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Matching of gauge invariant dimension 6 operators for b to s and b to c transitions

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New physics realized above the electroweak scale can be encoded in a model independent way in the Wilson coefficients of higher dimensional operators which are invariant under the Standard Model gauge group. In this talk, I present the matching of the SU(3)C × SU(2)L × U(1)Y gauge invariant dim-6 operators on the standard B physics Hamiltonian relevant for b 8594; s and b 8594; c transitions. The matching is performed at the electroweak scale (after spontaneous symmetry breaking) by integrating out the top quark, W, Z and the Higgs particle. We first carried out the matching of the dim-6 operators that give a contribution at tree level to the low energy Hamiltonian. In a second step, we identified those gauge invariant operators that do not enter b 8594; s transitions already at tree level, but can give relevant one-loop matching effects.

Presenter: AEBISCHER, Jason (University of Bern)

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