

Research Fellowship in Radiation Protection

Directorate of Human Spaceflight and Robotic Exploration

European Astronaut Centre (EAC) Cologne, Germany

ESA/RF-ESOC(2016)001, Rev.1

Overview of the Division's mission

The ESA Space Medicine Office (HRE-AM) is responsible for the Health and Wellbeing of the ESA astronauts. Its staff includes flight surgeons, healthcare administrator, biomedical engineers, fitness specialists, psychologists, IT specialists, subject matter experts for key areas and administrative support.

The Office oversees and manages all medical aspects related to astronaut selection, certification, recertification and medical mission support. This includes all pre-, in- and post-flight medical activities.

Preventive healthcare, general- as well as aerospace specific, including physical- and mental-fitness and nutritional aspects are covered.

Among the Space Medicine Office charges and activities, of significant relevance to the Research Fellow's field of study is Radiation Health and Safety for the astronauts as part of ESA's HRE-AM Radiation Protection Initiative for Astronauts.

Overview of the field of research proposed

- The research shall focus on Ionizing Radiation effects to the human being/astronaut.
- The existing operational radiation health program, as an integral part of the current HRE-AM Radiation Protection Initiative, shall be pursued and advanced. Existing Data shall be utilized and the data base advanced.
- Strategies of Radiation Health and Protection for future mission scenarios beyond low earth orbit shall be developed.
- Support a study into the value and funding model of facilities for research on deep space habitability, addressing in particular radiobiology and radioprotection, which support human and robotic exploration.
- Existing radiation dose limits for astronauts shall be reviewed. State of the art knowledge to assess and evaluate biological effects as well as to derive demands shall be undertaken. Recent and future mission scenarios shall be considered.
- Key part of the fellowship shall be in support a framework development for Space Radiation Health Risk Assessment and Radiation Health Management and Risk Mitigations.
- Emphasis shall be on Radiobiology, Biomarkers and Individual Genetic Susceptibility, Radiation/ -Monitoring and -Protection activities for Astronauts.
- Considerations of space craft- and mission- design, as well as passive and active shielding capabilities and investigations on potential alternative measures shall also be included.

- The Principles of Radiation Health and Protection including the recognition of the “ALARA” Paradigm, shall be well thought out and reflected accordingly.
- Evaluations on other potential countermeasures including but not limited to pharmacology driven ones or e.g. the support maintaining physiological parameters including physical fitness, shall be executed.
- The applicable scientific literature shall be surveyed at the start and during the study.

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 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, Estonia, Finland, France, Germany, Hungary, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, and the UK, Slovenia as an Associate Member or Canada as a Cooperating State, Bulgaria, Cyprus, Latvia, Lithuania, Slovakia as European Cooperating States (ECS).

Required qualifications

Applicants must have recently completed their PhD studies in Physics, Biology, Medicine, or Engineering

Additional qualifications desirable: knowledge, skills / previous work experience in the fields emphasised and/or collateral activities such as applied Informatics and/or engineering.

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 11 May 2017, 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.