

From the Hubble tension to the Harrison-Zeldovich spectrum

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An exact scale-invariant Harrison-Zeldovich spectrum, i.e. $n_s = 1$, has been ruled out at 8.4σ level according to Planck results. However, the situation changes when we consider the Hubble tension. Extra energy injection in early cosmology (e.g. Early Dark Energy), which is a class of promising solutions of the Hubble tension, seems to call for the return of $n_s = 1$. Using recent observational data, we show strong evidence for $n_s = 1$ if the Hubble tension is resolved in this way. Furthermore, we show how these solutions can affect the observation constraints on the r - n_s plane, bringing unforeseen impacts to the inflation model.

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