

Abstract Submitted  
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**Q/G Tagged Dijet Search and Calibration** WANYUN SU, Shanghai Jiao Tong Univ — The energy regime provided by the Large Hadron Collider using an integrated luminosity of 139.0 fb<sup>-1</sup> of proton–proton collisions with a centre-of-mass energy  $\sqrt{s} = \sqrt{13}$  TeV opens a window to search for new physics beyond the standard model (BSM). Heavy resonance searches through the dijet mass spectrum have been previously performed at the ATLAS. While untagged searches have a good sensitivity to strongly produced particles that decay into generic dijets with large cross sections, gluon taggers, in particular Number of charged tracks (N<sub>trk</sub>) and Boosted Decision Trees (BDT) can improve the discovery significance of di-gluon resonances. However, quark-versus-gluon jet tagging is difficult to calibrate due to hadronization. Thus, a "matrix method" is applied to calibrate both N<sub>Trk</sub> and BDT taggers. N<sub>trk</sub> is further applied to show improvement on discovery significance. The Impact of systematic uncertainties derived from the calibration procedure will also be shown.

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