



Contribution ID: 137

Type: **Presentation**

Quark versus Gluon Jet Tagging Using Charged-Particle Constituent Multiplicity with the ATLAS Experiment

Wednesday, 2 August 2017 11:57 (18 minutes)

Distinguishing quark-initiated from gluon-initiated jets is useful for many measurements and searches at the LHC. We present a quark-initiated versus gluon-initiated jet tagger from the ATLAS experiment using the number of reconstructed charged particles inside the jet. The measurement of the charged-particle multiplicity inside jets from Run 1 is used to derive uncertainties on the tagger performance for Run 2. With an efficiency of 60% to select quark-initiated jets, the efficiency to select gluon-initiated jets is between 10 and 20% across a wide range in jet p_T up to 1.5 TeV with about an absolute 5% systematic uncertainty on the efficiencies.

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Session Classification: QCD

Track Classification: QCD