <ul style="list-style-type: none"> Nikon E400 light & fluorescence microscopes (A05)
Responsibilities	<ul style="list-style-type: none"> TEM & microscopy of cellular and biological materials (A06) Histology (Medical School) Sample preparation
Nigel Neate	<ul style="list-style-type: none"> Engineering background Inorganic materials characterisation using a wide range of analytical techniques PhD in Materials Engineering and Materials Design
Expertise	<ul style="list-style-type: none"> SEM imaging Quantitative chemical microanalysis (EDX, WDX) EBSD, TKD FIB sectioning, lift-out & patterning TEM & electron diffraction XRD Crystallography
Equipment / Capability	(FEG)SEM <ul style="list-style-type: none"> Jeol 7100F, 7000F, 6490, IT-200; FEI XL30; Quanta-650 In situ stages <ul style="list-style-type: none"> Gatan MicroTest 200VT tensile testing & Murano-525 heating stages FIB-SEM <ul style="list-style-type: none"> Zeiss Crossbeam 550 & FEI Quanta 3D dual beam TEM <ul style="list-style-type: none"> Jeol 2100Plus
Responsibilities	<ul style="list-style-type: none"> Microscopy & materials characterisation (A01, A03, A05) All-round IT & technical trouble-shooting skills
Luke Norman	<ul style="list-style-type: none"> Chemistry & Physics background Raman, XPS & EM investigations of nanostructured materials PhD in Chemistry
Expertise	<ul style="list-style-type: none"> Content creation, resource outputs & presentation skills Business engagement and networking
Equipment / Capability	TEM <ul style="list-style-type: none"> Jeol 2100F STEM & EDX chemical microanalysis SEM <ul style="list-style-type: none"> IT-200 SEM
Responsibilities	<ul style="list-style-type: none"> Commercial projects manager Knowledge exchange, public engagement & outreach AV resources in nmRC Remote access across a range of instruments
Christopher Parmenter	<ul style="list-style-type: none"> Background in electron microscopy Soft-matter systems (polymers & proteins) PhD in Chemistry
Expertise	<ul style="list-style-type: none"> (Cryo)SEM; (Cryo)TEM; (Cryo)FIB-SEM; STEM in SEM; Lamellae lift-out for TEM
Equipment / Capability	FIB-SEM <ul style="list-style-type: none"> Zeiss Crossbeam 550 & FEI Quanta 3D Dual Beam Associated peripherals <ul style="list-style-type: none"> Quorum CryoSEM transfer system; Omniprobe micromanipulator; STEM holders, Oxford Instruments EDX microanalysis (Cryo)TEM:

	<ul style="list-style-type: none"> • Jeol 2100PLUS; Tecnai BioTwin-12
Responsibilities	<ul style="list-style-type: none"> • CL2 suite facility manager (A03) • (Cryo)FIB-SEMs & FIB-SEM user community • HR-CAT-SEM correlative workflows
Graham Rance	<ul style="list-style-type: none"> • Research interests in characterisation of organic and inorganic, molecular and nanoscale materials, including colloidal nanoparticles, and zero-, one- and two-dimensional carbon nanostructures and their composites • PhD in Chemistry
Expertise	<ul style="list-style-type: none"> • Raman spectroscopy • Confocal Raman microscopy instrumentation including 1D/2D/3D mapping & variable temperature analysis
Equipment / Capability	Raman <ul style="list-style-type: none"> • HORIBA LabRAM HR Raman microscope • HORIBA XploRA inverted Raman microscope • HORIBA LabRAM HR Evo Nano (DCI-TERS)
Responsibilities	<ul style="list-style-type: none"> • Raman spectroscopy labs (B14, B15, B16a) & Raman user community
Lorelei Robertson	<ul style="list-style-type: none"> • Background in mineralogy and geological applications • MGeol in Geology
Expertise	<ul style="list-style-type: none"> • SEM imaging • Quantitative chemical microanalysis (EDX, WDX) • Mineral Liberation Analysis (MLA) for mineral phase characterisation and related systems e.g. Zeiss MINERALOGIC
Equipment / Capability	All (FEG)SEMs <ul style="list-style-type: none"> • Jeol 7100F, 7000F, 6490LV, IT-200; FEI XL30, Quanta-650 ESEM & Quanta-600 • Range of sample preparation techniques, including resin mounting, polishing and coating
Responsibilities	<ul style="list-style-type: none"> • Microscopy & materials characterisation (A01, A05) • Sample preparation facilities (B07) • Public engagement & outreach • Commercial services work
Martin Roe	<ul style="list-style-type: none"> • Background in materials characterisation using instrumental techniques • Industry geological and oil sectors (Geochem Group & Macaulay Research Institute, Aberdeen) • BSc in Geochemistry
Expertise	<ul style="list-style-type: none"> • SEM imaging & quantitative chemical microanalysis (EDX) • XPS and surface analysis techniques • Materials characterisation across a wide range of sample types
Equipment / Capability	All (FEG)SEMs <ul style="list-style-type: none"> • Jeol 7100F, 7000F, 6490LV, IT-200 • FEI XL30, Quanta-650 ESEM & Quanta-600 In situ stages <ul style="list-style-type: none"> • Gatan MicroTest 200VT tensile testing & Murano-525 heating stages • Wide range of specimen preparation techniques including resin embedding and polishing
Responsibilities	<ul style="list-style-type: none"> • Technical Services Manager • Building & space management, infrastructure & instrumentation support & servicing • All-round technical trouble-shooting skills
Sally Schofield	<ul style="list-style-type: none"> • Background in technical services support
Expertise	<ul style="list-style-type: none"> • Laboratory support and best practice • CL2 laboratory protocols • Specimen preparation for microscopy • LEAF sustainability champion • Support for laboratories and colleagues across a range of settings

Equipment / Capability	SEM <ul style="list-style-type: none"> • FEI XL30 Specimen preparation <ul style="list-style-type: none"> • Freeze-dryer • Leica critical point dryer; Agar and Quorum sputter coaters
Responsibilities	<ul style="list-style-type: none"> • General technical support for H&S and CL2 laboratory incl. autoclave waste • Laboratory maintenance & weekly checklists • Public engagement & outreach
Ben Weare	<ul style="list-style-type: none"> • Background in synthetic chemistry and electron microscopy • PhD in chemistry
Expertise	<ul style="list-style-type: none"> • (FEG)TEM & XRD • Crystallography • Structure determination via electron and X-ray diffractometry • Micro electron diffraction (MicroED) • Python based EM automation and data analysis
Equipment / Capability	TEM <ul style="list-style-type: none"> • Jeol 2100F & 2100Plus, & associated TEM holders, & high-performance and direct-detection electron cameras XRD <ul style="list-style-type: none"> • Single crystal X-ray crystallography (Chemistry) Optical Microscopy <ul style="list-style-type: none"> • Nikon E400 light & fluorescence microscopes (A05)
Responsibilities	<ul style="list-style-type: none"> • MicroED technique development (A01, A05)
Nicola Weston	<ul style="list-style-type: none"> • Background in Engineering Faculty • Materials characterisation using electron and X-ray techniques • BSc in Biological sciences
Expertise	<ul style="list-style-type: none"> • Environmental SEM (ESEM) & Cryo(SEM) of biological and cellular materials • Biological sample preparation, including fixation and negative staining (TEM) • Ultramicrotomy and cryostat sectioning • Analyst of a wide range of samples including hydrated, non-conductive samples using a range of instrumental techniques
Equipment / Capability	All (FEG)SEMs <ul style="list-style-type: none"> • Jeol 7100F, 7000F, 6490LV, IT-200 • FEI XL30, Quanta-650 ESEM & Quanta-600 • Cryo SEM: Quanta 3D & Zeiss Crossbeam 550 (Cryo)TEM & SEM <ul style="list-style-type: none"> • Tecnai BioTwin-12 • FEI Quanta 3D Dual Beam
Responsibilities	<ul style="list-style-type: none"> • Microscopy & materials characterisation techniques for delicate, hydrated & beam sensitive materials • Commercial services work