As a University of Excellence, Universität Hamburg is one of the strongest research universities in Germany. As a flagship university in the greater Hamburg region, it nurtures innovative, cooperative contacts to partners within and outside academia. It also provides and promotes sustainable education, knowledge, and knowledge exchange locally, nationally, and internationally.

The Faculty of Mathematics, Informatics and Natural Sciences, Department of Physics, Institute of Experimental Physics invites applications for a

**RESEARCH ASSOCIATE FOR THE PROJECT**

**“CLUSTER OF EXCELLENCE QUANTUM UNIVERSE”**

**DEEP LEARNING IN PARTICLE PHYSICS**

- SALARY LEVEL 13 TV-L -

The position in accordance with Section 28 subsection 3 of the Hamburg higher education act (Hamburgisches Hochschulgesetz, HmbHG) commences on 1 February 2021 or later.

This is a fixed-term contract in accordance with Section 2 of the academic fixed-term labor contract act (Wissenschaftszeitvertragsgesetz, WissZeitVG). The term is fixed for a period of 3 years. The position calls for 39 hours per week. This position is also suitable for part time employment.

**RESPONSIBILITIES:**

Duties primarily include teaching and research. Research associates may also pursue independent research and further academic qualifications.

**SPECIFIC DUTIES:**

Teaching is expected at the level of 4 hours per week.

The Cluster of Excellence “Quantum Universe” performs research to understand mass and gravity at the interface between quantum physics and cosmology. The research team includes leading scientists from mathematics, particle physics, astrophysics, and cosmology at Universität Hamburg and DESY.

Modern tools of data processing and machine learning are quickly becoming indispensable for experimental particle physics. The CMS groups at the University of Hamburg consist of more than 60 members and cover a wide range of physics topics — from precision measurements of the Higgs and top sectors, over a broad spectrum of searches for physics beyond the Standard Model, to the development of new deep learning methods for robust
classification, anomaly detection, and fast detector simulation.

To support these efforts, we invite applications for a position on deep learning in particle physics. This includes:

- Application and development of machine learning methods for data analysis
- Studies of novel methods for unsupervised anomaly detection
- Development and experimental integration of generative models for fast simulation
- Machine learning on dedicated hardware such as FPGAs
- Interdisciplinary projects

Postdoctoral research associates will become members of the Quantum Universe research school (QURS) and through this receive offers for academic training, soft skills, and career planning. In addition, they will receive individual budgets, meant to enable them to attend conferences or other educational and supporting measures. Additional travel money for project-specific duties will be made available via the hosting research groups. Postdoctoral research associates may participate in the supervision of doctoral students, teaching at the University, and in the organization of the Cluster via an early career council.

REQUIREMENTS:

A university degree in a relevant subject plus doctorate. Excellent English communication skills are required. We expect candidates to have a doctorate in the field of high-energy physics, be very experienced in programming, work successfully in a team environment, and show excellent initiative and engagement. We further expect outstanding experience in developing deep learning methods for particle physics applications using modern software packages as well as in the supervision of students.

The Free and Hanseatic City of Hamburg promotes equal opportunity. As women are currently underrepresented in this job category at Universität Hamburg according to the evaluation conducted under the Hamburg act on gender equality (Hamburgisches Gleichstellungsgesetz, HambGleiG), we encourage women to apply for this position. Equally qualified and suitable female applicants will receive preference.

Qualified disabled candidates or applicants with equivalent status receive preference in the application process.

For further information, please contact Prof. Gregor Kasieczka (gregor.kasieczka@uni-hamburg.de) or consult our website at www.qu.uni-hamburg.de.

Applications should include a cover letter, a tabular curriculum vitae, copies of degree certificate(s) and at least two contact persons for reference (note that no letters of recommendation need to be sent at this stage of the application). Please send applications by 18.01.2022 to: magdalene.hack@desy.de and office@qu.uni-hamburg.de.

Please do not submit original documents as we are not able to return them. Any documents submitted will be destroyed after the application process has concluded.