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The LHC experimental data in the CT18 global QCD analysis

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The sheer volume of the LHC experimental data sensitive to the hadronic structure presents a formidable challenge for the global QCD analysis. In the CT18 global analysis, we implemented new approaches to streamline identification of the LHC experiments that have the greatest promise for constraining parton distributions in the nucleon at the next-to-next-to-leading order accuracy. Toward this goal, we augment the global PDF fits with fast data surveys in the Hessian approach using new computer programs ePump and PDFSense, as well as with detailed Lagrange Multiplier studies. A combination of these techniques delivers a detailed map of constraints on the hadron structure from multiple experiments.

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