



ID de Contribution: 4

Type: Non spécifié

## Dynamical generation of the weak and Dark Matter scales from strong interactions

*mercredi 5 novembre 2014 14:00 (1 heure)*

Assuming that mass scales arise in nature only via dimensional transmutation, we extend the dimension-less Standard Model by adding vector-like fermions charged under a new strong gauge interaction. Their non-perturbative dynamics generates a mass scale that is transmitted to the elementary Higgs boson by electro-weak and possibly Yukawa interactions. In its minimal version the model has the same number of parameters as the Standard Model and predicts that the electro-weak symmetry gets broken and predicts new-physics in the multi-TeV region which is compatible with all existing bounds. It also provides two Dark Matter candidates stable thanks to accidental symmetries: a composite scalar in the adjoint of  $SU(2)_L$  and a composite singlet fermion. Their thermal relic abundance is predicted to be comparable to the measured cosmological DM abundance.

Based on: O.Antipin, M.Redi, and A.Strumia [arXiv:1410.1817]

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