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Study of DiMuon Rare Beauty decays with ATLAS and CMS

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The LHC experiments will perform sensitive tests of physics phenomena beyond the Standard Model (BSM). Investigation of decays of beauty hadrons represents an alternative approach in addition to direct BSM searches. The ATLAS and CMS efforts concentrate on those B decays that can be selected already at the first and second trigger levels. The most favorable trigger signature will be for B hadron decays with muons in the final state. Using this trigger, ATLAS and CMS will be able to accommodate unprecedentedly high statistics in so called Golden LHC channel Bs->J/ψφ, as well as in the rare decays sector. These are purely di-muon decays, and families of semi-muonic exclusive channels. Already with 1 fb-1 the sensitivity in the di-muon channels will be comparable to today worlds statistics. The strategy is to carry on the di-muon channel programme up to nominal LHC luminosity. In particular the Bs⟶μμ signal with 4.3 sigma significance can be measured combining low luminosity samples with those of one year of LHC operation at a luminosity of 10ˆ34cm-2 s-1. This precision allows excluding or confirming the SM unambiguously.

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