



Contribution ID: 124

Type: **Oral presentation to parallel session**

Review of the LHCb Higher Level Trigger operations and performance during 2010-2012

Thursday 17 October 2013 11:20 (20 minutes)

The LHCb experiment is a spectrometer dedicated to the study of heavy flavor at the LHC. The rate of proton-proton collisions at the LHC is 15 MHz, but resource limitations imply that only 5 kHz can be written to storage for offline analysis. For this reason the LHCb data acquisition system – trigger – plays a key role in selecting signal events and rejecting background. In contrast to previous experiments at hadron colliders like for example CDF or D0, the bulk of the LHCb trigger is implemented in software and deployed on a farm of 20k parallel processing nodes. This system, called the High Level Trigger (HLT) is responsible for reducing the rate from the maximum at which the detector can be read out, 1.1 MHz, to the 5 kHz which can be processed offline, and has 20 ms in which to process and accept/reject each event. In order to minimize systematic uncertainties, the HLT was designed from the outset to reuse the offline reconstruction and selection code. This contribution describes the design, implementation, performance and evolution of the HLT from the initial commissioning to its present status.

Primary authors: RAVEN, Gerhard (NIKHEF (NL)); ALBRECHT, Johannes (Technische Universitaet Dortmund (DE)); GLIGOROV, Vladimir (CERN)

Presenter: ALBRECHT, Johannes (Technische Universitaet Dortmund (DE))

Session Classification: Data Acquisition, Trigger and Controls

Track Classification: Data acquisition, trigger and controls