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ATLAS level-1 calorimeter trigger: Phase-I Upgrade Performance

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Following the Run 2 LHC data taking, the ATLAS experiment at CERN will enter the first phase (Phase-I) of the planned detector subsystem upgrades. Several systems, in particular, the hardware-based Level-1 calorimeter trigger (L1Calo) will be significantly enhanced to provide improved selectivity at the higher expected pileup in Run 3. During the second long shutdown (LS2) in 2019-2020, the existing L1Calo electronic processor modules will be replaced with new, advanced boards, called feature extractors, which will receive higher-granularity information from the calorimeters and will support the implementation of more sophisticated algorithms to select electrons or photons, jets, met and large-radius jets.

This presentation will summarise the anticipated functionality of the upgraded L1Calo trigger system. In particular, the performance of the preliminary trigger-level algorithms and a comparison to the operation of the Run 2 L1Calo system will be described.

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