

Postdoctoral position in ultrafast laser physics for accelerator diagnostics

School of Engineering, Physics & Mathematics
University of Dundee

(University of Dundee & STFC Daresbury Laboratory)

3 year fixed term Grade 7 (£32,901)

Background

As part of the current UK-CERN collaboration on the Compact Linear Collider (CLIC) project at CERN, STFC Daresbury Laboratory and The University of Dundee are seeking a Postdoctoral Researcher to join their research programme pursuing techniques for ultrafast measurement of relativistic particle beams.

Using their expertise in ultrafast and nonlinear photonics, the successful candidate will develop single-shot electro-optic techniques that are capable of pushing beyond current time resolution limitations. They will work principally on the systems for characterising the weak ultrafast optical signals following laser/electron beam interaction. They will also undertake investigations of novel electro-optic materials developed at Dundee University, and assist in electro-optic experiments being prepared at the CERN CTF3 test facility and other European laboratories.

The post will be based in the Beam Diagnostics Group at the Accelerator Science and Technology Centre (ASTeC), STFC Daresbury National Laboratory, while maintaining close collaboration with the University of Dundee and CERN. The successful candidate will utilise the wide range of laser resources at ASTeC, and have opportunities to work with programmes on the ALICE (Accelerators and Lasers in Combined Experiments) large-scale test-accelerator at Daresbury. This post is part of our group's international collaboration with the CLIC project, and involves five UK university groups.

List of Duties or Work Programme include

- To develop and implement single-shot optical pulse characterisation systems that extend current electro-optic diagnostic capabilities.
- To examine the potential of alternative nonlinear techniques, such as THz spectral upconversion, and of new materials, for improving accelerator diagnostic capabilities.

- To implement a demonstration system at a suitable particle accelerator facility.
- To provide partial supervision and support of PhD students involved in related research.
- To publish in peer reviewed journals, and present significant results at international conferences

Additional Information

The applicant will have a PhD or equivalent in a relevant discipline (most probably Physics, Applied Physics or Engineering). You will have experience in ultrafast lasers, and in nonlinear optics or THz techniques. Experience or training related to particle accelerators, whilst desirable, is not essential. Where required, training in accelerator physics and technology will be available.

Extended periods of travel to collaborating accelerator laboratories outside the UK will be required. You must have the ability to work in an international group and liaise between researchers in different laboratories.

A competitive salary will be offered.

For informal discussions and further information about this post, please contact Professor Allan Gillespie (University of Dundee, w.a.gillespie@dundee.ac.uk), or Dr Steven Jamison (Science and Technologies Facilities Council, steven.jamison@stfc.ac.uk).

To apply for this position please visit our website www.dundee.ac.uk/jobs reference number: ASE0107, and follow the on-screen instructions.

Closing date: 2 March 2012.

Web sites for additional details

<http://mapsatepm.org.uk/fel/>

<http://www.stfc.ac.uk/ASTeC/Groups/Radio+Frequency+and+Diagnostics/Staff/17494.aspx>