Scalars 2015

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Electroweak and Dark matter scalegenesis from a bilinear scalar condensate

Content :

We discuss an extension of the standard model based on the classically scale invariance. We introduce scalar fields coupled to strongly interacting gauge fields in hidden sector and the Higgs field in the standard model sector. In the model, the electroweak symmetry is broken through a condensation of the scalar fields by non-perturbative effects in the hidden sector. We formulate an effective model to quantitatively evaluate physical values such as the condensation of scalar bilinear. We show that the excitation of condensate can be the candidates of dark matter. Furthermore, we discuss the possibility of the strong first order electroweak phase transition in the model.

Primary authors : Mr. YAMADA, Masatoshi (Kanazawa University)

Co-authors : Prof. KUBO, Jisuke (Kanazawa University)

Presenter : Mr. YAMADA, Masatoshi (Kanazawa University)

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