

Gravitational wave background from vacuum and thermal fluctuations during axion-like inflation

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We revisit the framework of axion-like inflation, considering a warm inflation scenario in which the inflaton couples to the topological charge density of non-Abelian gauge bosons whose self-interactions result in a rapidly thermalizing heat bath. Including both dispersive (mass) and absorptive (friction) effects, we find that the system remains in a weak regime of warm inflation (thermal friction Hubble rate) for phenomenologically viable parameters. We derive an interpolating formula for vacuum and thermal production of tensor perturbations in generic warm inflation scenarios, and find that the perturbations exhibit a model-independent f^3 frequency shape in the LISA window, with a coefficient that measures the maximal shear viscosity of the thermal epoch.

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