

EUROPEAN SPACE AGENCY

Internal Research Fellow (PostDoc) in Photon-counting receiver for Deep Space optical communications

Job Req ID: 15013

Closing Date: 28 April 2022

Publication: External Only

Vacancy Type: Internal Research Fellow

Date Posted: 14 April 2022

Internal Research Fellowship Opportunity in the Directorate of Operations.

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

ESOC, Darmstadt, Germany

Our team and mission

Internal Research Fellow (PostDoc) in the Optical Technologies Section, Ground Station Engineering Division, Ground Systems Engineering and Innovation Department, Directorate of Operations.

You are encouraged to visit the ESA website: <https://www.esa.int/>

Field(s) of activity/research for the traineeship

Our team has a strong background in optical communications, surveillance and tracking applications for space debris, including optical telescope system design and optical subsystems.

If selected for this fellowship, you will thus have the opportunity to work on a variety of challenging projects with the emphasis on bridging the scientific community and use of operational technology. You will be part of an ESA team for the "ESA/NASA Joint technology Demonstration of Deep Space Optical Communication with the NASA Psyche Spacecraft" project, aiming to demonstrate interoperability of NASA and ESA ground infrastructure for future inter-agency cross support.

In particular, you will:

- Contribute to the ongoing ESA single-photon counting detector development activities;
- Support the team in rapidly evaluating the suitable detector technology to be used for the Deep Space Optical Communications Demonstration;
- Seek synergy with the entanglement-based, photon-counting Quantum Key Distribution detector array pre-development;
- Collaborate with industrial partners on integration of the selected single-photon detector with the telescope receiver package to be used for the Deep Space Optical Communications Demonstration;

- Support the team with the compatibility testing planned on the basis of Psyche optical onboard terminal flight test-set;
- Prepare and conduct experiments for the Deep Space Optical Communications Demonstration;
- Contribute to the first ESA/NASA Deep Space Optical Link demonstration;
- Disseminate results obtained via technical reporting and peer-reviewed journals;
- Participate in the assessment of strategic decisions for Technology Development for key optical ground station elements.

Technical competencies

Knowledge relevant to the field of research

Research/publication record

Ability to conduct research autonomously

Breadth of exposure coming from past and/or current research/activities

Ability to gather and share relevant information

General interest in space and space research

Behavioural competencies

Result Orientation

Operational Efficiency

Fostering Cooperation

Relationship Management

Continuous Improvement

Forward Thinking

Education

You should have recently completed, or be close to completion of a PhD in a related technical or scientific discipline (i.e. optical communications, single-photon detector, etc.). Preference will be given to applications submitted by candidates within five years of receiving their PhD.

Additional requirements

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](#).

For further information on the Internal Research Fellowship Programme please visit: [Internal Research Fellowship](#)

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, Lithuania and Slovenia, as Associate Member States, or Canada as a Cooperating State, can apply as well as those from Bulgaria, Cyprus and Slovakia as European Cooperating States (ECS).

According to the ESA Convention, the recruitment of staff must take into account an adequate distribution of posts among nationals of the ESA Member States*. When short-listing for an interview, priority will first be given to candidates from under-represented or balanced Member States*. (<https://esamultimedia.esa.int/docs/careers/NationalityTargets.pdf>)

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 conducted by an external background screening service.

*Member States, Associate Members or Cooperating States.

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