

One 'Responsive Fellowship' at the NExT Institute Twelve Month Post-Doctoral Position



Applications are invited for one 12 month Post-Doctoral Research Associate (PDRA) position at the NExT Institute, a partnership involving the University of Southampton, the Rutherford Appleton Laboratory (RAL), the University of Sussex, Royal Holloway University of London (RHUL), Queen Mary University of London (QMUL) and King's College London (KCL).

The position will involve employment in Southampton within the Southampton High Energy Physics (SHEP) group, part of the School of Physics & Astronomy (P&A), with simultaneous affiliation to RAL as part of their Particle Physics Department (PPD). Travel funds for networking between the two institutions and for visits to CERN will be made available.

Candidates must hold a PhD in High Energy Particle Physics (HEPP) and should be theorists with a proven record in phenomenological research of direct relevance to experiment or experimentalists with a strong interest in theoretical interpretation of data, both with expertise in Monte Carlo and/or real data analysis. Preference will be given to candidates with expertise in the theory area and they will formally be associated with the CMS experiment for which the aforementioned inter-disciplinary effort is now required. Applicants must also have an established record of internationally recognised research and relevant publications in renowned scientific journals.

A background in Machine Learning/Artificial Intelligence (ML/AI) approaches to HEPP is desirable and will enable the candidate to also work with Dr Srinandan Dasmahapatra of the Vision, Learning and Control (VLC) group, part of the School of Electronic and Computer Science (ECS) at the University of Southampton.

The successful applicant will be able to capitalise on the large computational facilities available at Southampton and RAL as well as to interact with the many Staff, PDRAs, PhDs and Visitors across all NExT institutions through recurrent NExT wide events.

Candidates interested in the position should apply at <http://www.jobs.soton.ac.uk/> (Ref: 1361921WF), where further information can be found about grade, salary, benefits, etc.

Applications should make clear the areas of research in which the candidate is active or interested in becoming active, explain why the applicant is suitable for the role described and how he/she envisages driving this new initiative forward in practical terms.

Informal contact can be established: in Southampton with Prof Stefano Moretti (Stefano@soton.ac.uk) and in RAL with Prof Claire Shepherd-Themistocleous (Claire.Shepherd@stfc.ac.uk).

The closing date for this position is 25 April 2021. Interviews are expected to be held during the following week. Depending on the evolution of the Covid-19 pandemic in the UK, the position may start remotely.

Background information

NExT is built upon a simple concept, that theory and experiment should go together in particle physics. The traditional interactions between experimentalists and theorists had revolved for decades around theorists picking up information from data based on experimental presentations in public meetings and published papers. This is both slow and inefficient, indeed, in the worst cases, it has led to misinterpretations of data. Physics understanding is thus hindered or delayed by such a process. The direction taken with the creation of NExT was novel and different from anything that had been done before. It focused on developing one-on-one interactions between experimentalists and theorists, by connecting the latter to the analyses carried out by the former. This has been successfully implemented through the creation of an inter-disciplinary and multi-sited environment based upon cross-institutional positions at PhD, PDRA and Staff level, joint between theory and experiment as well as between nodes of the Institute.

The NExT Institute is now expanding its activities by establishing the conceptually new Responsive Fellowship programme with this pilot PDRA post shared between Southampton and RAL. This position will be joint between the two institutions and across theory and experiment. It will be awarded for 12 months and deployed in responsive mode to specific requirements emerging from the NExT research programme, namely, to enable the prompt theoretical interpretation of specific experimental data or the rapid experimental validation of new theoretical ideas. The position advertised here is the first one of this kind. More are expected to follow leading to more connections between theory and experiment.