

Low-scale Seesaw Mechanism in a U(1) extension of the Standard Model with classical scale invariance

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The Standard Model (SM) of particle physics has been very successful in explaining a wide range of experimental observations. However, it still can not address certain issues such as the non-zero neutrino masses, existence of dark matter and the baryon asymmetry of the Universe. This motivates studies beyond the SM. Among the various scenarios that have been proposed in the literature, the models in which the SM is extended by a U(1) gauge group has received some attention. I will first briefly talk about a class of gauged U(1) extensions of the SM, where active light neutrino masses are generated by an inverse seesaw mechanism. Then I will motivate the conformal symmetric models with classical scale invariance (CSI) and discuss a scenario where one can incorporate both CSI and low-scale seesaw in the context of U(1) extensions. Some of the phenomenological aspects of this model, such as, the recent W boson mass anomaly, leptogenesis, etc., will also be discussed.

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