EUROPEAN SPACE AGENCY

Internal Research Fellow (PostDoc) in Materials' Physics and Chemistry

Job Req ID: 12422
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Research Fellowship Opportunity in the Directorate of Technology, Engineering and Quality.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and creating an inclusive working environment. For this purpose, we welcome applications from all qualified candidates irrespective of gender, sexual orientation, ethnicity, beliefs, age, disability or other characteristics. Applications from women are encouraged.

This post is classified F2.

Location
ESTEC, Noordwijk, The Netherlands

Description
The Internal Research Fellow will be based in the Materials' and Chemistry Section, Technical Reliability and Quality Division, Product Assurance and Safety Department, Directorate of Technology, Engineering and Quality.

The Materials Physics and Chemistry Section operates state-of-the-art space simulation facilities (vacuum, temperature, contamination, atomic oxygen, electromagnetic and particle radiation, etc.), as well as instruments to characterise physical and chemical properties, in the Materials and Electrical Components laboratory. It provides quality and engineering support to all ESA projects and development programmes in the area of materials physics and chemistry, associated processes and environmental effects.
Activities performed in the laboratory include: physical analysis and the characterisation of materials and associated processes, chemical analysis and the characterisation of materials and associated processes, cleanliness and contamination control, environmental evaluation and the assessment of degradation effects, performance prediction and the verification of materials and associated processes.

Interested candidates are encouraged to visit the ESA website: www.esa.int

Field(s) of activity/research
Space materials are subjected to challenging space environments and demanding operational requirements. They include adhesives, lubricants and coatings, which are often critical to mission performance. The growing requirements of space missions make it necessary to study the response of these materials to different scenarios. For instance, the launching of satellites in constellations requires long-term storage and thus knowledge of the degradation of materials over time and of their potential to generate contamination.

This post provides an opportunity to be involved in a cutting-edge study in the interdisciplinary field of space materials subjected to long-term storage. You will interact with the Materials Physics and Chemistry Section and the Product Assurance managers for Earth

observation missions. Outputs will be applied to ongoing and future ESA space missions.

The topics to be covered will include:
- The general investigation of mission-critical material degradation in long-term storage with experiments and modelling (reliability of the accelerated test models based on correlation with samples exposed to real conditions).
- The application of specific techniques to investigate long-term storage effects, e.g.:
  - the application of triborheology to screen the basic lubrication properties of a variety of substrates and their changes in long-term storage,
  - determination of the impact of lubricants on optics and their role in the long-term storage of satellites with unique custom-made facilities designed by the Materials Physics and Chemistry Section.

Technical competencies
Ability to conduct research autonomously
Breadth of exposure coming from past and/or current research/activities
Research/publication record
Knowledge relevant to the field of research
General interest in space and space research
Ability to gather and share relevant information

Behavioural competencies
Result Orientation
Operational Efficiency
Fostering Cooperation
Relationship Management
Continuous Improvement
Forward Thinking

Education
Applicants should have recently completed, or be close to completion of, a PhD in a related technical or scientific discipline, preferably in materials science, the physics/chemistry of materials or materials engineering, or applied physics. Preference will be given to candidates awarded their doctorate within the last five years.

Additional requirements
Applicants should have good analytical skills and a good understanding of materials analysis techniques. The ability to perform experimental laboratory work and knowledge of the space environment would be a strong asset.
The working languages of the Agency are English and French. A good knowledge of one of these is required. Knowledge of another Member State language would be an asset.

Other information
For behavioural competencies expected from ESA staff in general, please refer to the ESA Competency Framework.

The Agency may require applicants to undergo selection tests.

In addition to your CV and your motivation letter, please add your proposal of no more than 5 pages outlining your proposed research in the "additional documents" field of the "application information" section.
At the Agency we value diversity and we welcome people with disabilities. Whenever possible, we seek to accommodate individuals with disabilities by providing the necessary support at the workplace. The Human Resources Department can also provide assistance

during the recruitment process. If you would like to discuss this further please contact us at contact.human.resources@esa.int.

Please note that applications are only considered from nationals of one of the following States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, and the United Kingdom. Nationals from Latvia and Slovenia, as Associate Member States, or Canada as a Cooperating State, can apply as well as those from Bulgaria, Cyprus, Lithuania and Slovakia as European Cooperating States (ECS).

Priority will first be given to candidates from under-represented Member States.

In accordance with the European Space Agency's security procedures and as part of the selection process, successful candidates will be required to undergo basic screening before appointment