Postdoctoral Research Associate on silicon detector development

The School of Physics and Astronomy, University of Edinburgh
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Job Identification	6349
Apply Before	02/24/2023, 05:00 PM
Grade UE07:	£35,333 - £42,155 per annum
Full-time:	35 hours per week
Fixed-term:	Initial duration of 3 years, with the potential for extension

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The experimental particle physics group (PPE) at the University of Edinburgh has a vacancy for a Postdoctoral Research Associate to work in our Centre for Advanced Detector Development. The primary aim of the role is to lead work on **developing novel detectors for tracking charged particles based on silicon sensor technology**, for use in particle physics experiments and in other fields.

This post is supported by a Royal Society research grant, aiming to target two complementary research areas, both in the field of silicon sensor development.

You will spend around half your research time on **developing and characterising HV-CMOS sensors** for the new Mighty Tracker proposed for the LHCb experiment at CERN. You will join the LHCb team at Edinburgh and use testing facilities both within our lab and external (e.g. test beams at CERN and DESY) where you will collaborate with LHCb partner institutes.

The second area is the development of **small-pitch Low Gain Avalanche Detector (LGAD) devices**, which have potential use cases both in particle physics (for example, a future upgrade of the LHCb Vertex Locator), and in other areas (synchrotron research, nuclear physics, proton therapy). For this part of the research project, you will collaborate with partners outside the University of Edinburgh including students and staff from other universities and contacts from non-academic stakeholders.

The Edinburgh LHCb group has made substantial contributions to a wide range of particle physics measurements. We have significant responsibilities in the LHCb collaboration such as maintenance and operation of the Ring Imaging Cherenkov detectors, as well as R&D towards future detectors (RICH, TORCH, Mighty Tracker). We are also involved within the Real-Time-Analysis (RTA) and Data Processing and Analysis (DPA) projects.

Your skills and attributes for success:

- You should have/be about to submit a PhD or equivalent qualification in particle physics, electronic engineering or a related field.
- You will have a proven track record of delivering high-quality research and development in silicon sensors, or a related field.

For more information those interested can contact Dr Mark Williams (m.williams@ed.ac.uk).
Please apply online including a CV, publication list, a 1 page research summary including future goals and details of 2 referees we can contact.

Click here for a copy of the full job description.

As a valued member of our team you can expect: An exciting, positive, creative, challenging and rewarding place to work, we give you support, nurture your talent and reward success. You will benefit from a competitive reward package and a wide range of staff benefits, which includes a generous holiday entitlement, a defined benefits pension scheme, staff discounts, family friendly initiatives, flexible working and much more. Access our staff benefits page for further information and use our reward calculator to find out the total value of pay and benefits provided.

The University of Edinburgh holds a Silver Athena SWAN award in recognition of our commitment to advance gender equality in higher education. We are members of the Race Equality Charter and we are also Stonewall Scotland Diversity Champions, actively promoting LGBT equality.

We anticipate that interviews will be held in March 2023. If invited for interview you will be required to evidence your right to work in the UK. Further information is available on our right to work webpages.

The University is able to sponsor the employment of international workers in this role. If successful, an international applicant requiring sponsorship to work in the UK will need to satisfy the UK Home Office's English Language requirements and apply for and secure a Skilled Worker Visa.

About Us

As a world-leading research-intensive University, we are here to address tomorrow's greatest challenges. Between now and 2030 we will do that with a values-led approach to teaching, research and innovation, and through the strength of our relationships, both locally and globally.
The Institute for Particle and Nuclear Physics is composed of three research groups.

The Particle Physics Experiments group seeks understanding of the fundamental particles of nature and the interactions governing their behaviour. In particular, we aim to explain the dominance of matter over anti-matter through the study of CP violation with the LHCb experiment: to understand the mechanisms of electroweak symmetry breaking that lead to the creation of mass, and to search for new particles at ATLAS and future colliders; to discover and characterise particle dark matter with the LUX-ZEPLIN and DarkSide-20k experiments; and to explore neutrino oscillations, and neutrinos of astrophysical origin with experiments distributed grid computing (GridPP), to store and analyse the vast quantities of data that are produced in these endeavours.

The Particle Physics Theory Group is interested in fundamental physics at all energy scales, from the hadronic binding energy scale, to the scale of present and future particle colliders, up to the energy scales of the very early universe at its first fractional second of existence. We have interest and theoretical involvement in most current and upcoming particle physics experiments, high energy colliders, and in observations made by the WMAP and Planck satellites. We pursue the very latest developments in both perturbative and nonperturbative field theory, renormalization theory, and the application of quantum field theory to other branches of physics such as turbulence theory and condensed matter systems.

The Nuclear Physics Group has a broad and diverse range of research interests aimed at understanding the properties and structure of nuclei, the origin of the chemical elements in the universe, and the way in which nuclear reactions power some of the most spectacular stellar explosions, such as novae, supernovaea and X-ray bursts. Our research is performed at world-leading oversea laboratories (TRIUMF, RIKEN, GSI, LNGS, CERN and others), using a variety of experimental techniques and state-of-the-art instrumentation developed by the group.