

Probes of reheating after non-Abelian axion-like inflation

Thursday 16 May 2024 12:22 (5 minutes)

We consider a model, where a single inflaton interacts as an axion with Yang-Mills gauge bosons. As these rapidly thermalize, the friction felt by the inflaton field is increased, leading to a self-amplifying process. The corresponding gravitational wave spectrum is enhanced by thermal contributions at large confinement scales of the Yang-Mills sector, which heats up to high temperatures, yet below the critical value.

On the other hand, the gauge bosons of the thermal bath may represent part of a dark sector. Assuming a feeble coupling to the visible sector, the stable component of the dark sector satisfies the bounds on the relic abundance, if its confinement scale takes values far below those relevant to the gravitational wave signal so that the dark sector is in a deconfined phase at the end of inflation. The reheating of the Standard Model is most efficiently actuated by dark glueballs after the confinement phase transition. The latter might represent an additional source of gravitational waves.

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yes

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Session Classification: Gravitational Waves