



The Institute of Physics at the Johannes Gutenberg-University Mainz has an opening for a

## **Ph.D. (research doctorate) position on innovative trigger developments for hadron collider experiments**

As part of activities within the Helmholtz Alliance 'Physics at the Terascale' (\*), the group of Prof. Dr. Stefan Tapprogge at the University of Mainz has an immediate opening for a Ph.D. (research doctorate) position, funded by the alliance.

The activities of this research project will address the challenges of an efficient and performing trigger for upgrades of the ATLAS experiment, partially in view towards an upgrade of the Large Hadron Collider (the sLHC). Besides defining the trigger requirements for the physics potential of the sLHC and developing concepts (and algorithms) for an upgraded trigger system of ATLAS, the development and prototyping work will concentrate on fast digital electronics, using complex FPGA based hardware. One important issue will be the assessment of the reliability and data integrity of high frequency serial links in combination with the most recent generation of FPGAs.

An important foundation for developments of trigger upgrades will be the participation in the initial data taking of ATLAS and a detailed understanding of the performance of the present trigger system. The possibility to participate (partially) also in data analysis of proton-proton collisions might be given.

Applicants should have interest in hadron collider physics as well as in developing complex digital electronics systems for triggering and data acquisition. At the time of start they should have a Diploma (resp. M.Sc.) degree or equivalent.

More information can be obtained from Prof. Dr. Stefan Tapprogge ([stefan.tapprogge@uni-mainz.de](mailto:stefan.tapprogge@uni-mainz.de)) or Dr. Marius Groll ([groll@uni-mainz.de](mailto:groll@uni-mainz.de)).

\*The Strategic Helmholtz Alliance "Physics at the Terascale" (<http://www.terascale.de>) is a research network supported by the Helmholtz Association and comprises the research centres DESY and FZ Karlsruhe, 17 German Universities, and the Max-Planck Institute for Physics. Within the framework of the worldwide investigation of the fundamental properties of matter using accelerators at the highest energies, the Alliance will sustainably concentrate and advance the expertise and strengths of the participating institutes.