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Big Bang Nucleosynthesis with a non-Maxwellian distribution JOHN FUQUA, CARLOS BERTULANI, Texas A&M University-Commerce, MAHIR HUSSEIN, Instituto de Fisica, Universidade de Sao Paulo — I will present results on the abundances of light elements based on the big bang nucleosynthesis model calculated using the Tsallis non-extensive statistics. The impact of the variation of the non-extensive parameter q from the unity value is compared to observations and to the abundance yields from the standard big bang model. We find large differences between the reaction rates and the abundance of light elements calculated with the extensive and the non-extensive statistics. We found that the observations are consistent with a non-extensive parameter q = 1+0.05-0.12, indicating that a large deviation from the Boltzmann-Gibbs statistics (q = 1) is highly unlikely.

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