Hardware and Software System Development for Single-Event Effects Testing

Code: 21/17

Company: Radtest Ltd

Location: Harwell, Oxfordshire

Company Description:

Radtest Ltd (formerly Cobham RAD Europe Ltd) provides a comprehensive offering of radiation testing services and advice to customers in the space, nuclear, high-energy physics 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.

Whilst primarily a service business, we also manufacture and sell SEE test systems that can be used to screen components prior to full heavy ion testing in a cyclotron or simply as a risk mitigation technique for low-cost missions. Under the brand SEREEL2, this is a high quality, industrially rugged design of instrument, providing the most stable and reliable laser SEE test system on the market. Radtest Ltd is an independent SME located in the UK space hub at Harwell.

Project Description:

Dealing with radiation effects is one of the most challenging aspects of operating electronics in the space environment. International standards exist to define a consistent and reliable methodology for radiation testing but this is perceived as expensive and time consuming. Few small satellites and virtually no CubeSats undertake any form of radiation testing. Laser SEE testing is much quicker and cheaper than testing in a cyclotron, explaining the rapid growth in popularity of this approach.

Our SEREEL2 system has proved popular and we have several design improvements to be implemented during 2021. Based at Harwell, we anticipate that the SPINtern will be able to contribute in the following ways:

- optimisation of the optical design
- selection of optical elements with better performance and lower cost
- improvement of the user interface (MATLAB)
- obtaining test data on real components to verify the system performance
- data analysis
- report writing

In addition, there is the possibility of involvement in other test campaigns undertaken by the company, depending on contracts secured nearer the time.

Applicant Specification:

Applicant should have sound practical skills, attention to detail, reliability
Have a partially or fully completed first degree, probably in electronic engineering or physics, with strong optics or laser content

Minimum Requirements:

At current university studies (ideally at masters or PhD level) involving at least one of the following topics: optics, lasers, optomechanical design, MATLAB coding experience

Preferred Additional Requirements:

Have more than one of the above topics

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate. Virtual Induction Event to be held on 21 June, 2021. Ideally to complete before the start of the next academic year. Salary is £1,500 per calendar month gross.

Closing Date for Applications: 5pm Wednesday 5 May 2021

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.