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Improvements to ATLAS track reconstruction for Run-2

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Run-2 of the LHC will provide new challenges to track and vertex reconstruction with higher energies, denser jets and higher rates. In addition, the Insertable B-layer (IBL) is a fourth pixel layer, which has been inserted at the centre of ATLAS during the shutdown of the LHC. We will discuss improvements to track reconstruction developed during the two year shutdown of the LHC. These include novel techniques developed to improve the performance in the dense cores of jets, optimisation for the expected conditions, and a big software campaign which lead to more than a factor of three decrease in the CPU time needed to process each recorded event.

Collaboration

ATLAS collaboration

Primary authors: Ms GREY, Heather (CERN); Mr PEGAN GRISO, Simone (Berkeley LBNL)

Presenter: CAIRO, Valentina (CS)

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