Job Related Information

This document includes information about the role for which you are applying and the information you will need to provide with your application.

1. Role Details

<table>
<thead>
<tr>
<th>Vacancy reference</th>
<th>14513</th>
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</thead>
<tbody>
<tr>
<td>Job title:</td>
<td>Post-Doctoral Research Associate (PlanMap)</td>
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<tr>
<td>Reports to:</td>
<td>Professor of Planetary Geosciences</td>
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<tr>
<td>Salary:</td>
<td>£29,799 - £38,833 depending on qualifications and experience</td>
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<tr>
<td>Terms and conditions:</td>
<td>Research Staff</td>
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<tr>
<td>Grade</td>
<td>AC1/2</td>
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<tr>
<td>Duration of post:</td>
<td>Temporary contract for 25 months commencing 1 October 2018</td>
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<tr>
<td>Working hours:</td>
<td>Full-time</td>
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<tr>
<td>Location:</td>
<td>Milton Keynes, Buckinghamshire</td>
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<tr>
<td>Closing date:</td>
<td>12 noon on Friday 27 April 2018</td>
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<tr>
<td>Type of application form accepted:</td>
<td>Short</td>
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<tr>
<td>Number of referees required:</td>
<td>Three</td>
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<tr>
<td>Unit recruitment contact:</td>
<td>Fiona McGavin</td>
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2. Summary of duties

The post-holder will be a key member (the only member working 100% time on the project) of the Open University-led work package (WP) ‘Geomorphological (geological) mapping: tools, standards and maps’, which is part of a Horizon 2020 project ‘PLANMAP’ having other team members in Italy, Germany and France. The other OU personnel are WP leader professor David Rothery (10%, line manager), and Dr Matt Balme (5%)

PLANMAP as a whole is intended establish European excellence in planetary mapping. It will generate pipelines and enhanced products with the aims of 1) supporting observational strategies of planetary surfaces by orbitting spacecraft; 2) producing high resolution products to characterize potential landing sites; 3) using 3D geological reconstructions and virtual environments or astronaut training. The OU WP will be focussed on aim #1, though the post-holder will be encouraged to contribute also to the other aims (especially #2).

More specifically, the OU work package is to develop an approach to present geological maps making best use of modern technology, and to publish several examples that will also be scientifically useful. This requires procedures for integrating in a GIS environment numerous layers with diverse information. We will define the standards of mapping and layer assemblage to guarantee a systematic approach to mapping for all PLANMAP maps.

In this work package we will take examples of new and ‘in progress’ planetary geological maps, especially Mercury 1:3M quadrangle maps [e.g., Hokusai H05], the Beethoven, Argyre and SPA basin maps from WP3, and larger scale maps of Mars special interest areas, including potential ExoMars landing sites in Arabia Terra (at variety of scales), for which there are more data/interpretation options or products than can be displayed on a single map sheet. A desirable outcome would be that 2 or maybe 3 versions of a map would convey all the information needed by most types of user, plus a full GIS digital version from which any other version could be generated on demand.

Other WPs are 1 Coordination/Management (U Padova), 3 Stratigraphy & chronostratigraphy (U Munster), 4 Compositional unit definition (INAF, Rome), 5 Ground truth and virtual environment (LPG/CNRS Nantes), 6 Subsurface geological modelling (U Padova), 7 WebGIS, data fusion, and data sharing (Jacobs U, Bremen). We will work particularly closely with WPs 3 and 4.

Main Duties
The main roles of the post-holder are as follows:

- To prepare a digital versions of the Hokusai quadrangle geological/geomorphological map according to agreed standards in various formats to establish the most effective way of presenting data.
- To perform similar tasks using maps for areas of interest of other partners such as Beethoven basins (Mercury), Gale crater, Nili Fossae, western Arabia Terra and Argyre (Mars), and the South Pole-Aitken basin (Moon)
- To provide assistance to the U Munster team in incorporating stratigraphic and chronostratigraphic data into such maps.
- To provide assistance to the INAF team in incorporating spectral and compositional data into such maps.
- To write papers on the research in a timely manner with the aim of publishing them in high-impact peer-reviewed journals, and to present findings at international conferences and workshops.
- To undertake any other duties, where required, as directed by the PI on the project.

Other Duties
All staff are expected to:

- Comply with the University’s Health and Safety and Equal Opportunities policies in the performance of their duties.
- Take reasonable care of the Health and Safety of themselves and that of any other person who may be affected by their acts or omissions at work.
• Co-operate with the Open University in ensuring as far as is necessary, that Statutory Requirements, Codes of Practice, University Policies and Procedures are complied with.
• Have a strong commitment to the principles and practice of equality and diversity.
• Attend appropriate staff development events.

Challenges and opportunities
This project offers:
• A chance to be involved in cutting edge expansion of European capabilities in planetary mapping.
• An opportunity to refine own skills in GIS and virtual environments.
• An opportunity to expand own planetary expertise engaging in work on three different planetary bodies.
3. Person specification

Requirements  (E = Essential/ D = Desirable)

<table>
<thead>
<tr>
<th>Education, qualifications and training</th>
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<tr>
<td>• Successful completion (or near completion) of a PhD in planetary geosciences.</td>
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<tr>
<th>Knowledge, work and other relevant experience</th>
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<tbody>
<tr>
<td><strong>Essential:</strong></td>
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<tr>
<td><strong>Desirable:</strong></td>
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<tr>
<th>Personal abilities and qualities</th>
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<tbody>
<tr>
<td><strong>Essential:</strong></td>
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<td><strong>Desirable:</strong></td>
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4. Role specific requirements e.g. Shift working

The applicant must be able to travel to project meetings in Europe, and to present results at international conferences, as required.
5. About the unit/School

The newly formed Faculty of Science, Technology, Engineering and Mathematics (STEM) comprises:

- 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 700 staff and 1,800 Associate Lecturers. The Faculty delivers over 185 modules across undergraduate and postgraduate curriculum, supporting more than 20,000 students (full time equivalents) which is 29% of the OU total.

The Faculty generates more research income (circa £17M) than any other Faculty, 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

**School of Physical Sciences**

The School of Physical Sciences is a lively and innovative community of approximately 85 academic and research staff and 70 PhD students, mostly based in Milton Keynes. Our curriculum is supported by associate lecturer staff based all over the UK and Ireland whilst each year our physics, astronomy and planetary sciences and interdisciplinary science modules are studied by thousands of students all over the world.
Our research covers a wide range of subjects, broadly aligned with the research disciplines of

- Astronomy
- Physics
- Planetary and Space Sciences
- Space Instrumentation
- Physics Education

We have an extensive suite of world class facilities and laboratories, including advanced analytical instrumentation, experimental and simulation chambers and instrument development laboratories, complemented by regular use of large-scale facilities such as synchrotrons (e.g. Diamond) and a wide array of ground based and space-based telescopes (e.g. VLT, Hubble) as well as our own robotic telescopes in Tenerife. We play a major role in many well-known space missions such as Rosetta and ExoMars. We also apply much of our spaceflight and laboratory expertise to a wide array of real world problems including medical and environmental applications.

School members also contribute to the Open University’s teaching on a large range of modules and we have been at the forefront of many innovations in distance education, including the OpenScience Lab and the OpenScience Observatories. We are members of SEPnet, the South East Physics Network. Our commitment to equality and diversity has been recognised by the award of “Juno Champion” status by the Institute of Physics and an Athena SWAN Silver Award.

We currently offer undergraduate qualifications in Natural Sciences (with a physics route and an astronomy and planetary science route), with a strand which carries Institute of Physics accreditation, and in Mathematics and Physics. We also offer an MSc in Space Science and Technology. We are in the process of refreshing the curriculum at Stage 3, and are drawing up plans for adding an integrated MPhys to our portfolio, including topics in physics, astronomy, planetary and space science.

**Priority Research Areas in the School of Physical Sciences**

**Astronomy**

- The Compositional Universe: exploiting the spectroscopic discovery space from major facilities and projects including ALMA, JWST, SPICA, SOFIA and IRAM/NOEMA, E-ELT, VLT, SKA, JCMT, SALT, LOFAR, ELIPS, Herschel, SDSS-IV, Euclid etc., to study galactic star formation, evaporating exoplanets, and the physics of galaxies in the distant universe. We will further develop our laboratory/observational astrochemistry research to focus on the development of molecular compositional diagnostics.

- The Time-Domain Universe: exploiting the discovery space of new and future telescopes e.g. Gaia, LIGO, PLATO 2.0, TWINKLE, VLT and LSST, in studies such as galactic and extragalactic stellar populations using leading follow-up facilities such as SALT, or (as part of a wider follow-up network) our robotic telescopes, with a focus on key processes such as stellar binarity.

**Physics**

- Biomedical physics: to understand physical phenomena involved in conditions such as cancer and cardiovascular diseases and their treatment through experimental and theoretical investigations of a range of approaches such as electron-driven processes in radiation treatment and imaging, use of nanoparticles for cancer therapy and plasma sources for biomedical purposes.

- Quantum correlated systems: theoretical and experimental study of quantum correlations in atomic, molecular and condensed matter systems, and the development of practical applications such as quantum enhanced devices and the functionalisation of materials, as well as the development of multi-purpose software to treat electronic continua.

- Engineering physics: applied plasma research aimed at developing novel functional materials, understanding electron induced processes in nanofabrication and the development of plasma-driven techniques for advanced materials applications.

**Planetary and Space Science**

- Application of advanced analytical techniques, laboratory simulation, remote observation and modelling to investigate the key processes involved in the formation and evolution of the Solar System and the planetary bodies it contains, including the search for habitable environments and the presence of life.
• Maintain and build high scientific credibility for our analytical expertise by exploiting the performance of existing instruments and updating the analytical infrastructure in order to ensure leading involvement in upcoming sample-return missions, and maintain access to the most important planetary samples. Particular strengths are in the measurement of light-stable isotopes using conventional mass spectrometry and in-situ analysis of samples.

• Development and expansion of our expertise in planetary environments using modelling, remote sensing and the use of field analogues and simulation facilities on Earth, and secure further leading science team involvements in future planetary space missions.

Space Instrumentation
• Development of imaging sensors and instruments for space applications, with expertise in a range of wavelengths from IR to X-ray and the study of the effects of radiation damage, in order to secure involvement in future space missions.
• Development of miniaturized analytical instrument systems for planetary exploration missions, particularly for the measurement of volatiles, organic materials and their light stable isotope composition, and securing leading involvement in future planetary exploration missions.
• Knowledge exchange between the UK technology industry and academia, utilising the technologies and expertise in detectors and mass spectrometer systems to provide commercial products and solutions.

Physics Education Research
• Remote and virtual experimentation
• Concept inventories
• Interactive online assessment
• Demographic differences in achievement

6. How to obtain more information about the role or application process

If you would like to discuss the particulars of this role before making an application please contact David Rothery on 01908 6521241 or email: d.a.rothery@open.ac.uk

If you have any questions regarding the application process please contact Fiona McGavin on 01908 858110 or email: STEM-Recruitment@open.ac.uk

7. The application process and where to send completed applications

| Your application should contain: | 1. A completed short application form  
| | 2. Covering letter  
| | 3. CV which includes details of academic qualifications, teaching, management, and research experience including grants received and publications.  
| Please ensure that your application reaches the University by: | 12 noon on Friday 27 April 2018  
| E-mail your application to: | STEM-Recruitment@open.ac.uk  
| Or post it to Name/Job title: | Fiona McGavin, Staffing Adviser  
| Department/Unit: | Deanery, Faculty of Science, Technology, Engineering & Mathematics  
| Address: | The Open University, Walton Hall, Milton Keynes, MK7 6AA |
## 8. Selection process and date of interview

<table>
<thead>
<tr>
<th>Information</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>The interview panel will be chaired by:</td>
<td>Prof David Rothery</td>
</tr>
</tbody>
</table>
| The other members of the interview panel will be: | Dr Matt Balme  
One other TBC (TBC) |
| The interviews will take place on: | Interviews are expected to take place in June 2018 |
| For shortlisted candidates, the selection process for this post will include | A panel interview at Walton Hall, Milton Keynes, MK7 6AA, UK. |

We will let you know as soon as possible after the closing date whether you have been shortlisted for interview. Further details on the selection process will also be sent to shortlisted candidates.

Applications received after the closing date will not be accepted.