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Inflationary axions with non-minimal couplings with gravity

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We consider a scenario in which the inflaton is a pseudoscalar field non-minimally coupled to gravity and to an emsamble of U(1) gauge fields through axial couplings. It is well known that the presence of axial couplings leads to a production of gauge particles which acts as a friction term in the dynamics of the inflaton, producing a slow-roll regime even in presence of a steep potential and that this interaction provides an efficient mechanism for the sourcing of chiral gravitational waves. In this talk we discuss some consequences of the introduction of the non-minimal coupling to gravity in this system. During the talk we review some details about the non-minimally coupled dynamics, and discuss the constraints on the model coming from the measurements of cosmological parameters. We put some emphasis on the issue of sourced tensor modes in this model. Finally, we comment on a mechanism in which the axion is coupled to a massive vector field.

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