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ATLAS Open Data software: the development of simple-but-real HEP data analysis examples

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The ATLAS Collaboration is releasing a new set of recorded and simulated data samples at a centre-of-mass energy of 13 TeV. This new dataset was designed after an in-depth review of the usage of the previous release of samples at 8 TeV. That review showed that capacity-building is one of the most important and abundant uses of public ATLAS samples. To fulfil the requirements of the community and at the same time attract new users and use cases, we developed real analysis software based on ROOT in two of the most popular programming languages: C++ and Python. These so-called analysis frameworks are complex enough to reproduce with reasonable accuracy the results -figures and final yields- of published ATLAS Collaboration physics papers, but still light enough to be run on commodity computers. Computers that university students and regular classrooms have, allow students to explore LHC data with similar techniques to those used by current ATLAS analysers. We present the development path and the final result of these analysis frameworks, their products and how they are distributed to final users inside and outside the ATLAS community.

Consider for promotion

No

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