

Internal Research Fellow (PostDoc) in Fundamental Physics

Job Req ID: 11899

Closing Date: 01 July 2021

Publication: External Only

Vacancy Type: Internal Research Fellow

Date Posted: 03 June 2021



EUROPEAN SPACE AGENCY

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.

Post

Internal Research Fellow (PostDoc) in Fundamental Physics

This post is classified F2.

Location

ESTEC, Noordwijk, The Netherlands

Our team and mission

This research fellowship will be carried out within ESA's Advanced Concepts Team (ACT), made up of research fellows (post-docs) and young graduates from a broad variety of academic fields and aiming at an academic career. Its task is to monitor, perform and foster research on advanced space systems, innovative concepts and working methods. It interacts externally almost exclusively with academia and operates as a truly interdisciplinary team bound to high scientific standards. Via its research, the team acts as a pathfinder to exploring novel, potentially promising areas for ESA and the space sector, ranging from applied to basic fundamental research topics. An important task is to communicate scientific trends and results as input to the Agency's strategic planning.

The team has been active in the field of fundamental physics for several years. The ACT's research topics are broadly defined, ranging from condensed matter and optics to gravitational and high-energy physics and astronomy. We are particularly interested in original profiles that can bring a novel set of ideas for the current European effort in developing quantum technologies, for the new emerging field of gravitational wave astronomy or expertise in numerical relativity. Overall, any original and motivated research project is welcome.

Candidates are urged to familiarise themselves with the research done by the ACT (<https://www.esa.int/gsp/ACT/>), in particular in fundamental physics and related projects, and to expand out into interesting new fields not yet covered.

Field(s) of activities/research/learning areas

You will carry out research in fundamental physics, in particular in one or more of the following: general gravity, quantum physics and numerical relativity. Areas of research are chosen partly by you based on your own expert judgements and insight into trends and developments, and partly by the team in line with the Agency's strategic directions.

On the scientific side, you will in particular:

- Propose and perform high-level research in fundamental physics together with ESA Member State universities (in particular through the Ariadna programme www.esa.int/ariadna).
- Lead and assist interdisciplinary projects with other ACT Research Fellows on topics where the above-mentioned areas of physics play an important role.
- Participate, with the rest of the team, in the assessment of proposed space system concepts - these not being restricted to the area of fundamental / theoretical physics - and propose new concepts and assessment studies.
- Perform or participate in small studies on subjects of strategic interest to provide in-house expertise.
- Follow and monitor the progress of research in areas of physics of interest to the team in order to derive and report strategic trends.
- Critically assess ideas and concepts for space systems relying on methods or phenomena of the area of fundamental physics that are brought to the attention of the ACT.

As ACT researcher, you will:

- Publish results in peer-reviewed publications and use modern tools to communicate with the broader audience inside and outside ESA;
- Lead and assist interdisciplinary projects with other ACT researchers;
- Participate together with the team in the assessment of proposed space system concepts - these not being restricted to fundamental physics - and propose new concepts and assessment studies;
- Perform or participate in assessments on subjects of strategic interest to ESA, and provide in-house expertise for strategy development.
- Benefit for your research from the technology and engineering expertise available at ESTEC.

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

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

You must have obtained:

- A degree in physics, mathematics or equivalent.
- A PhD (completed before take-up of duty) in physics or equivalent (with the subject of the thesis being relevant to tasks outlined above)

Additional requirements

- Ability and interest in prospective interdisciplinary research;
- Aptitude for contextualising specialised areas of research and quickly assessing their potential with respect to other domains and applications;
- Academic networking to add functioning links to universities and research institutes;
- Ability to work in a team, while being able to work individually on your own personal research plans and directions;
- Natural curiosity and a passion for new subjects and research areas.

Specificities

The position of Research Fellow at ESA's Advanced Concepts Team is similar to a regular academic post-doc placement, but with a few key differences:

1. ACT RFs have no teaching obligations. However, they are likely to be involved in mentoring Young Graduate Trainees and student interns (stagiaires) within the team.
2. As the team does not have a professor-like position, ACT RFs are academically more independent than most post-docs. This implies more freedom but also greater responsibility for their research directions and approaches.
3. ACT RFs join a diverse, changing and interdisciplinary research team embedded in a large space agency, in contrast with a more specialised, focused research group with close or similar competences.
4. ACT RFs need to actively reach out to other disciplines, to bring their competences to interdisciplinary research projects and encourage other researchers to join them in their core research projects (research at the intersections of disciplines).
5. ACT RFs need to communicate their expertise and research results internally and externally, including the potential implications and importance for ESA's long-term strategy.

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.

The closing date for applications is 1 July 2021.

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).

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