



Contribution ID: 265

Type: Talk

Evolution of the ATLAS event data model for the HL-LHC

Monday 21 October 2024 14:42 (18 minutes)

Run 4 of the LHC will yield an unprecedented volume of data. In order to process this data, the ATLAS collaboration is evolving its offline software to be able to use heterogenous resources such as GPUs and FPGAs. To reduce conversion overheads, the event data model (EDM) should be compatible with the requirements of these resources. While the ATLAS EDM has long allowed representing data as a structure of arrays, further evolution of the EDM can enable more efficient sharing of data between CPU and GPU resources. Some of this work will be summarized here, including extensions to allow controlling how memory for event data is allocated and implementation of jagged vectors.

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Session Classification: Parallel (Track 3)

Track Classification: Track 3 - Offline Computing