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Trigger-Level Analysis searches for dijet resonances produced in association with initial-state photons with Run 3 ATLAS data at the LHC

Monday 7 April 2025 17:30 (15 minutes)

Trigger-Level Analyses are an alternative strategy to record data and trigger on low-mass or low-momentum final states with the ATLAS detector. The premise of the workflow is to save minimal information comprised of only the trigger-level objects needed to reconstruct final state processes, and the information needed to calibrate those objects. This reduces the size of events stored to disk, thereby allowing much higher rate triggers with looser thresholds than in standard approaches to be used. This talk will give an overview of the application of Trigger-Level Analysis in an early Run 3 dijet resonance search for Z'dark matter mediators produced in association with initial state photons. Since the analysis team is yet to publish final results at the time of the conference, the focus of the talk will be on various jet calibration and performance studies that are essential to using non-standard objects in analyses. An outlook on the complementarity of the search results with those of other dark matter experiments will also be discussed.

Author: AMERL, Maximilian (The University of Manchester (GB))

Presenter: AMERL, Maximilian (The University of Manchester (GB))

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