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The rare B->pi mu mu decay

The rarest decay $B^{+->pi^+} mu^+ mu^-$ has been observed for the first time in 2012 with an integrated luminosity of 1.0 fb^{{-1}} by the LHCb experiment. A more precise measurement may appear before or during the 13 TeV run in 2015. Driven by the new data and the lack of updated SM prediction, we provide a new estimation of this rare decay process based on the QCD factorization (QCDF) approach. Explicitly, We give branching ratios of all four modes of B->pi mu⁺ mu⁻ at large recoil energy region, as well as the associated CP asymmetry and isospin asymmetry among these modes, which should be testable in near future by LHCb and Bell II.

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