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Almost extensivity of Barrow entropy as favoured by the full dynamical and geometrical set of cosmological data

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I will briefly introduce into the problem of nonextensive entropies (Bekenstein, Tsallis, Barrow, Renyi, Sharma-Mittal) and their applications to black holes and, in particular, to cosmology. Then, I will concentrate onto the Barrow entropy (strongly related to Tsallis entropy) and show how the full set of most updated dynamical and geometrical data in cosmology points towards an extensive Gibbs-like entropic behaviour of it. In fact, the data limits Barrow entropy parameter to $\Delta > 0.86$ which is close to the maximum threshold of $\Delta = 1$ where the fractal dimension of the area-horizon becomes almost or just the volume and the intensivity is recovered. Finally, I will comment on the possible (slight resolution) of the cosmological tensions by Barrow entropy. Literature 1. M.P. Dabrowski and V. Salzano, Geometrical observational bounds on a fractal horizon holographic dark energy, Physical Review D 102, 064047 (2020). 2. T. Denkiewicz, V. Salzano, M.P. Dabrowski, Barrow nearly extensive Gibbs-like entropy favoured by the full dynamical and geometrical data set in cosmology, arXiv 2303.11680.

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