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Flavor Violating Axions in the Early Universe

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Flavor violating axion couplings can be in action before recombination, and they can fill the early universe with an additional radiation component. Working within a model-independent framework, we consider an effective field theory for the axion field and quantify axion production. Current cosmological data exclude already a fraction of the available parameter space, and the bounds will improve significantly with future CMB-S4 surveys. Remarkably, we find that future cosmological bounds will be comparable or even stronger than the ones obtained in our terrestrial laboratories.

In-person participation

Yes

Primary author: YUN, Seokhoon (Istituto Nazionale di Fisica Nucleare)**Co-author:** D'ERAMO, Francesco (PD)**Presenter:** YUN, Seokhoon (Istituto Nazionale di Fisica Nucleare)**Session Classification:** Astroparticle Physics and Cosmology**Track Classification:** Astroparticle Physics and Cosmology