Scalars 2015

Contribution ID : 23

NLO SQCD corrections to the decay of top-squarks to charm and neutralino

Content :

In order to solve the hierarchy problem, the stop quark should be rather light and its mass can be close to the one of the LSP. If the mass difference of the stop to the neutralino LSP is smaller than the top mass it can only decay flavour violating (mainly to charm and neutralino). The decay is not allowed in naive MFV at tree-level and is suppressed by small CKM angels in symmetry based MFV giving a sizable lifetime to the stop. We calculate the SQCD corrections to this deacy in the MSSM with generic sources of flavour-violation. Assuming that the SUSY breaking mechanism is flavour-blind the stop-neutralino-charm vertex is RGE-induced. Our new corrections allow us to use the 2-loop running and we study the numerical impact of our QCD correction.

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