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Anomalous t - Wb couplings: interplay of t - Wb decays and B - B mixing in MFV models (15' + 5')

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Precise measurements of the top quark decay properties at hadron colliders offer interesting new possibilities of testing the standard model. At the same time, recent intriguing experimental results concerning CP violation in the B_d and B_s systems have stimulated many studies of physics beyond the standard model. We investigate anomalous $tWdj$ interactions as a possible source of new effects in B_d s – B bar d s oscillations within a model independent approach based on the assumptions of Minimal Flavor Violation. After matching our effective operators onto the low-energy effective Lagrangian describing B_d s meson mixing and evolving it down to the B -mass scale, we extract the preferred ranges of the anomalous $tWdj$ interactions at the weak scale. These values are then compared to previously considered constraints coming from the rare radiative B X s gamma decay. Finally, we reconsider the associated effects in the t - bW decays and find that the W helicity fractions FL_+ can deviate by as much as 15%, 30% from their standard model values, respectively. The deviations in FL in particular, can reach the level of expected precision measurements at the LHC.

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