

Job Title: Internal Research Fellow (PostDoc) in Electromagnetic Compatibility

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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. Applications from women are encouraged.

Post

Internal Research Fellow (PostDoc) in Electromagnetic Compatibility

This post is classified F2.

Location

ESTEC, Noordwijk, The Netherlands

Description

ESA's Power Systems, EMC & SpaceEnvironments Division works in the fields of power generation, storage and management together with Electromagnetic Compatibility (EMC), electrical harness and space environment and effects. The Electromagnetic Compatibility & Harness Section addresses all aspects of electromagnetic emission and susceptibility including magnetic cleanliness and harness for spacecraft equipment, subsystems and space systems. The Section supports all ESA programmes and missions in respect of the definition of requirements, development, analysis, verification and testing as well as troubleshooting. The Section has an EMC laboratory to perform measurements and tests used to support projects as well as for research and development activities.

Field(s) of activities/research

To achieve electromagnetic compatibility, it is important to measure electromagnetic emissions including low frequency alternate current and DC fields, as well as to test the susceptibility to disturbances from DC up to very high frequencies. In particular, science missions typically impose very stringent requirements on electromagnetic and magnetic cleanliness for DC and low frequency. Hence, the research activities in the Section are as follows:

- Investigation of very low frequency electric field measurements
The task here is to investigate theoretically and verify by measurements a methodology to measure reliably electric fields in the very low frequency range (below 10 kHz).
- Investigation of the immunity of SpaceWire connections to common mode noise
This includes theoretical analysis as well as practical measurements on an existing mockup for SpaceWire connections to characterise SpaceWire connections with respect to common mode noise.
- What is the probability of having latent failures due to ESD tests?
The task is to prove in a statistical way whether latent failures due to ESD tests are credible or not; this also includes verification by test.
- Investigation of emissions from and susceptibility of data communication via twisted DC power lines. This includes theoretical analysis, design of a mockup and verification by test and measurement.

Technical competencies

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

Behavioural competencies

Innovation & Creativity
Continuous Learning
Relationship Management
Self Motivation
Communication
Problem Solving
Cross-Cultural Sensitivity

Education

Applicants should have recently completed, or be close to completion of a PhD in electrical engineering or radio frequency engineering. Preference will be given to candidates awarded their doctorate within the past five years.

Additional requirements

Experience in EMC is required while laboratory experience and experience with simulation tools (numerical simulation, field simulation, circuit simulation) are an 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.

The closing date for applications is 10 February 2020.

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.

If you require support with your application due to a disability, please email 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 Slovenia, as an Associate Member, or Canada as a Cooperating State, can apply as well as those from Bulgaria, Cyprus, Latvia, 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