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ATLAS Triger Upgrades

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After the successful operation of the ATLAS trigger and data-acquisition systems during Run 1 at the LHC, essential upgrades are required to prepare for future luminosity conditions, expected to exceed 2x10ˆ34 cmˆ-2sˆ-1 by 2019. An important part of the programme is the upgrade of the Level-1 hardware-based trigger, which is a fixed latency pipelined system processing signals from the electromagnetic and hadronic calorimeters and muon systems. The challenge is to preserve the trigger performance for a wide range of physics processes, including measuring the properties of the newly discovered Higgs boson particle. This means maintaining low energy thresholds under higher pile-up conditions and within a maximum upgraded level-1 event rate of 100 kHz. In this presentation we will review the ATLAS trigger upgrade programme with particular empathises on the Run 2 (2015-2017) and Run 3 (2019-2021) preparations for the Level-1 trigger.

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