



Dark matter in scale invariant extension of the standard model with strongly interacting hidden sector

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We analyze the scale-invariant extension of the standard model (SM) with a strongly interacting hidden sector by using AdS/QCD. Using AdS/QCD, we can reduce the number of input parameters to three, i.e., hidden pion decay constant, hidden pion mass and $\tan \beta$ that is defined as the ratio of the vacuum expectation values of the singlet scalar field and the SM Higgs boson. As a result, our model has sharp predictability. We perform the phenomenological analysis of the hidden pions, that is the dark matter (DM) candidates in the model. With various theoretical and experimental constraints we search for the allowed parameter space and find that both resonance and nonresonance solutions are possible. Some typical correlations among various observables such as relic density, Higgs signal strength and DM-nucleon cross section are scrutinized. We provide some benchmark points for experimental tests.

Primary author: JUNG, Dong-Won (Korea University)

Co-authors: Dr HATANAKA, Hisaki (KIAS); KO, pyungwon (Korea Inst. for Advanced Study (KIAS))

Presenter: JUNG, Dong-Won (Korea University)

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