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Updated BBN cosmological constraints on Beyond Standard Model physics

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Big Bang Nucleosynthesis (BBN) is one of the most reliable tests of Beyond Standard Model (BSM) physics due to the remarkable concordance between the theoretically predicted and the derived from observations abundances of light elements produced primordially. Recently the primordial light elements D and He-4 were determined with higher accuracy. This allows to update and strengthen the Big Bang Nucleosynthesis constraints on physics beyond Standard Model.

We consider several models representing BSM physics. We derived updated more stringent BBN constraints on electron-sterile neutrino oscillations parameters corresponding to 1% accuracy of the determination of the primordial produced Helium-4. We present new cosmological constraints on the number of the effective degrees of freedom of light particles during the BBN epoch and updated the BBN constraints on the freezing temperature of the light sterile neutrinos.

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