Research Fellowship in Wave interaction and Propagation

Directorate of Technical and Quality Management

ESTEC, Noordwijk, The Netherlands

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Overview of the Division's mission

The Electromagnetics and Space Environment Division provides project support and undertakes R&D activities. This includes: antennas and sensor systems up to the sub-millimetre waves; wave propagation and interaction; electromagnetic and RF compatibility (EMC/RFC); electrostatic charge/discharge (ESD); magnetic cleanliness and space environments (radiation, plasmas, etc.) and their effects. The Division also has competencies and facilities for antenna and EMC testing and material RF characterisation.

Overview of the field of research proposed

Within the Electromagnetics and Space Environment Division, the Wave Interaction and Propagation Section focuses on the analysis of the interaction of electromagnetic waves with natural environment. This is a critical subject when one aims at assessing the impact of atmosphere on the performance of space communications links or on the accuracy of satellite navigation solutions, but it is also a key component in the generation of scientific or operational products from remote sensing instruments (for Earth observation or planetary science). This field covers the development of electromagnetic interaction models (from microwaves to optical wavelengths) with natural media (atmosphere, ionosphere, vegetation, water surfaces, ...), and their use to support system design, performance assessment (e.g. link budget, image quality) and the development of retrieval algorithms for remote sensing. The field also covers validation activities based on experimentally acquired datasets. The Section works in close collaboration with other areas in the Agency.

In the framework of this Research Fellow Opportunity, the following field of investigation has been selected:

Retrieval of atmospheric backscatter and extinction profiles from measurements by the ALADIN Airborne Demonstrator (A2D).

The objective is to test and assess the performance of wind retrieval algorithms used observation data acquired by the A2D instrument - a dual-polarized Doppler Wind lidar operated by DLR. Observation datasets are already available at ESA in Labview format. In addition, the research fellow will get access to data from several wind lidar systems (coherent and incoherent), radiosonde measurements, ground-based wind, aerosol and other basic variables measurements, collocated satellite data from passive and active wind and aerosol instrumentation etc.
The influence of aerosols will also be investigated.

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 a relevant physics or engineering domain.

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 **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.