

PDFflow: hardware accelerating parton density access

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We present the PDFflow library for parton density functions (PDFs) access which takes advantages of multi-threading CPU and graphical processing unit (GPU). PDFflow is built in python and it leverages the PDF interpolation algorithm with TensorFlow. The resulting optimized computation graph accelerates and parallelizes algorithm when a large grid of interpolated PDF points is requested. Thus new approach differs from state of the art libraries such as LHAPDF6, which are limited to sequentially interpolate PDF points, with parallelism through hardware acceleration. We benchmark PDFflow against the latest LHAPDF6 release and we show performance improvements of orders of magnitude concerning execution time while maintaining similar levels of accuracy.

I read the instructions

Secondary track (number)

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