

Project: 18/15 Modelling oxygen extraction from lunar rocks for in-situ use on the Moon

Company: The Open University

Supervisor: Andrew Morse

Location: Milton Keynes

Company Description: The Open University is an internationally recognised research leader in planetary and space sciences and the development of space instrumentation. Covering a wide range of disciplines from astrobiology to electrical engineering, geochemistry to quantum physics; and technologies from electronic imaging to remote sensing, mass spectroscopy to novel sensors; Open University researchers are often found in key roles in international space science missions such as Rosetta, ExoMars, Euclid, JUICE and Athena; with much of the activities performed in collaboration with Space Agencies, Universities and companies around the World. This research also informs our world-leading teaching in the Physical Sciences, Engineering and Earth and Environmental Sciences.

Project Description: A sample analysis suite is being developed at the Open University for use on a joint ESA/ROSCOSMOS mission to the lunar South Pole. A key aim of the mission is to determine whether water can be generated from lunar soil, which could then be used to support human existence in space. A prototype lab instrument has been developed to produce water by reducing rocks at high temperatures with hydrogen gas.

Working with instrument developers, the student will be developing a computer simulation, preferably using Matlab or Python, to model the chemical reaction and diffusion of gases in the system. Results from the model will be compared with those obtained from the lab instrument. A flexible simulation will allow predicted results to feed back into the design of the proposed space flight instrument.

Applicant Specification:

- A person suitable for this project would be studying for a degree in engineering, physics, mathematics or similar related subjects.
- Programming skills in either Matlab or Python scripting languages.
- An enthusiasm to contributing to human space flight

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date around 25 June 2018. Salary is £1,500 per calendar month.

Closing Date for Applications: 04 April 2018

Applications will be through the online form attaching a CV, before the closing date. They will be checked for eligibility and forwarded to the employer.