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Parton distributions and the W mass measurement SETH QUACKENBUSH, Florida State University, ZACK SULLIVAN, Illinois Institute of Technology — Errors arising from parton distributions are the dominant source of theoretical error in the W mass measurement at the Tevatron and LHC. With the large W cross section and steadily rising LHC luminosity, parton distributions are expected to become the limiting factor in measuring the W mass at the LHC. We examine the origins of these errors and discuss methods to minimize them. Naive theoretical analyses dramatically underestimate the error, primarily due to the influence of showering and detector resolution on shape of the W transverse mass distribution.

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