

nmRC Staff expertise – February 2025

<b>Eva Simpson</b>	<ul style="list-style-type: none"> <li>• Background in biomedical science and medical biotechnology.</li> <li>• Fertility and CLEM research.</li> <li>• PhD in Medicine</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• Biological sample handling and preparation.</li> <li>• Optical microscopy - Widefield and Confocal.</li> <li>• CLEM workflows</li> <li>• Volume EM</li> <li>• 3D reconstruction analysis of volume CLEM</li> </ul>
<b>Equipment / Capability</b>	<ul style="list-style-type: none"> <li>• Zeiss 900 CLSM Inverted microscope</li> <li>• Zeiss 900 LSM 900 Upright Microscope (Cryo)</li> <li>• FIB-SEM - Zeiss Crossbeam 550</li> <li>• Zeiss 980 LSM - AFM</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• Light Microscopy - correlative workflows</li> <li>• PI for BARAS for CAT-Suite</li> </ul>
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<b>Ian Cardillo Zallo</b>	<ul style="list-style-type: none"> <li>• Background in carbon nanomaterials and transmission electron microscopy</li> <li>• PhD in Chemistry</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• TEM operation and analysis, including cryo-TEM and low flux imaging</li> </ul>
<b>Equipment / Capability</b>	<ul style="list-style-type: none"> <li>• TEMs: JEOL 2100F, 2100+ and Tecnai Biotwin-12. Associated electron cameras and sample holders. Leica GP2 plunge freezer</li> </ul>
<b>Responsibilities</b>	
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<b>Hannah Constantin</b>	<ul style="list-style-type: none"> <li>• Engineering background</li> <li>• Materials characterisation using X-ray techniques</li> <li>• MSc in Bioengineering; PhD in Materials Science</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• XPS; XRD; Nanoindentation (Engineering)</li> <li>• Wide variety of specimen types for XPS analysis</li> <li>• Use of XPS data processing &amp; peak fitting software, e.g. CasaXPS</li> </ul>
<b>Equipment / Capability</b>	<b>XPS</b> <ul style="list-style-type: none"> <li>• ThermoFisher K-alpha spectrometer</li> <li>• Kratos Liquid Phase Photoelectron spectrometer (LIPPS)</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• XPS lab (B16)</li> <li>• Radiation protection supervision</li> </ul>
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<b>Richard Cousins</b>	<ul style="list-style-type: none"> <li>• Physics background</li> <li>• Nanofabrication and the use of lithography deposition &amp; etching tools</li> <li>• PhD in fabrication &amp; measurement of nanomechanical resonators</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• Electron beam lithography (EBL) &amp; Nanofabrication</li> <li>• Alveole Primo maskless lithography</li> <li>• Stensborg nano imprint lithography</li> <li>• Spectroscopic imaging ellipsometry</li> </ul>
<b>Equipment / Capability</b>	<b>EBL</b> <ul style="list-style-type: none"> <li>• Nanobeam nB5</li> <li>• Accurion ep4 spectrometer for thin film characterisation</li> </ul> <b>SEM &amp; Optical microscopy</b> <ul style="list-style-type: none"> <li>• Jeol 7000F FEG-SEM &amp; EDX chemical microanalysis</li> <li>• Optical microscope suite (A05)</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• Clean room and nanofabrication facility management (A07-A08)</li> <li>• nmRC H&amp;S assistant</li> </ul>
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<b>Michael Fay</b>	<ul style="list-style-type: none"> <li>• Engineering / Physics background</li> </ul>

	<ul style="list-style-type: none"> <li>• Characterisation of inorganic materials using electron beam techniques</li> <li>• PhD in Materials Science using electron microscopy</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• (FEG)TEM operation and data analysis</li> <li>• EDX chemical microanalysis</li> <li>• STEM-EELS and 4DSTEM</li> <li>• <i>In situ / in operando</i> TEM, including electron tomography</li> <li>• Python-based EM data analysis</li> </ul>
<b>Equipment user / Specialist</b>	<b>TEM</b> <ul style="list-style-type: none"> <li>• Jeol 2100F, Jeol 2100Plus &amp; Tecnai Biotwin-12</li> <li>• Associated TEM holders, Gatan spectrometers, &amp; high-performance and direct-detection electron cameras</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• All TEMs (A01, A05, A06)</li> <li>• TEM user community</li> <li>• NAS drive</li> </ul>
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<b>Long Jiang</b>	<ul style="list-style-type: none"> <li>• Polymer science background</li> <li>• Characterisation of material surfaces using a wide range of analytical techniques</li> <li>• PhD in Polymer Technology</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• Surface and interface analysis using AFM, ToF-SIMS, XPS, SEM and EDX, 3D-optical profilometry, pico-litre water contact angle (WCA) measurements, FTIR</li> <li>• Thermal analysis of polymers using DSC</li> </ul>
<b>Equipment / Capability</b>	<b>XPS</b> <ul style="list-style-type: none"> <li>• ThermoFisher K-alpha spectrometer</li> <li>• Kratos liquid phase photoelectron spectrometer (LIPPS)</li> </ul> <b>SEM</b> <ul style="list-style-type: none"> <li>• Jeol IT-200; Jeol 6490</li> </ul> <b>ToF-SIMS</b> <ul style="list-style-type: none"> <li>• OrbiSIMS (nmRC); ToF-SIMS V (Pharmacy)</li> </ul> <b>AFM</b> <ul style="list-style-type: none"> <li>• HORIBA (nmRC); Dimension Icon (Pharmacy); Multimode (Pharmacy); MFP-3D (Pharmacy)</li> </ul> <b>3D-optical profiler</b> (Pharmacy) <b>Pico-litre WCA</b> (DSA100, Pharmacy) <b>FTIR</b> (Pharmacy)
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• Commercial services work relating to surface analysis</li> </ul>
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<b>James Kerfoot</b>	<ul style="list-style-type: none"> <li>• Physics background</li> <li>• Research interests in photophysical processes, as applied to organic semiconductors, layered materials and devices</li> <li>• PhD in spectroscopy of optoelectronic materials</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• Raman spectroscopy</li> <li>• Photoluminescence (PL) spectroscopy</li> <li>• Atomic force microscopy (AFM)</li> </ul>
<b>Equipment / Capability</b>	<b>Raman</b> <ul style="list-style-type: none"> <li>• HORIBA LabRAM HR Evo Nano (DCI-TERS)</li> <li>• Stand-alone AFM and Raman measurements</li> </ul> <b>SEM</b> <ul style="list-style-type: none"> <li>• Jeol 7000F</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• Tip Enhanced Raman Spectroscopy (TERS) technique development (B16a)</li> </ul>
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<b>Anna Kotowska</b>	<ul style="list-style-type: none"> <li>• Background in Pharmacy &amp; surface chemical analysis</li> <li>• PhD in protein analysis using OrbiSIMS</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• Secondary ion mass spectrometry (SIMS)</li> <li>• 3D chemical mapping of a range of specimen types in their native states – including biological compounds such as lipids or peptides</li> </ul>
<b>Equipment / Capability</b>	<b>SIMS</b> <ul style="list-style-type: none"> <li>• 3D OrbiSIMS (nmRC)</li> </ul>

	<ul style="list-style-type: none"> <li>• TOF-SIMS (Boots Science Building)</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• OrbiSIMS facility manager (A14b)</li> </ul>
<b>Marion Limo</b>	<ul style="list-style-type: none"> <li>• Background in biochemistry, materials chemistry and biophysics</li> <li>• MSc in Biotechnology; PhD in Chemistry</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• SEM</li> <li>• EDX chemical microanalysis</li> <li>• Probing the relationship between material/ biomolecule structure and function and applications in biotechnology, materials chemistry, biomedical engineering and product development</li> </ul>
<b>Equipment / Capability</b>	<b>SEM</b> <ul style="list-style-type: none"> <li>• Jeol IT-200; Jeol 6490</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• Commercial services work</li> <li>• Facility management (BSB)</li> <li>• Public engagement &amp; outreach</li> </ul>
<b>Nigel Neate</b>	<ul style="list-style-type: none"> <li>• Engineering background</li> <li>• Inorganic materials characterisation using a wide range of analytical techniques</li> <li>• PhD in Materials Engineering and Materials Design</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• SEM imaging</li> <li>• Quantitative chemical microanalysis (EDX, WDX)</li> <li>• EBSD, TKD</li> <li>• FIB sectioning, lift-out &amp; patterning</li> <li>• TEM &amp; electron diffraction</li> <li>• XRD</li> <li>• Crystallography</li> </ul>
<b>Equipment / Capability</b>	<b>(FEG)SEM</b> <ul style="list-style-type: none"> <li>• Jeol 7100F, 7000F, 6490, IT-200; FEI XL30; Quanta-650</li> </ul> <b>In situ stages</b> <ul style="list-style-type: none"> <li>• Gatan MicroTest 200VT tensile testing &amp; Murano-525 heating stages</li> </ul> <b>FIB-SEM</b> <ul style="list-style-type: none"> <li>• Zeiss Crossbeam 550 &amp; FEI Quanta 3D dual beam</li> </ul> <b>TEM</b> <ul style="list-style-type: none"> <li>• Jeol 2100Plus</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• Microscopy &amp; materials characterisation (A01, A03, A05)</li> <li>• All-round IT &amp; technical trouble-shooting skills</li> </ul>
<b>Luke Norman</b>	<ul style="list-style-type: none"> <li>• Chemistry &amp; Physics background</li> <li>• Raman, XPS &amp; EM investigations of nanostructured materials</li> <li>• PhD in Chemistry</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• Content creation, resource outputs &amp; presentation skills</li> <li>• Business engagement and networking</li> </ul>
<b>Equipment / Capability</b>	<b>TEM</b> <ul style="list-style-type: none"> <li>• Jeol 2100F</li> <li>• STEM &amp; EDX chemical microanalysis</li> </ul> <b>SEM</b> <ul style="list-style-type: none"> <li>• IT-200 SEM</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>• Commercial projects manager</li> <li>• Knowledge exchange, public engagement &amp; outreach</li> <li>• AV resources in nmRC</li> <li>• Remote access across a range of instruments</li> </ul>
<b>Christopher Parmenter</b>	<ul style="list-style-type: none"> <li>• Background in electron microscopy</li> <li>• Soft-matter systems (polymers &amp; proteins)</li> <li>• PhD in Chemistry</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• (Cryo)SEM; (Cryo)TEM; (Cryo)FIB-SEM; STEM in SEM; Lamellae lift-out for TEM</li> </ul>

<b>Equipment / Capability</b>	<b>FIB-SEM</b> <ul style="list-style-type: none"> <li>Zeiss Crossbeam 550 &amp; FEI Quanta 3D Dual Beam</li> </ul> <b>Associated peripherals</b> <ul style="list-style-type: none"> <li>Quorum CryoSEM transfer system; Omniprobe micromanipulator; STEM holders, Oxford Instruments EDX microanalysis</li> </ul> <b>(Cryo)TEM:</b> <ul style="list-style-type: none"> <li>Jeol 2100PLUS; Tecnai BioTwin-12</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>CL2 suite facility manager (A03)</li> <li>(Cryo)FIB-SEMs &amp; FIB-SEM user community</li> <li>HR-CAT-SEM correlative workflows</li> </ul>
<b>Graham Rance</b>	<ul style="list-style-type: none"> <li>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</li> <li>PhD in Chemistry</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>Raman spectroscopy</li> <li>Confocal Raman microscopy instrumentation including 1D/2D/3D mapping &amp; variable temperature analysis</li> </ul>
<b>Equipment / Capability</b>	<b>Raman</b> <ul style="list-style-type: none"> <li>HORIBA LabRAM HR Raman microscope</li> <li>HORIBA XploRA inverted Raman microscope</li> <li>HORIBA LabRAM HR Evo Nano (DCI-TERS)</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>Raman spectroscopy labs (B14, B15, B16a) &amp; Raman user community</li> </ul>
<b>Lorelei Robertson</b>	<ul style="list-style-type: none"> <li>Background in mineralogy and geological applications</li> <li>MGeol in Geology</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>SEM imaging</li> <li>Quantitative chemical microanalysis (EDX, WDX)</li> <li>Mineral Liberation Analysis (MLA) for mineral phase characterisation and related systems e.g. Zeiss MINERALOGIC</li> </ul>
<b>Equipment / Capability</b>	<b>All (FEG)SEMs</b> <ul style="list-style-type: none"> <li>Jeol 7100F, 7000F, 6490LV, IT-200; FEI XL30, Quanta-650 ESEM &amp; Quanta-600</li> <li>Range of sample preparation techniques, including resin mounting, polishing and coating</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>Microscopy &amp; materials characterisation (A01, A05)</li> <li>Sample preparation facilities (B07)</li> <li>Public engagement &amp; outreach</li> <li>Commercial services work</li> </ul>
<b>Martin Roe</b>	<ul style="list-style-type: none"> <li>Background in materials characterisation using instrumental techniques</li> <li>Industry geological and oil sectors (Geochem Group &amp; Macaulay Research Institute, Aberdeen)</li> <li>BSc in Geochemistry</li> </ul>
<b>Expertise</b>	<ul style="list-style-type: none"> <li>SEM imaging &amp; quantitative chemical microanalysis (EDX)</li> <li>XPS and surface analysis techniques</li> <li>Materials characterisation across a wide range of sample types</li> </ul>
<b>Equipment / Capability</b>	<b>All (FEG)SEMs</b> <ul style="list-style-type: none"> <li>Jeol 7100F, 7000F, 6490LV, IT-200</li> <li>FEI XL30, Quanta-650 ESEM &amp; Quanta-600</li> </ul> <b>In situ stages</b> <ul style="list-style-type: none"> <li>Gatan MicroTest 200VT tensile testing &amp; Murano-525 heating stages</li> <li>Wide range of specimen preparation techniques including resin embedding and polishing</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>Technical Services Manager</li> <li>Building &amp; space management, infrastructure &amp; instrumentation support &amp; servicing</li> <li>All-round technical trouble-shooting skills</li> </ul>

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