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HERAFitter - an open source QCD Fit platform

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The proton parton distribution functions (PDFs) are essential for precision physics at the LHC and other hadron colliders. Their current level of accuracy dominates the theory uncertainties in Higgs production and it affects substantially theory predictions for Beyond Standard Model high mass production.

We would like to present the first stable release of the HERAFitter package - an open source project which provides a framework for QCD analyses in the context of multi-process and multi-experiment settings, bridging the state-of-the-art theory developments with an appropriate treatment of the precise experimental measurements. The HERAFitter program allows determination of the PDFs from the various measurements of the cross sections at ep, $p\bar{p}$ or pp colliders. It includes various options for theoretical models and different choices to account for the experimental uncertainties. Therefore, this project represents not only an ideal environment for benchmarking studies, but also a support for the QCD interpretation of data analyses within the LHC experiments, as already demonstrated by several publicly available LHC results using the HERAFitter framework.

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