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b-jet efficiency calibration in Run 2

The identification of jets originating from b-quarks is crucial for many physics analyses in ATLAS. Triggers that include b-jet requirements are critical for efficiently selecting specific signal events in multijet final states, such as HH $\longrightarrow$ bbbb.
This work demonstrates the measurement of b-jet identification efficiency for b-tagging at the level of trigger only, and at the level of the combination of trigger and offline b-tagging. The combined efficiency is important for analyses that use both online and offline b-tagging as it allows consistency with those analyses that are based on offline tagging only.
The measurement utilizes data from enriched samples of dileptonic top anti-top decays. The b-tagging efficiency is calculated directly from the data using a likelihood-based approach. These efficiencies are benchmarked against simulation, and simulation-to-data scale factors are calculated to correct differences.
These updated calibrations increase the precision and confidence in the selection of b-jets in ATLAS Run 2 analyses.

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