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Study of the lepton flavour violating decays Bs to electron+muon

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The recent experimental measurements in the heavy flavour sector seem to indicate presence of physics beyond the standard model, though not conclusively. Though the measured branching ratio of $B_s^0 \to \mu^+\mu^-$ at the LHC experiments seem to be compatible with the standard model expectations within errors, it is imperative to search for other processes as a probe for new physics. We are studying the lepton flavour violating decays of $B_s^0 \to e^\pm\mu^\mp$ and $B^0 \to e^\pm\mu^\mp$ in proton-proton collision data collected with the CMS experiment at the center of mass energy of 13 TeV. Such decays are not allowed in the standard model but models with a heavy, neutral gauge boson (Z') or leptoquarks predict such transitions. Though BESIII and LHCb experiments have performed searches for these processes, they have not been studied yet by the CMS experiment which has collected about 10 billion B-decay events during Run2 operation of the LHC. Preliminary results of our study will be presented in this poster.

Session

Quark and Lepton Flavour Physics

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