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in Mainz

Charged Current Events in Deep Inelastic Scattering at HERA II and their Triggering using Neural Networks at H1 — •Ringailė Plačakytė[1], Christian Kiesling[1], Ludger Janauschek[1], and Jens Zimmerman[2] — [1]Max-Planck-Institut für Physik, München, Germany — [2]Forschungszentum Jülich GmbH and Max-Planck-Institut für Physik, München, Germany

Due to increased instantaneous luminosity and a longitudinally polarised lepton beam, HERA II gives the opportunity for new sensitive tests of the electroweak interactions and physics beyond the Standard Model.

Deep inelastic $e^{\pm}p$-scattering with the exchange of a $W^{\pm}$ (charged current reaction) is of particular interest. Since the neutrino escapes detection, a feature of these events is a large missing momentum transfer. The selection of charged current events at the H1 experiment is based on this typical signature.

The upgraded luminosity brings correspondingly high background rates. In order to handle this H1 uses a four level trigger system. On the second trigger level correlations of different trigger informations can be exploited for the first time. One solution for this pattern recognition task are feed forward neural networks, implemented in the hardware of the Level 2 Neural Network trigger. The development, testing and the performance of a new network specialised for charged current events is presented.

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