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Cosmological Signatures of a UV-Conformal Standard Model

Thursday 29 May 2014 17:00 (20 minutes)

Quantum scale invariance in the UV has recently attracted renewed interest as a solution to the hierarchy problem arising in the Standard Model (SM). In this work we explore the cosmological signatures at the electroweak scale of models where scale invariance is broken in a "hidden" sector coupling to the SM via gauge interactions only. We find that these models may naturally give rise to a strong electroweak phase transition generating a large stochastic gravitational wave background to be searched for by future space-based detectors such as eLISA and BBO. The requirement of a consistent cosmological history of the Universe also provides information on the breaking of scale invariance.

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