



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

## Ph.D. position on electronic R&D for future 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 the Ph.D. will be in one (or both) of the following two areas:

- conceptual design and prototype development for an upgraded version of the first level calorimeter trigger of ATLAS for Super-LHC
- development of a versatile data acquisition system for the readout of a prototype TPC for the International Linear Collider

In both cases the development work will concentrate on fast digital electronics, using complex FPGA based boards. 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.

The electronic development work can be combined with the commissioning of the first level calorimeter trigger of ATLAS and data analysis within ATLAS, towards a deeper understanding of the performance of the present trigger system. Here also ideas for refined and more powerful trigger algorithms and the optimization of these within strict latency bounds should be addressed. Alternatively, an engagement in test beam measurements of the TPC prototype and studies of its performance can be foreseen.

Applicants should have interest (and possibly already experience) 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.