Job Title: Internal Research Fellow (PostDoc) in Opto-Mechanical Structural Assessment of Space Systems

Req ID **2203** - Posted **21/09/2017**

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 Opto-Mechanical Structural Assessment of Space Systems
This post is classified F2 on the Coordinated Organisations' salary scale.

Location
ESTEC, Noordwijk, The Netherlands

Description
The Structures, Mechanisms and Materials Division is the centre of competence for the Agency in all areas related to spacecraft and launcher structures, mechanisms and materials and processes. This encompasses spacecraft and launcher lightweight structures, stable structures, structural dynamics, damage tolerance, deployable structures/booms, active structures, hold-down and release devices, electrical motors for space mechanisms, launcher and re-entry vehicles, hot and cold structures, landing attenuation systems, seals, valves, parachute systems, separation systems, solar array drive mechanisms, reaction wheels, pointing mechanisms, pyrotechnics, bearings and tribology aspects, all materials and associated manufacturing processes as well as their development, characterization, verification and qualification and related failure investigations. The Division provides support to projects, preparatory programmes and technology programmes.

Within this frame, the Structures Section is in charge of all structural engineering aspects. Interested candidates are encouraged to visit the ESA website related to the Division's activities.

Field(s) of activities/research
The proposed activity will involve integrating thermal, materials, mechanical, structural and optical domains into a multi-disciplinary process with the aim of enabling a deterministic assessment of, for example, optical performance.

The successful candidate will be assigned to the Structures Section and will work on the conception, analysis and development of analysis methodologies and software tools for opto-mechanical analysis and will work closely with mechanical, thermal, materials and optical engineers. In this context, the Research Fellow will be asked to participate in one or more of the following activities:

- Structural modelling and analysis of optical components, opto-mechanical assemblies and optical payloads to assess structural integrity, dimensional stability and material selection for architecture downselect;
- Thermo-elastic structural analysis to evaluate the pointing control and stability, wave front error, co-registration and alignment of optical components and payloads;
- Development of analysis software tools with a focus on opto-mechanical analysis;
- Evaluation or benchmarking of relevant commercial software tools;
- Support materials test programmes for the evaluation of the mechanical and thermal properties of optical materials, coatings and adhesives;
- Support mechanical and optical test programmes, including the development and application of tools for mathematical model correlation between analytically predicted and experimentally validated optical alignment, co-registration and wavefront error.

Technical competencies

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

Behavioural competencies

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

Education

Applicants should have recently completed, or be close to completion of a PhD in mechanical engineering, with some background in the topics to be addressed (e.g. structural analysis, materials, optics, mechanical and optical testing, software development). Preference will be given to applications submitted by candidates within five years of receiving their PhD.

Additional requirements

The candidate should have ideally participated in the design or development of ground- or space-based optical payloads or instrumentation. Some experience in the mechanical design, assembly, alignment and testing of optical instrumentation would be an asset.

The Research Fellow must be able to work in a team with other international investigators in a spirit of positive co-operation and, at the same time, be capable of working autonomously in his/her area of research. At the end of the fellowship, the Research Fellow will be required to summarize the work completed in papers to be submitted to specialized conferences/journals.

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 19 October 2017.

In addition to your CV and your motivation letter, please add your proposal of no more than 5 pages outlining your proposed research. Candidates must also arrange for 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.

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, the United Kingdom and Canada and Slovenia as well as Bulgaria, Cyprus, Latvia, Lithuania, 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