

New readout electronics for ATLAS ZDC detector

The ATLAS ZDC detectors located in the LHC tunnel detect far-forward neutrons from interactions during lead-lead collisions. PMT signals are transferred over fast air-core cable at distance of 200 m to electronics room. A new ZDC-LUCROD readout module is a 9U VME board capable of processing signals from 8 channels with an FADC sampling rate of 320 MHz. The primary modification wrt. LUCID-LUCROD is the full integration with ATLAS TDAQ (handling L1A, s-link data transfer, busy) and digital triggering based on pipelined calculation of 2nd derivative with further processing using a programmable set of thresholds.