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Missing Transverse Momentum Trigger Performance Studies for the ATLAS Calorimeter Trigger Upgrades BRIANNA STAMAS, ELLIOT PARRISH, LUC LISI, CHRISTOPHER DUDLEY, STEPHANIE MAJEWSKI, University of Oregon — The ATLAS Experiment is one of two general purpose detectors at the Large Hadron Collider at CERN in Geneva, Switzerland. In anticipation of discovering new physics, the detector will undergo numerous hardware upgrades including improvements to the Liquid Argon Calorimeter trigger electronics. For the upgrade, one component of the Level-1 trigger system will be the global feature extractor, gFEX, which will house three field programmable gate arrays (FPGAs). Specifically, in order to improve the missing transverse energy (E_T^{miss}) trigger, an adapted topological clustering algorithm is being investigated for implementation on the FPGAs for reconstruction of proton-proton interactions in the ATLAS detector. Using simulated data, this study analyzes the performance of the adapted algorithm in software.

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