

4.4 The Standard Model as an EFT

We have worked our way up in energy and have integrated out heavy leptons, quarks, gauge bosons. In each case we wrote down the relevant operators up to $d=6$.

It is interesting to also consider the case of additional, New Physics, particles and to then write down all SM operators up to $d=6$, which are invariant under

$$SU_c(3) \times SU_l(2) \times U_y(1).$$

There are many possibilities. Finding a minimal set is nontrivial.

A complete set was first written down
by Buchmüller and Wyler '86. However,
the minimal set was only constructed in
2010! (by Grządkowski, Istrzyński, Miśnik,
Zosiński.) See slides for the explicit

form of the $1 + 59 + 5$ operators!
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