

THE UNIVERSITY OF MANCHESTER

PARTICULARS OF APPOINTMENT

FACULTY OF SCIENCE & ENGINEERING

FACULTY OF SCIENCE & ENGINEERING RESEARCH INSTITUTES HENRY ROYCE INSTITUTE SENIOR EXPERIMENTAL OFFICER

VACANCY REF: S&E-016428

£41,526 to £51,034 per annum (depending on experience)
Full time
starting as soon as possible open ended fixed term contract
Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:

Name: Dr. Jennifer Sanders, NXCT Project Manager

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Background:

The National X-ray Computed Tomography (NXCT) is the <u>National Research Facility for lab-based</u> <u>X-ray computed tomography</u>. We bring together world-leading capability in lab-based XCT from the universities of Manchester, Southampton, Warwick, University College London and Diamond Light Source. The NXCT Hub in Manchester is hosted by the <u>Henry Royce Institute</u> for advanced materials. In 2021, Royce will open a dedicated space on the second floor of its new hub building to host a Data Visualisation and Analysis Support Centre to support new users.

As the UK's national research facility, we provide an unparalleled combination of 3D imaging facilities and data analysis, research knowledge and technical experience to support users that have never worked with X-ray scanning before and to help advanced users conduct exciting new experiments. Together, our five partners provide a unique and diverse shared capability to the UK. The NXCT will provide: access to state-of-the-art X-ray instruments; technical support for new and existing users; the expertise to design complex experiments; and the infrastructure and resources to analyse 3D and 4D data.



Overall Purpose of the Role

The NXCT facility at The University of Manchester currently comprises 10 X-ray instruments which enable 3D computed tomography (CT) imaging of objects over a wide range of time and length scales. We also have a state-of-the-art visualisation suite, allowing us to fully analyse the X-ray CT datasets and provide visualisation and quantification results. The primary purpose of this position will be to support users in collecting X-ray CT data, either working together or on their behalf.

The ability to optimise X-ray CT measurements and data collection, analyse data for *in situ* and time lapse data using a range of 3D image analysis software, as well as understanding a wide range of academic research needs related to materials sciences are required for the role. The post holder will be required to support both academic projects and our service for industry customers. They will work as part of a team including internal and external colleagues to maintain equipment and supervise the facility environment. For this role there is a specific focus on having oversight for health and safety for the facility, ensuring safety documentation is complete and safety training is provided to all users as required. Further the post holder will have line-management responsibility for two technical staff which will include planning their work, monitoring their performance and supporting their professional development.

Key Responsibilities, Accountabilities or Duties:

The NXCT is an evolving, dynamic organisation and the appointee will therefore be expected to demonstrate flexibility and adaptability to meet its developing needs. The indicative range of duties is expected to include, but is not limited to, the following:

Experimental and technical

- Be primarily responsible for the operation and maintenance of all NXCT equipment at The University of Manchester, and have overall responsibility for the additional techniques outlined above.
- Be the technical lead in the development of novel methods and techniques for the equipment, working closely with academic and research staff.
- Become an expert user of the facility and deliver contracted work to, and in collaboration with, users.
- Provide instruction and guidance, information, training, supervision and support to staff, student and external users in the use of the equipment, advising and assisting users on the implementation of experimental designs.
- Apply advanced investigative and diagnostic techniques to fault-find on the equipment and undertake complex, technical maintenance, repairs and upgrades as required.
- Organise and negotiate with suppliers regarding essential services e.g. equipment service contracts.



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- Participate in the broader science community associated with the equipment by presenting the results of experiments in academic publications and at (inter)national conferences and workshops.
- Actively pursue the development of collaborative research projects with both internal and external researchers and industry contacts.
- Contribute to discussions and share information on the capabilities of the facility and be involved with the development and implementation of technical specifications.
- Take responsibility for relevant aspects of health and safety in the facility, including specific legislative requirements such as COSHH etc., ensuring suitable policies and procedures are in place, adhered to and maintained.

Facility management

- Manage prioritisation and scheduling mechanisms to ensure the equipment is effectively utilised to support delivery of high quality science in line with the goals of the NXCT.
- Maintain accurate records and appropriately inform the Facility Manager and Project Manager in relation to scheduling and usage.
- Lead and manage customer projects using the equipment, providing progress and completion reports as required.
- Monitor and manage usage data to review and report on facility KPIs, and the financial and scientific impact of the equipment and facility.
- Assist the Facility Manager in conducting full cost recovery analysis for the equipment and ensuring sustainable business models are in place for its long-term operation.
- Support the development and growth of external revenue streams generated by using the facilities for commercial applications.
- Present and promote the wider experimental capabilities of the NXCT and the Henry Royce Institute to both internal and external audiences.
- Liaise with the Facility Manager to develop projects for external users including other academic researchers and industry partners or customers.

Line management

- Line manage two members of technical staff, adhering to relevant HR policies and procedures.
- Be responsible for planning their work, supporting their professional development, conducting inductions, annual Performance Development Reviews (PDRs) reviews and, if necessary, performance management.

Other

- Maintain confidentiality of information in line with data protection requirements and University and NXCT policies.
- Undertake the above duties in accordance with the requirements of the University's and NXCT's equality & diversity policies, and health & safety policies, and their financial regulations.
- Contribute to the University's agenda for social responsibility, including sustainability.
- Assist the Director, Facility Manager and other members of senior management in other aspects of the project as required, undertaking any other duties commensurate with the grade.
- Actively promote the facility's capabilities and services at meetings, visits, workshops, conferences, seminars and other events.



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PERSON SPECIFICATION

Essential knowledge, skills and experience:

- Undergraduate degree, or equivalent qualification, in physics, materials science or a relevant science or engineering discipline.
- Track record of working within a science and engineering research environment
- Significant knowledge and practical research experience in the field of X-ray computed tomography.
- Experience of working with X-ray CT equipment.
- Experience in analysing XCT experimental data, especially time lapse datasets using Avizo or other 3D imaging software and analysis tools.
- Proven analytical and IT skills with experience of computer programming in one or more programming languages (e.g. C++, MatLab, Python etc.).
- Understanding of relevant Health & Safety legislation and experience of developing and implementing policies in this area.
- Experience of writing technical reports, operation manuals and/or research publications.
- Ability to explain and present complex information to non-experts.
- Effective communication and interpersonal skills (both orally and written) with the ability to communicate with a wide range of people.
- Skilled at building and maintaining relationships with external stakeholders including industrial partners in the context of a scientific consultancy.
- Previous experience of working with multiple demands in a team environment and the ability to work both independently and collaboratively as part of a multi-disciplinary team.
- The ability to work well under pressure and to use initiative as and when required to solve complex problems.
- A flexible approach to work with a willingness to undergo further training as necessary.

Desirable knowledge, skills, experience and qualifications:

- Postgraduate degree in the area of X-ray imaging and/or significant experience of working in a relevant research and development field.
- NEBOSH National General Certificate in Occupational Health and Safety or equivalent.

Experience in the following areas:

- Applying and/or conducting synchrotron experiments.
- Designing and/or building new experimental equipment.
- Equipment procurement and the associated tendering processes.
- Working for a technical facility and of promoting services to a range of users.