

Neutrino decoupling in standard and non-standard scenarios

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We discuss the phenomenology of neutrino decoupling in the early universe, by summarising the details of the calculation in standard and non-standard scenarios. We present the state-of-the-art calculation of the effective number of neutrino species in the early universe (N_{eff}) in the three-neutrino case, which gives $N_{\text{eff}}=3.044$, and show how the result can change when additional particles (such as sterile neutrinos or decoupled scalar fields) or non-standard cosmological scenarios (low reheating models) are considered. Implications for Big Bang Nucleosynthesis are also briefly discussed.

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