Research Fellowship in Radio Navigation Systems and Techniques

Directorate of Technical and Quality Management

ESTEC, Noordwijk, The Netherlands

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Overview of the Division's mission

The RF Systems, Payload and Technology Division is part of Electrical Engineering Department and of Technical and Quality and Management Directorate.

The RF Systems, Payload and Technology Division is responsible for space instrumentation and end to end communication systems, subsystems, equipment and technologies which cover the following domains:

- Communication systems and subsystems design and validation;
- Commercial ground and user segment products for navigation, telecommunications and remote sensing;
- Systems for TT&C communication, navigation, remote sensing and scientific applications;
- Satellite payloads (e.g. repeaters for telecommunications or navigation instruments, earth remote sensing instruments for scientific applications);
- Microwave and millimetre wave equipment and technologies;
- Complex on-board payloads for communications and remote sensing, and processing core of such systems, including optically based implementations;
- Systems testing for performance evaluation or validation;
- Laboratories to test/proof concepts soundness and validation.

The Division consists of five sections and the divisional laboratory unit. They are:

1) Telecommunication - TT&C systems and techniques
2) Radio Frequency Equipment and Technology Section
3) Payload engineering
4) Radio navigation systems and techniques
5) Commercial Ground and User Segment Products
6) Laboratory

Overview of the field of research proposed

A1.1: Advanced GNSS Receivers techniques development prototyping and testing: The possibility to extend the usage of Radio-navigation receivers to more and more Challenging User environment (INDOOR, Urban, suburban, etc.), is linked to the capability of effectively mitigating the impact of interference and multipath, and new coming threats (jamming etc.). Multi-constellation, Multi-frequency, VDLL, Beam-forming, Hybridization with inertial, image, cloud based processing etc., are possibility to be investigated and tested in the real field.

A1.2: GNSS signal spoofing and authentication. Development of techniques at user, system level to counteract GNSS deceiving threats, assess their theoretical behavior, test performance in the laboratory.

A1.2: GNSS aiding with 3D and image processing. Development of techniques at user level to enhance performance, detect Non-Line of sight tracking, increase reliability and integrity of PVT and quality of service for ground user liability or safety critical applications.

A1.4: Evolution of GNSS and regional Augmentation systems EGNOS V3. Extension of Safety of life services toward more demanding aeronautical applications or other community e.g. railway, maritime is
still a technical challenge that requires techniques at receiver and system level to be investigated, and tested in the laboratory.

Who can apply

The programme is open to suitably qualified women and men. Preference will be given to applications submitted by candidates within five years of receiving their PhD.

The Research Fellow Programme is open to nationals of the following states: Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, and the UK, or Canada as a Cooperating State, Bulgaria, Estonia, Hungary, Latvia, Slovakia and Slovenia as European Cooperating States (ECS).

Required qualifications

Applicants must have recently completed their PhD studies in topics related to satellite navigation systems ,techniques algorithm, technologies and applications coming from satellite navigation, geodesy, telecommunication, electronics, automatics background.

Applicants should have good analytical and communication skills and should be able to work in a multi-cultural environment in an autonomous manner.

Applicants must be fluent in English and/or French, the working languages of the Agency. A good proficiency in English is required.

How to Apply

Please fill in the online application form attaching to it, **in one document only,** your CV, your motivation letter and your research proposal.

Candidates must also arrange for up to **three letters of reference** to be sent by e-mail, before the deadline, to the **temp.htr@esa.int**. The letters must be sent by the referees themselves. The candidate's name must be mentioned in the subject of the email.

Applications satisfying the general conditions for eligibility, to be submitted **by 6 May 2015**, will be evaluated and successful applicants will be invited for an interview.

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