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## Upgrades to the ATLAS trigger system

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In coming years the LHC is expected to undergo upgrades to increase both the energy of proton-proton collisions and the instantaneous luminosity. In order to cope with these more challenging LHC conditions, upgrades of the ATLAS trigger system will be required. This talk will focus on some of the key aspects of these upgrades. Firstly, the upgrade period between 2019-2021 will see an increase in instantaneous luminosity to  $3 \times 10^{34} \text{cm}^{-2} \text{s}^{-1}$ . Upgrades to the Level 1 trigger system during this time will include improvements for both the muon and calorimeter triggers. These include the upgrade of the first-level Endcap Muon trigger, the calorimeter trigger electronics and the addition of new calorimeter feature extractor hardware, such as the Global Feature Extractor (gFEX). An overview will be given on the design and development status the aforementioned systems, along with the latest testing and validation results.

By 2026, the High Luminosity LHC will be able to deliver 14 TeV collisions with an order of magnitude larger instantaneous luminosity, expected to reach  $7.5 \times 10^{34} \text{cm}^{-2} \text{s}^{-1}$ .

ATLAS is planning a series of upgrades to prepare for this even more challenging environment. This presentation will describe the baseline architecture for this upgrade, while also detailing on-going studies into new system components and their interconnections. The overall challenge here is to meet low latency and high data throughput requirements within the limits given by technological evolution. A discussion on the physics motivations and the expected performance based on simulation studies will be presented, together with the open issues and plans.

### Experimental Collaboration

ATLAS

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