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Searching for extremely rare W decays at the LHC

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A gigantic number of W bosons will be produced by the LHC during its lifetime, opening up the possibility of making the first measurements of some extremely rare decay modes of this particle. The decay $W \rightarrow \pi \gamma$ has been previously searched for at LEP and the Tevatron, and these experiments already placed limits on the branching ratio approaching the standard model prediction, which is in the range $\sim 10^{-6}$ to $\sim 10^{-8}$. I will discuss the theoretical issues and motivation for the observation of this and similar decays of the W boson, and present an estimate of the LHC reach for these measurements.

Summary

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