

K and B Physics in a Warped Extra Dimension with Custodial Protection

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I briefly introduce the theoretical basics of a warped extra dimension with custodial protection, paying particular attention to the flavour structure of this type of models.

Then I discuss the implications for particle-antiparticle mixing that is affected by tree level exchanges of KK gauge boson in an important manner. I show that although generically the experimental constraint from ϵ_K requires a KK scale of at least 20 TeV, even with KK modes in the reach of the LHC this constraint can be fulfilled without significant fine-tuning of the fundamental 5D Yukawa couplings. Simultaneously the CP-asymmetries $S_{\psi\phi}$ and A_{SL}^s , related to B_s mixing, can be significantly enhanced over their SM predictions.

After that I turn to the predictions for rare K and B decays in that scenario, that turn out to be dominantly affected by tree level flavour changing Z couplings to right-handed down-type quarks. It turns out then that while rare K decays can receive large corrections with respect to their SM predictions, the effects in B decays are small and challenging for future experiments. Interesting correlations between various observables occur, that allow in principle to distinguish this models from other new physics scenarios, such as models with Minimal Flavour Violation or the Littlest Higgs model with T-parity.

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