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BBN and the Lithium Problem NISHANTH SASANKAN, Univ of Notre Dame, ATUL KEDIA, GRANT. J. MATHEWS TEAM — Big Bang Nucleosynthesis has been a computational tool to test the earliest conditions after big bang. It has given very precise results for most of the primordial nuclei abundances. These values have been confirmed by multiple observations. However the computational model of BBN predicts almost two to three times more Lithium-7 abundance than what is confirmed by observations. This is known as the cosmic lithium problem. Many solutions has been proposed for this problem. One such solution is to re-evaluate the nuclear reaction rates with some modified particle energy distribution, namely Tsallis distribution. However there is no physical motivation behind the assumption. We explore physical conditions which can provide distributions that are similar to Tsallis distribution. One such distribution is the Maxwell-Juttner distribution. It is a purely relativistic distribution accounting for the fact that no particle can exceed the speed of light. Which is in contrast to the Maxwell-Boltzmann distribution of velocities. We re-calculate the nuclear reaction rates in the BBN network, to study the effects it will have on the final primordial abundances and the Lithium problem.

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