

## **Research Associate on the DUNE and CMS experiments**

**Salary: Band D £31,931-£34,709 or Band E £39,748-£44,166 (Dependent on Experience)**

**3-year fixed term contract, with expectations of an extension.**

**Closing date: Thursday 23rd December**

Applications are invited for a Research Associate position in Experimental Particle Physics to work on trigger and data acquisition systems within the Particle Physics Department (PPD) at the STFC Rutherford Appleton Laboratory. The post will initially be for three years with the possibility of renewal.

PPD is one of the largest Particle Physics groups in the UK. The CMS group has been prominent on the CMS experiment since the start of the collaboration and PPD has been involved in the DUNE collaboration since early 2018. The design and construction of the CMS electromagnetic calorimeter endcaps was led by PPD and the group also played a major role in the tracker readout. For Phase I upgrades the group had significant activity on the level 1 calorimeter trigger upgrade. The group now has major involvement in the upgrade of the CMS detector for HL-LHC running and is working on the level 1 trigger upgrade, the track finder for the replacement silicon tracker and the readout of the barrel electromagnetic calorimeter. All of these activities involve fast electronics and the use of cutting edge FPGAs. The group has a strong interest in physics beyond the standard model including a long history of work on searching for  $Z'$  bosons, various BSM Higgs bosons and numerous analyses that exploit the groups expertise on lepton reconstruction. A particular feature is the long-standing close collaboration with phenomenologists as part of the NExT Institute. The UK is prominent on the DUNE DAQ system and PPD provides overall technical leadership of the DUNE DAQ project.

All of the PPD CMS group's upgrade activities involve cutting edge electronics and the use of FPGAs. Each of the activities is related to fast data processing to enable the first level of trigger decision in hardware. The DUNE DAQ system also includes the fast initial data processing required to produce a trigger. For DUNE the neutrino platform at CERN is hosting prototype realizations of the final detectors and for CMS test systems for the upgrade electronics are being developed. The successful applicant will be resident at CERN and work on both of these systems. The applicant must have or be about to receive a Ph.D. in Particle Physics or a similar field.

The successful applicant will be resident at CERN and work on either both or one of these systems.

Applications should consist of a CV and a covering letter explaining why the candidate is suited to this position and the names and address of three referees. The post may be shared between experiments or exclusively on one of them. Candidates should state whether they have any preferences. Online applications can be made at:

<https://careersportal.co.uk/UKRI-careers/jobs/research-associate-on-the-dune-and-cms-experiments-1416>

For an informal discussion about this role please contact: Prof. Claire Shepherd-Themistocleous ([claire.shepherd@stfc.ac.uk](mailto:claire.shepherd@stfc.ac.uk))