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Non-extensive solution to the cosmological lithium problem

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The disagreement of the predicted abundance of primordial 7Li with the observed abundance is a longstanding problem in Big Bang Nucleosynthesis theory[1, 2]. Solutions to this problem using conventional astrophysics and nuclear physics have not been successful over the past few decades[3]. We have investigated the impact on BBN predictions of adopting a generalized distribution called Tsallis distribution to describe the velocities of nucleons. We 1nd excellent agreement between predicted and observed primordial abundances of D, 4He, and 7Li for 1.069q1.082, suggesting a possible new solution to the cosmological lithium problem[4].

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