



AMMRF @ The University of Western Australia

The Centre for Microscopy, Characterisation and Analysis (CMCA)

The Centre for Microscopy, Characterisation and Analysis is an internationally recognised core facility for electron, ion and light imaging and microanalysis that supports the research activities of the University of Western Australia and provides a focal point for microscopy in Western Australia.

About the Node

The Centre's mission is to facilitate the conduct of world-class, high-impact research through the provision of internationally benchmarked research expertise and facilities in microscopy, microanalysis and imaging.

Through its 12 academic staff, the Centre conducts its own research programs as well as pro-actively engaging in interdisciplinary research collaborations, which span the natural, agricultural, physical, life and biomedical sciences, and engineering.

The Centre provides an extensive range of microscopy and microanalysis instrumentation, and offers a wide variety of sample preparation techniques. Its main laboratory, located on the Crawley campus, is home to an array of electron, light and laser microscopes, and the AMMRF flagship Cameca NanoSIMS and IMS 1280 ion probes. It is the only laboratory in the world to house both of these advanced ion probes. The biomedical facility at the nearby QEII Medical Centre provides light and laser microscopes, automated digital histology, flow cytometry, cell sorting and bead protein analysis. The Centre also manages instruments at several other sites.

The Centre's 26 instruments are supported by expert technical and academic staff who provide assistance in all aspects of project planning and implementation, and training. Short courses are taught three times a year, providing basic theory and initial practical training. Advanced workshops are held regularly.

The CMCA is the focus of regional microscopy activities as the principal node of the Nanoscale Characterisation Centre Western Australia, a WA State Government Centre of Excellence, in collaboration with the Curtin University of Technology, Murdoch University and Edith Cowan University.

The Centre's facilities and staff underpin a significant number of research programs. This is evidenced by 17,500 hours of usage per year in support of such diverse fields as biomedicine, nanotechnology and nanotoxicology, earth science and mineralogy, marine biology, plant and animal science, engineering, chemistry and physics. The Centre attracts more than 300 users annually, including more than 100 postgraduate research students, who are drawn from across the state.



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Achieving International Excellence



Contact and information

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Node Director:
Prof. David Sampson

Node Director



Prof. David Sampson

David has been Director of the CMCA since 2008. He also heads the Nanoscale Characterisation Centre, which brings together West-

ern Australia's four publicly funded universities. His personal research interests are in optical microscopy and photonics applied to medicine and biology, which he pursues as head of the Optical + Biomedical Engineering Laboratory in the School of Electrical, Electronic and Computer Engineering and as Director of the Western Australian Centre of Excellence in eMedicine. He leads the University of Western Australia's Bioimaging Initiative to coordinate and promote activities across the University in bioimaging, bioengineering and related fields to increase the scale and impact of research at the interfaces of medicine, engineering and biology. David coordinates the AMMRF's International Technical and User Advisory Group.

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Deputy Director



Assoc/Prof. Martin Saunders

Martin originally trained as a physicist but his interests now lie in the development and application of TEM techniques in the physical

and biological sciences. Since joining the CMCA in 2001, he has established strong collaborations with local, national and international groups involving the application of TEM to nanomaterials (including nanoparticles, carbon nanotubes, fullerenes, etc.) and numerous other areas such as biomineralisation, alloy materials, and semiconductors.

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Node Manager



Mrs Jeanette Hatch

Jeanette joined the CMCA in 2001, having had a science background and seven years' employment as an electron microscopy technician. This

has given her a microscopist's appreciation for the operation of a microscopy centre, which she applies to her current role as Node Manager. Her administration skills were honed working as a volunteer in Africa as an assistant to a hospital administrator for several years.

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Laboratory Manager



Mr Steve Parry

Steve has been employed at the CMCA since 1992, when he arrived in Australia from the United Kingdom. Having worked with electron micro-

scopes for over 30 years, he has extensive experience with both scanning and transmission electron microscopy.

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Flagship Manager



Assist/Prof. Matt Kilburn

Matt joined the Centre staff in 2006 to manage the flagship NanoSIMS ion-probe facility. Having previously run the NanoSIMS laboratory

at the University of Oxford, Matt has quickly developed a significant research program in collaboration with researchers in Australia and overseas. These include projects on soil biology, microfossils and early life, semiconductor materials, steels, and environmental geochemistry.

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Acting Flagship Manager



Dr John Cliff

John joined the NanoSIMS team in 2008 from Pacific Northwest National Laboratory in the USA, following a one-year appointment to the

Safeguards Analytical Laboratory at the International Atomic Energy Agency. With the arrival of the IMS 1280, he became the inaugural Flagship Manager, overseeing the installation and commissioning phases of this exciting new instrument, and is looking to develop applications of the IMS 1280 and the NanoSIMS. His research interests include bioremediation, geomicrobiology, and methods development in the areas of nuclear and microbial forensics.

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