Job Description – Post-Doctoral Research Assistant (Organic Geochemistry), Astrobiology Research Group

1 FTE
3 year fixed-term
AC2
Walton Hall, Milton Keynes-based, with some travel

The Role

The post-holder will be welcomed into an interdisciplinary research group investigating the feasibility of life beyond the Earth. In their role they will explore the organic geochemistry of a range of potentially habitable Solar System environments including icy moons and Mars, and establish analytical capabilities to detect biosignatures that can demonstrate, or negate, the presence of extraterrestrial life. The application of these techniques to planetary protection problems will be explored. The post-holder should have experience of analysis and extraction techniques appropriate to resolving organic geochemical problems.

Key responsibilities

- To develop capabilities to characterise the organic constitution of extraterrestrial environments in which life may be present;
- To input into the design of, and analyse the results obtained from, laboratory simulation experiments;
- To develop capabilities to thermochemically model the role of organic molecules in extraterrestrial environments;
- To undertake analyses and characterisation of the organic geochemistry of abiotic and biotic environments, including analysis of volatile organic compounds;
- To contribute to the planning of, and successful deployment of, sample collection at terrestrial analogue sites;
- To write papers on the results and publish them in peer review journals;
- To present results at national and international conferences and workshops;
- To be an active member of the OU Astrobiology Research Group, attending regular research group meetings and share knowledge with junior members of the team;
- To contribute expertise and scientific ideas to research projects, methodologies and teaching areas, as appropriate;
- To carry out administrative tasks associated with this work, such as risk assessments, ordering and record keeping;
- To have a strong commitment to the principles and practice of equality and diversity;
- To undertake other duties, as directed by the line manager.
Person Specification

Skills and experience

Essential:

- PhD (completed or shortly obtained) in organic geochemistry, environmental or petroleum geochemistry or a related discipline;
- Experience of sample collection, preparation and extraction techniques;
- Experience of GC, GC-MS, LC-MS and/or other separation and characterisation techniques;
- A demonstrable track record of communicating research results through peer reviewed publications and conference presentations (as fitting career stage);
- Experience of working across discipline boundaries or in interdisciplinary teams;
- Experience of analysing problems and working creatively to develop innovative and workable solutions;
- Good oral and written communication skills in a variety of contexts, including the ability to offer and receive constructive criticism;
- Ability to plan and prioritise own workload and work to agreed deadlines;
- Demonstration of taking responsibility and accountability for tasks while making effective use of available resources, information and feedback to improve efficiency, productivity and overall performance;
- Demonstration of a personal commitment to developing interpersonal skills, with an understanding of impact on individuals, respecting and valuing diversity.

Desirable:

- Experience in planetary science, cosmochemistry or geobiology;
- Ability to organise complex data sets;
- Experience of working in low biomass or clean room facilities;
- Experience of FTIR or other spectroscopy techniques;
- Fieldwork and in-situ sample collection experience;
- Experience of geochemical modelling.

About the Astrobiology Research Group

Research England has recently awarded the Open University Astrobiology Research Group an Expanding Excellence in England grant worth £6.7 million. This will allow the Group to expand to bring together expertise in technology, international development and governance to address the scientific and governance challenges associated with the advancement of astrobiology and related space exploration missions. This will result in a multi-disciplinary research environment with members spanning three Faculties: the Faculty of Science, Technology, Engineering and Mathematics, the Faculty of Business and Law, and the Faculty of Arts and Social Sciences.

The primary aims of this multi-disciplinary group will be as follows:
1) furthering the understanding of the limits of life and potentially habitable environments in the Solar System;
2) identifying chemical and geochemical signatures that could be used as evidence of life;
3) investigating the survivability of microorganisms and their biosignatures;
4) educating and engage with the space sector, policymakers and the public in the UK and ODA countries;
5) examining critically the governance and ethical implications of astrobiology-related space missions to develop and enhance governance frameworks.

The OU Astrobiology Research Group is committed to building an inclusive research environment. The Group supports flexible working arrangements, within the limits of the post, and particularly welcomes applications from groups traditionally under-represented in STEM.
About the Unit

Faculty of Science, Technology, Engineering & Mathematics

The Faculty of Science, Technology, Engineering and Mathematics (STEM) is comprised:

- School of Computing & Communications
- School of Environment, Earth & Ecosystem Sciences
- School of Engineering & Innovation
- School of Life, Health & Chemical Sciences
- School of Mathematics & Statistics
- School of Physical Sciences
- Knowledge Media Institute
- Deanery including teams supporting Curriculum, Research and Enterprise, Laboratory Infrastructure and Faculty Administration

“We aspire to be world leaders in inclusive, innovative and high impact STEM teaching and research, equipping learners, employers and society with the capabilities to meet tomorrow’s challenges”

The Faculty of STEM consists of 2500 staff including 1,800 Associate Lecturers. The Faculty delivers over 185 modules across undergraduate and postgraduate curriculum, supporting nearly 19,000 students (full time equivalents) which is 29% of the OU total.

The Faculty generates more research income (circa £17M) than any other Faculty in the University, supported by a comprehensive laboratory infrastructure.

We are proud of our distinctive values and capabilities underpinning our aspiration:

*We are inclusive:*
- We transform people’s lives, ensuring STEM education is openly accessible to many thousands of students from diverse backgrounds – our students express high satisfaction with their study experience.
- We engage the public in exciting citizen science and engineering, including through free open educational resources, multi-platform broadcasting, outreach to inspire the next generation and with programmes to encourage more women into STEM.

*We are highly innovative:*
- We are at the forefront of innovative developments in teaching practical science and engineering at a distance, through simulated and remote access laboratories and practical experimentation.
- Our high quality teaching and curriculum are informed by world-leading research, strong links with professional bodies and communities of practitioners, as well as by scholarship focused on continuously improving our STEM pedagogy.

*We deliver significant social and economic impact:*
- We provide STEM higher education at a scale and reach unsurpassed in the UK, with a sizeable international reach and further growth potential.
- We inject transferable STEM skills and knowledge direct into the workplace for immediate employee and employer benefit, as students combine study while working.
• The employability value of our courses is underpinned by accreditation from leading STEM Professional Bodies and Learned Societies, as well as partnerships and sponsorship with leading employers.
• Our high quality, applied and academically relevant teaching and research addresses real-world issues, delivering impact for industry and society, including addressing pressing STEM skill-shortages across the UK.