Candidate Information

Position:	Research Fellow in the Study of Solar System Small Bodies
School/Department:	Astrophysics Research Ctre
Reference:	21/109099
Closing Date:	Wednesday 13 October 2021
Salary:	£34,304 to £35,326 per annum
Anticipated Interview Date:	Wednesday 20 October 2021
Duration:	2 years or available until 31st March 2024 (whichever is earliest, in the first instance)

JOB PURPOSE:

To undertake research focusing on Solar System small bodies, within the Astrophysics Research Centre of the School of Mathematics and Physics.

The Postdoctoral Research Fellow will work with Dr. Meg Schwamb to develop and exploit next-generation tools for analysing and interpreting future Solar System moving object detections from the Vera C. Rubin Observatory Legacy Survey of Space and Time (LSST). Rubin Observatory science operations are planned to begin around the end of 2023, with the survey expected to discover millions of asteroids and tens of thousands of distant Solar System planetesimals. The post will focus on developing software pipelines and utilities for LSST Solar System science and applying these techniques to present-day LSST-precursor datasets. The post holder will lead the development of a pipeline to discover distant Solar System bodies beyond ~100 au that are not expected to be discoverable by the main Rubin Observatory Solar System Processing pipeline.

MAJOR DUTIES:

1. Developing software pipelines and utilities for LSST Solar System science and precursor datasets.
2. Carry out scientific research investigations in collaboration with other members of the scientific staff.
3. Support field trips to observatory sites to acquire imaging and/or spectroscopic observations.
4. Analyse the acquired observational datasets.
5. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with PI and project team (as appropriate) on outputs.
6. In consultation with the project team, promote research milestones and outputs at national and international conferences.
7. Help supervise (as necessary) and support postgraduate and undergraduate students working in this area.
8. Read academic papers, journals and textbooks to keep abreast of developments.
9. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
10. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

Planning and Organising:

1. Plan own day-to-day activity within the framework of the agreed research programme.
2. Contribute to the planning of research projects through telescope proposals and publications etc.
3. Coordinate and liaise with other members of the research group over work progress.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Provide guidance as required to support staff and any students who may be assisting with research.

Internal and External Relationships:

1. Liaise on a regular basis with colleagues and students.

2. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration and the success of the project.
3. Organise, attend, and contribute to relevant meetings.

ESSENTIAL CRITERIA:

1. A PhD in astronomy, planetary science, or related field either awarded or with the applicant completing the PhD degree requirements by the time of taking the post.
2. At least 3 years relevant research experience to include:
   -Experience in the reduction, analysis, and interpretation of ground-based or space-based astronomical imaging and/or spectroscopic datasets.
   -A number of high quality refereed publications in the research field, commensurate with stage of career.
3. Ability to contribute to method improvement where required.
4. Ability to interact and work collaboratively with research colleagues and support staff.
5. Ability to analyse and communicate effectively.
6. Demonstrable intellectual ability and critical thinking skills.
7. Ability to meet the mobility requirements of the post this includes spending time away from home due to working commitments with collaborators, attending conferences and/or field trips.

DESIRABLE CRITERIA:

1. PhD awarded.
2. Basic knowledge/experience of orbits and ephemerides.
3. Experience of working with and manipulating large astronomical datasets/databases.
4. Research experience in planetary astronomy or related fields.
5. Research experience focusing on Solar System small bodies.
6. Experience in the reduction and analysis of photometry and/or spectroscopy of Solar System small bodies.
7. Be fluent in python or other high-level language.
8. Demonstrated observational background.

ADDITIONAL INFORMATION:

Applications should comprise a full CV, including a complete list of publications (highlighting up to five most relevant works), and a research statement (maximum two pages in length), describing your previous research experience, skill set, and future professional plans.