Research Fellowship in Components Technology

Directorate of Technical and Quality Management

ESTEC, Noordwijk, The Netherlands

ESA/RF-ESTEC(2015)022

Overview of the Division's mission

The Materials and Component Technology Division, within the Product Assurance and Safety Department, primarily covers Materials and Electrical, Electronic and Electromechanical (EEE) components Technology and Components development, reliability assessment, industrialisation and is responsible for the technical management of materials and components space evaluation qualification.

Examples of specific EEE components and technologies covered by the technology domain are :

Optoelectronics: laser diodes, optocouplers, CCDs, APS, etc ;
DeepSub Micron Technologies (65 nm and below);
VLSI technologies: FPGA, ASIC, Memory devices, etc ;
Analogue electronics: op-amps, comparators, etc ;
Passive including Oscillators and Piezo actuator elements;
Microwave Components/ Technologies discrete and MMIC devices : GaAs, GaN ,SiC, SiGe but also Antimonide ;
MEMS: RF, AOCS, MOEMS, micropropulsion, pressure sensors, etc but also MEMS packaging & stacking;
Nanotechnologies: CNTs and their potential application in space: thermal, mechanical, electrical and radiation;
Hybrid circuit and technologies: thick and thin films.

Overview of the field of research proposed

Keywords: EEE Components, Reliability Modelling & Prediction, Reliability testing

The Research Fellowship will address one of the component technology and family listed above to be selected as a function of the profile of the candidate.

As part of theoretical activities, the Research Fellow will start with a survey of the EEE components technology to be covered. This task will be complemented by in–depth scientific work aiming at modelling and predicting the reliability of this specific EEE Components technology. The applicant will therefore have to establish strong interactions with ESS Dependability (RAM) and Safety Engineers.
On the practical side, the Research Fellow will have to:
Propose of a draft assessment test plan to be carried out at ESTEC and that will aim at demonstrating the readiness and reliability of the selected EEE component technology. The test plan shall also serve at validating the reliability modelling and reliability prediction figures established during the theoretical part of the fellowship. AS a minimum, radiation, mechanical shocks and vibrations, thermal cycling, temperature storage , life testing will have to be performed to validate the reliability prediction and associated models.

Deliverables:
Final report and Final presentation at completion of the Research fellowship in presence of industry

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 Electrical Engineering, Electronics or Reliability Assurance with one or more of the following specialisations: EEE components, Reliability Prediction, Test Engineering, Process Engineering related to EEE components.

Applicants should have good interpersonal and communication skills and should be able to work in a multi-cultural environment, both independently and as part of a team.

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.