Contribution ID: **29**                                                          Type: **Poster**

# Calibration of the Boosted X→bb Tagger in g→bb splitting at the ATLAS Experiment

The physics programme at ATLAS involves a variety of Standard Model and Beyond Standard Model resonances decaying to two b quarks, including the Higgs Boson. In order to overcome the intense QCD backgrounds, probe low mass ranges, or decays of heavy resonances resulting in boosted bb pairs, ATLAS has developed the Boosted X→bb tagger. The double b-tagging efficiency scale-factors between MC and data are derived using boosted g→bb splitting in multi-jet events. MC simulations are used in our estimates of the fraction of bb events in data. However, simulation of QCD is notoriously imperfect, making it necessary to use a data-driven approach to correct the flavour composition of the MC, such that the double b-tagging efficiencies and scale factors can be derived. This is done by fitting the signed transverse impact parameter distributions of sub-jet tracks in data and rescaling the MC accordingly. This poster describes the current calibration procedure, the challenges the developers were faced with, and the future plans of the group.

**Author:**   ATLAS COLLABORATION

**Presenter:**   ATLAS COLLABORATION

**Session Classification:**  Lunch @ MIT and Poster Session