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Electroweak Input Schemes in the SMEFT

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In recent years a great deal of work has been put into the framework that is the Standard Model Effective Field Theory. One loop calculations are currently being used to increase the precision of SMEFT predictions. Within these predictions, three Electroweak input parameters need to be decided on, with the historically accepted choice in the SM being the set {Alpha_EW, G_f, MZ}. Our work considers this choice of inputs and compares them to other, potentially more suitable, choices. We calculate the full decay rate of a number of processes up to one loop at dimension 6 in the SMEFT using three different input schemes. Comparison of the size of corrections, the number of different Wilson coefficients and the source of the Wilson coefficients appears enables discussion on the desirability of each potential input scheme allowing a more informed decision on scheme choice to be determined for future calculations.

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