

## **Laser Single-Event Effects Study for Microelectronics**

**Code:** 19/12

**Company:** Cobham RAD Europe Ltd

**Location:** Harwell Campus, Didcot

### **Company Description:**

Cobham is a leading global technology and services innovator, respected for providing solutions to the most challenging problems, from deep space to the depths of the ocean. We provide critical solutions on land, at sea, and in the air and space, by moving data through off-the-shelf and customised products including RF, microwave, and high reliability microelectronics, antenna subsystems and motion control solutions.

Cobham RAD Europe provides a comprehensive offering of radiation testing services and advice to customers in the space, nuclear and industrial sectors. We have a focus on assessing the suitability of highly integrated devices, such as processors and FPGAs, for use in the natural space radiation environment, but also cover applications from materials used in nuclear reactors to medical scanners and qualifying wafer lots of discrete components.

### **Project Description:**

Dealing with radiation effects is one of the most challenging aspects of operating electronics in the space environment. The current methods for assessing the susceptibility of electronic components to single event effects (SEE), caused by cosmic rays or solar protons, require the use of cyclotrons or other particle accelerators. Pulsed laser testing is emerging as an alternative method that is cheaper and quicker. The aim of this project is to characterise the performance of our SEREEL2 laser SEE test system by testing a range of different components and comparing the results with those from classic heavy ion testing.

This will involve the following tasks:

- selection and procurement of the electronic component test samples
- preparation of the test samples by delidding and die polishing (potentially subcontracted)
- building and setting up test boards
- using the laser system to test the samples
- data analysis
- research and obtain heavy ion test data from published sources
- compare the two sets of results to validate SEREEL2

The successful applicant will have the chance to gain experience and training in the following skills:

Technical skills: understanding of practical, hands-on electronics engineering, ESD measures, high power infra-red lasers, optics, laser safety

Soft skills: procurement of materials from suppliers, identifying relevant published data sources, use of MS Excel for data handling, team working, industrial perspective and working environment

**Applicant Specification:**

Sound practical skills, attention to detail, reliability and a completed first degree, probably in physics or electronic engineering.

**Minimum Requirements:**

In the course of relevant PhD studies involving at least one of the following topics: optics, lasers, electronics engineering

**Preferred Additional Requirements:**

Experience of more than one of the topics listed above. Previous experience of handling and using electronic components in practical circuits, whether as part of a taught course, as previous work experience or in a hobby context, will be highly advantageous.

**Further details:**

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date around June/early July 2019. Salary is £1,500 per calendar month.

**Closing Date for Applications:**

**5pm on the 14<sup>th</sup> March 2019**

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.