

Resonant particle production during the inflationary epoch

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The usual inflationary paradigm places the reheating period strictly after the slow-roll regime of the inflaton field comes to an end. We develop and analyse a novel mechanism that allows for production of scalar particles during the slow-roll regime due to a narrow parametric resonance found in the equations of motion. It is shown that an appreciable number of particles can be produced through this mechanism without their energy density becoming dominant, thus breaking the underlying inflationary paradigm.

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