

# Cosmological Signatures of the SM Vacuum Instability

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The Standard Model electroweak vacuum lies very close to the boundary between stability and metastability, with the last option being the most likely. This can have important cosmological implications but relies on physics at scales beyond  $10^{11}$  GeV, which makes the scenario difficult to test. Nevertheless, two tantalizing cosmological signatures of such instability could arise if Higgs fluctuations during inflation probe the instability region: 1) Such fluctuations can serve as seeds for dark matter in the form of primordial black holes and 2) they can source gravitational waves observable at LISA or the Einstein Telescope and Advanced-Ligo.