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Lepton flavor violation in b-hadron decays in the LHC era

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We have studied the sensitivity of the CMS and LHCb experiments to lepton number violating decays of two b-hadrons: Λ_b^0 and B_s^0. We focus in the decay channels with two muons and additional hadronic activity. We show that the two experiments are sensitive to this type of process using the current luminosity recorded by them but also we show the perspectives for future periods of data taking from LHC collisions. Using a model with an additional Majorana neutrino we derive constraints on its coupling to the standard model particles and its mass based on the expected sensitivities by the CMS and LHCb experiments. It is clearly derived from this work that the findings of these two experiments would be competitive with the current experimental limits coming from other type of facilities.

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