

Unlocking the Standard Model : the 1-generation case

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I show that the Standard Model of weak interactions cannot have less than two Higgs doublets as soon as they are considered (to transform) as $\bar{q}_i q_j$ and $\bar{q}_i \gamma_5 q_j$ bilinears. There are exactly two for one generation of quarks, which is the simple case under scrutiny here. All basic physical properties, not only of massive gauge bosons, but also of fermions and $J=0$ mesons are correctly described. Re-written in this way, the Standard Model appears to be “complete” in the sense that no extra physics, no heavy fermion nor any additional interaction is needed to calculate the mass of the second Higgs bosons, which appears as a suitable dark matter candidate.

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