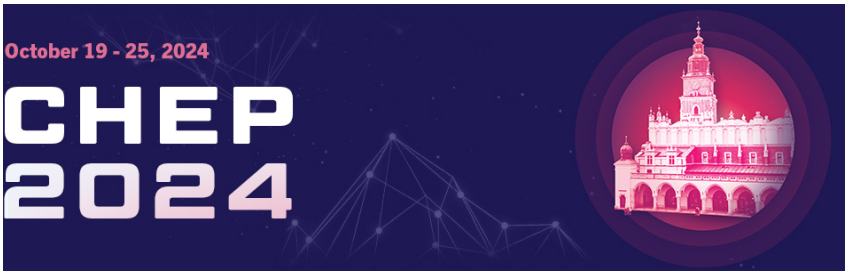

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RNTuple: A CMS Perspective

Wednesday 23 October 2024 16:33 (18 minutes)

ROOT is planning to move from TTree to RNTuple as the data storage format for HL-LHC in order to, for example, speed up the IO, make the files smaller, and have a modern C++ API. Initially, RNTuple was not planned to support the same set of C++ data structures as TTree supports. CMS has explored the necessary transformations in its standard persistent data types to switch to RNTuple. Many challenges were encountered as alternative data structures were explored. This contribution will discuss the challenges uncovered and how collaboration with the ROOT team allowed them to be overcome. The solution to the challenges allows progressive changes to the CMS data types rather than requiring a sudden change to all data types to be stored in RNTuple. Once the solution was achieved, storage performance comparisons using the CMS data types were possible between RNTuple and TTree. This contribution will also present the results of those comparisons.

Primary authors: COLLABORATION, CMS; SMITH, Nick (Fermi National Accelerator Lab. (US))

Presenter: SMITH, Nick (Fermi National Accelerator Lab. (US))

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