

Abstract Submitted
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BBN and CMB Constraints on Dark Radiation Revisited NISHANTH SASANKAN, GRANT MATHEWS, MAYUKH GANGOPADHYAY, University of Notre Dame — The effect of dark radiation on BBN and CMB has been studied earlier. We revised the study, since new data has been available for light element abundances and Planck has new and improved data on CMB. We study the effect of an additional term derived by integrating the Einstein equation in the 5-dimensional Randall-Sundrum Model. This new term scales as a^{-4} and hence the term 'radiation'. This term is the constant of integration and it can be either positive or negative. Dark radiation can have significant effects on light element abundances at the end of big bang nucleosynthesis (BBN) and on angular spectrum of cosmic microwave background (CMB). We take ρ_{Dr} to be between -41.5% and +70% of ρ_γ and the corresponding changes in BBN abundances and CMB spectrum are observed. In this new analysis we find that ρ_{dr}/ρ_γ has a preference for positive dark radiation.

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