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Does the detection of primordial gravitational waves exclude low energy inflation?

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We show that a detectable tensor-to-scalar ratio ($r \geq 0.001$) on the CMB scale can be generated even during extremely low energy inflation which saturates the BBN bound $\rho = (30 \text{ MeV})^4$. The source of the gravitational waves is not quantum fluctuations of graviton but those of $SU(2)$ gauge fields, energetically supported by coupled axion fields. The curvature perturbation, the backreaction effect and the validity of perturbative treatment are carefully checked. Our result indicates that measuring r alone does not immediately fix the inflationary energy scale.

Presentation type

Parallel talk

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