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Optimization of a jet finding algorithm for the HL-LHC ATLAS L0 trigger

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Upcoming hardware updates to the ATLAS detector will allow for jet finding algorithms similar to those used offline to be implemented at the lowest level of the trigger. This will allow to increase the coherence between the data selected in the analyses and those selected by the trigger. Motivated by the fact that the anti-kT is one of the most commonly used jet finding algorithms in the ATLAS analyses, we studied the performance of a modified anti-kT algorithm based on regions of interest (ROIs) which was developed with the intention to be run online in the L0 trigger of the HL-LHC ATLAS detector, and carried out a series of optimizations in order to improve the resulting trigger efficiency.

Author: BUITRAGO CARDENAS, Carlos Fernando (Universidad Nacional de Colombia (CO))

Co-authors: SANDOVAL USME, Carlos (Universidad Nacional de Colombia); PALACINO, Gabriel (Indiana University (US))

Presenter: BUITRAGO CARDENAS, Carlos Fernando (Universidad Nacional de Colombia (CO))

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