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## Upgrade project and plans for the ATLAS detector and trigger

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In the coming years different phases of upgrades for the LHC complex are foreseen, which will allow to extend the physics potential of its experiments. Through two different phases (namely phase-1 and phase-2), the average luminosity will be increased by a factor 5-10 above the design luminosity. Consequently, the detectors and the infrastructure of the DAQ system of the experiments will need to be upgraded as well, to take into account the increased radiation level and particle rates foreseen at such high luminosity.

In this paper we describe the changes to the ATLAS detector and its trigger system, to face the increased number of interactions per collisions. This will cause higher level of pile-up and increased rates at each level of the trigger. The trigger detectors will improve their selectivity by benefiting from the increased granularity available at the trigger level, which will allow for a higher resolution. The use of the tracking system in the lower levels of the trigger selection is also discussed. It is foreseen that the second level trigger will be helped by a new Fast Tracking. The addition of tracking information at the first trigger level during the LHC upgrade phase-2 is currently under discussion. Different scenarios are compared, having in mind the requirements to achieve the expected physics potential of ATLAS in this high luminosity regime.

### for the collaboration

ATLAS Collaboration

**Primary author:** PASTORE, Francesca

**Presenter:** Ms PASTORE, Francesca (Royal Holloway University of London)

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