Contribution ID: **65**   Type: **Performance and Tools**

A new method to reject g->bb jets in the ATLAS b-jet triggers

In this poster, we present a study of the rejection of jets containing more than one b-hadron in the ATLAS "online" b-taggers, aiming to significantly reduce the readout rates of the ATLAS b-jet trigger system. It is important to be able to efficiently select events containing b-jets at the trigger level for analyses that involve many b-quarks in the final states, such as the search for HH->4b production. However, in Run 2 the ATLAS b-tagger did not distinguish between jets containing a single b-hadron (b-jets) and jets containing 2 b-hadrons (bb-jets). Collision events involving small-angle g->bb splitting, resulting in bb-jets are common in the LHC. Rejecting them in real-time would significantly reduce the readout rates of multi-b-jet triggers and ensure efficient signal extraction, which is particularly important for analyses that use multi-b-jet trigger chains. The proposed poster shows an approach to reject bb-jets in the ATLAS online b-taggers, the proposed implementation and the implications for the ATLAS Run 3 physics programme.

Author: CHEN, Maggie

Presenter: CHEN, Maggie

Session Classification: Poster session

Track Classification: Performance and Tools