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Cosmology With Negative Absolute Temperatures

Friday 11 September 2015 15:00 (20 minutes)

Negative absolute temperatures are an exotic thermodynamical consequence of quantum physics which has been known since the 1950's (having been achieved in the lab on a number of occasions). Recently, the work of Braun et al (Science, 2013) has not only rekindled interest in these counter-intuitive regimes but also sparked a debate which has forced a revision of the very foundations of statistical physics.

The purpose of this talk is to provide the first ever (as far as we are aware) discussion of the possible cosmological relevance of these phenomena. In particular, we shall investigate how they naturally give rise to an inflationary epoch and address the challenges to successfully ending inflation in these types of scenarios.

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