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The ATLAS Experiment Upgrade Program

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After 9 years of successful operation in proton-proton collisions reaching up to $\sqrt{s}$ = 13 TeV, the ATLAS detector started in 2018 the preparations for an ambitious physics project, aiming the exploration of very rare processes and extreme phase spaces, an endeavor that will require a substantial increase in the integrated luminosity. To accomplish this purpose, a comprehensive upgrade of the detector and associated systems was devised and planned to be carried out in two phases. The Phase-I upgrade foresees new features for the muon detector, for the EM calorimeter trigger system and for all trigger and data acquisition chain. For the Phase-II upgrade, ATLAS will fully replace its inner tracker, install a new timing detector and the calorimeters and muon systems will operate on a free-running readout scheme. This presentation will summarize the physics motivations, the expected performance of the aforementioned projects, as well as the new insights gained during the construction phase.

Submitted on behalf of a Collaboration?

Yes

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