



Contribution ID: 14

Type: **Parallel Contributed Talk**

Neutrino thermalization in the early universe: precision calculations

Monday, 22 February 2021 17:30 (20 minutes)

In this talk I will discuss the calculation of neutrino oscillations in the early Universe and of the neutrino thermalization, quantified in particular by the effective number of neutrinos (Neff). Precision calculations of Neff are important in light of the future improvements in the experimental determinations. I will briefly review the state-of-art numerical results and discuss the theoretical expectations for Neff in different scenarios: the standard three-neutrinos case, a case with an additional light sterile neutrino and a non-standard scenario with low-reheating.

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Session Classification: Non Standard Interactions and Cosmology

Track Classification: Neutrino Theory and Cosmology