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## **Parton distributions in the proton from the LHeC**

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Due to the high energy and luminosity, the LHeC, for the first time, permits the unfolding of all parton momentum distributions: six quarks (including top) and gluon, over five orders of magnitude. It also determines the strong coupling constant with unprecedented precision, including a unique program for settling the heavy quark densities. The complete determination of the proton PDFs has important consequences for the BSM and Higgs program at the LHC, and in the future for the FCC pp program. This talk will review all these aspects of the LHeC physics program.

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