

Real time physics analysis with the ATLAS tau trigger system

The scope of the ATLAS tau trigger system at the LHC is most ambitious. It aims at reconstructing in real time, a matter of seconds, a detailed picture of the high energy proton proton collisions at the LHC. Such system is mandatory in order to select efficiently data needed for discovery of new physics in a proton proton collision environment where the rates of jets observed in the detector are high and the tau identification is difficult. New physics scenarios targeted specifically by the the ATLAS tau trigger system are Standard Model or SuperSymmetric Higgs production, and production of new exotic resonances.

This contribution will detail how the analysis techniques developed offline for efficient data analysis have been implemented in the algorithms which run online at the trigger. In particular, the focus will be on how to satisfy the requirements imposed by the physics goals while addressing the limitations from the overall event rate and latency allowed. The prospects for early running during the first LHC collisions and trigger evolution from first collisions to stable running will be also summarized, following change of trigger goals from commissioning of detector to measurement of Standard Model physics and discoveries.

Primary author: Dr CASADO LECHUGA, María Pilar (IFAE/UAB)

Presenter: Dr CASADO LECHUGA, María Pilar (IFAE/UAB)

Track Classification: Poster session