

Measurement of collinear W boson emission off high transverse momentum jets using full Run-2 data.

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The production of a single electroweak vector boson in association with jets (V +jets) is one of the fundamental processes at the Large Hadron Collider (LHC) experiment. The leptonic decay modes of this process provides a clean experimental signature for measuring the electroweak sector of the Standard Model and the perturbative QCD accuracy in multi-jets final states.

In the talk, we will focus on the differential measurement of single W decaying to an electron or muon from a high transverse momentum jet with small angular separation, the so called collinear W+jets production. This measurement makes use of the LHC full Run-2 proton-proton collision datasets, corresponding to an integrated luminosity of 139.0 fb⁻¹. The data is compared against newly develop state-of-the-art multi-jet merged setups accurate to next-to-leading order in the strong and weak coupling constants. The details of the generator configurations and their CPU costs will be discussed, and unfolded kinematic distributions at particle level in the collinear W+jets phase-space will be compared with the measured data cross sections.

Career stage

Graduate student

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