Contribution ID: **23** Type: **not specified**

Preheated inflation

Tuesday 15 April 2025 12:30 (15 minutes)

We develop and analyse a novel mechanism based on Warm Little Inflaton models that allows for production of scalar particles χ during the slow-roll regime due to a narrow parametric resonance. We show that an appreciable energy density of χ particles can be generated through this mechanism without it becoming the dominant contribution to the Friedmann equation, thus preserving the underlying inflationary paradigm. The backreaction on the inflaton is obtained, and its effects on several CMB observables are computed. The spectrum of induced gravitational waves is also determined. We obtain a modification of the curvature power spectrum which includes features that may fall within the range of future observations, as well as a substantial contribution to the tensor power spectrum.

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Session Classification: Session 6 - Early Universe

Track Classification: Talk