

First evaluation of the jet energy resolution using pileup events with the ATLAS detector

For the first time, the $R=0.4$ jet energy resolution (JER) is evaluated using a dataset reconstructed from pileup events with the ATLAS detector. Traditionally, JER evaluated using the p_T imbalance of dijet events is limited by the available statistics at low p_T due to the increasingly prescaled jet triggers. An alternative approach is to utilize pileup events, which are recorded at the same time with otherwise-triggered events. This provides a much larger statistics at low p_T compared to the traditional approach, and thus allows higher precision for the determination of the low p_T $R=0.4$ JER. The pileup JER results presented now, are using the full 2017 and 2018 proton-proton collision dataset. A comparison is made to official ATLAS JER measurement from 2017 and the benefits of the pileup approach are discussed.

Primary author: PIRTTIKOSKI, Antti (Universite de Geneve (CH))

Presenter: PIRTTIKOSKI, Antti (Universite de Geneve (CH))