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Proton structure in the LHC era: impact of the CMS measurements

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Precision of the proton structure description, being a fundamental topic of high-energy physics, remains the source of a large uncertainties in theory predictions for the cross sections at hadron colliders. On the other hand, with increasing precision in the LHC measurements of cross sections of production of jets, electroweak bosons and top-quark pairs, it becomes possible to constraint the description of the proton structure in yet unexplored kinematics. Presented is the impact of the CMS data collected in Run I and Run II on the understanding of the proton structure, expressed via parton distribution functions, and on the precision of the strong coupling constant and quark masses.

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