THE UNIVERSITY OF MANCHESTER

PARTICULARS OF APPOINTMENT

FACULTY OF SCIENCE & ENGINEERING

HARWELL RESEARCH FACILITY

THE UNIVERSITY OF MANCHESTER, HARWELL CAMPUS

RESEARCH FELLOW IN EXTREMES – THE MECHANICS OF CONDENSED MATTER UNDER EXTREME COMPRESSION

VACANCY REF: SAE-019888

Salary:	Grade 6/7, £34,308 to £53,353 per annum, depending on relevant experience plus £3000 market supplement
Hours:	Full time
Duration:	Fixed term for 5 years
Location:	Harwell Science & Innovation Campus, Didcot, Oxfordshire

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Enquiries about the vacancy, shortlisting and interviews:
Name: Professor Neil Bourne, Director, The University of Manchester at Harwell
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Or
Name: Professor Kevin Taylor, Professor of Geoscience, Department of Earth and Environmental Sciences, The University of Manchester
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Background

The University of Manchester at Harwell has created a critical mass of University staff and students based at Harwell to work with Harwell National facilities. We are offering a prestigious position in extreme sciences including developing state-of-the art cells and environments and pushing the forefronts in research and accessing mechanical states within the science of microstructures under extreme states. The position is for a five-year period and is a joint venture between the University of Manchester, European Office of Aerospace Research and Development, Office of Naval Research and the Harwell National facilities.

The position will be appointed jointly by the Department Mechanical, Aeronautical and Civil Engineering (MACE) and The University of Manchester at Harwell (UoMaH) together with EOARD, ONR and the facilities. They will be based and operationally managed by the Director

UoMaH at the Harwell campus, and be affiliated to the Department of Mechanical, Aeronautical and Civil Engineering (MACE).

Department of Mechanical, Aeronautical and Civil Engineering (MACE)
The School of Mechanical, Aerospace & Civil Engineering is a diverse school engaged in high quality teaching, and impactful, world-leading engineering and interdisciplinary research, both of which embed social responsibility activities for the benefit of students, staff and society. Our School has over 100 members of academic staff that are supported by dedicated administration and technical support groups. It has over 1000 undergraduates, more then 800 taught full-time and part-time postgraduate students and over 250 postgraduate research students. MACE graduates obtain a thorough understanding of engineering principles coupled with excellent practical and personal transferable skills. All graduates are held in high regard by industry finding rewarding work in all science and engineering sectors. The research in the school is regarded as excellent with impact case submissions ranked third in grade point average (GPA) for the 2014 Research Excellence Framework (REF) for both Mechanical and Manufacturing Engineering and Civil & Construction Engineering. This is an excellent achievement that highlights the practical nature of research, success with industry and the ability to influence government policy. In the fields of Mechanical and Manufacturing Engineering with Chemical Engineering, MACE came 2nd out of 22 institutions (GPA) and in Civil & Construction Engineering was 5th out of 14 (GPA) overall.

Job Description

Overall Purpose of the Role:
The University of Manchester at Harwell (UoMaH) is a unique portal to the national laboratories at Harwell, UK. These include the Diamond Light Source (DLS) and STFC facilities including the ISIS neutron source, the Central Laser Facility (CLF) and the Scientific Computing Department (SCD). This post will sit within a dynamic group of PDRAs and Research Fellows, focused on research at Harwell, who lead and develop new research areas with their departments and assist researchers in their fields working in Manchester. These Fellows further support postdoctoral and PhD researchers, interface with departments in Manchester and develop our core capabilities at Harwell. We further collaborate with the Rosalind Franklin Institute, components of the Alan Turing Institute, the Faraday Institution, and the Ada Lovelace Centre. This harnesses our complementary skills to exploit joint expertise, leverage funding and deliver internationally leading research outputs and impact to bolster national facility science.

During your PDRA post, you will be expected to develop a high-quality research programme to understand mechanical and flow behaviour of materials placed under the extreme conditions found in earth and planetary sciences. You will use the Harwell neutron and light sources to study and understand defects and the initiation of failure under extreme loading at all scales. The expectation is that holders of these prestigious PDRAs will have identified substantial and significant research challenges, and that these will lead to the winning of significant research funding and world leading publications as well as, preferably, impact to industry/business/society.

Key Responsibilities, Accountabilities or Duties:

Research

- Design, plan and deliver high quality research;

- Develop a suite of rigs and cells within a range of environments that span the extreme pressure states encountered in nature and in materials' response in extreme mechanical states, for instance the areas of geophysics, planetary environments or (energetic) material response;
- Develop a high-quality research programme in an area which complements current research activities on light sources at Harwell and other international facilities and in the department in Manchester;
- Develop strong interactions with the national facilities in developing techniques and understanding states within materials under extreme conditions;
- Publish in quality academic journals and present at conferences and seminars;
- Identify and secure significant external research funding;
- Assist with training graduate students in this area of work;
- Develop the impact of your research through suitable collaborations and partnerships.

Teaching

- Assist with supervision of MSc Projects within MACE;
- Assist with teaching personnel in courses with the national facilities at Harwell.

Person Specification

Essential Skills

- The appointed person will be highly self-motivated with demonstrable expertise in their field and clear potential for development at the international level.
- A first degree and PhD (or equivalent) in a science discipline, including, but not limited to, physics, materials, or engineering;
- A demonstrable research track record in extreme properties of materials or structures including:
- A successful record of relevant high-quality publications;
- Experience of presenting at national and international conferences;
- Recognition within the relevant research community;
- A commitment to developing and maintaining a programme of research and disseminating the results;
- Evidence of ability to manage research projects;
- Experience of using neutron or X ray sources to study materials, components or structures and analyse the data generated.
- Excellent interpersonal and communication skills;
- An ability to work collaboratively as part of a team;
- Ability to pass national security checks;

- Experience of working in, or with, industry or government research establishments;
- Relevant postdoctoral research or industrial experience;

Desirable Skills

- Record of obtaining research funding;
- Demonstrable experience supervising research students or research staff;
- Evidence of an emerging international reputation;
- Enthusiasm for teaching and evidence of teaching ability.