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ATLAS preparations for precise B-decay measurements sensitive to BSM phenomena

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The LHC experiments will perform sensitive tests of physics phenomena beyond the Standard Model (BSM). Investigation of the decay of beauty hadrons represents an alternative approach to direct BSM searches. The ATLAS efforts concentrate on those B decays that can be selected by the first and second trigger levels. The most favorable trigger signatures will be for B hadrons decaying to μμ, either directly or via a J/psi meson. Using the J/psi trigger ATLAS will be able to collect unprecedentedly high statistics of Bs->J/ψφ decays, allowing measurements of CP violating effects, which are predicted by some BSM models to be significantly larger than the Standard Model. The di-muon trigger will also give ATLAS access to potentially large numbers of rare B->mumu decays, which may also be sensitive to BSM physics. The strategy is to carry on the di-muon channel programme into the nominal LHC luminosity phase. The expected performance of the ATLAS trigger and event selection with respect to these two channels will be discussed.

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