



PHYSICS AND ASTRONOMY SEMINAR

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“Precision big bang nucleosynthesis with improved Helium-4 predictions”

Abstract

"Primordial nucleosynthesis or Big-Bang Nucleosynthesis (BBN) happens during the first 300 seconds of our Universe. It is one of the three evidences for the big-bang model, together with the cosmological expansion and the Cosmic Microwave Background (CMB). Now that the number of neutrino families and the baryonic densities have been fixed by laboratory measurements or CMB observations, it has become a parameter free model. Hence, it is widely used to exclude or constrain extension of the standard cosmological model. Since the most recent measurements of primordial deuterium and Helium-4 abundances reach the percent level in precision, it is necessary to obtain a similar precision in theoretical predictions. I will first review the basic physics of primordial cosmology and BBN and then review the various effects which need to be taken into account at that epoch in order to obtain such precision."

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