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Tsallis statistics, thermofractals and QCD

Tuesday, 31 August 2021 12:00 (30 minutes)

In this work, we study the non-extensive Tsallis statistics and its applications to QCD and high energy physics. In particular, we present recent investigations on the power-law distributions arising in high energy physics experiments focusing on a thermodynamic description of the system formed, based on Tsallis statistics which could explain this power-law behavior. The possible connections of this statistics with a fractal description of hadrons is also analyzed. Finally, it is discussed the applications of Tsallis statistics in QCD thermodynamics and the equation of state, as well as some implications for Bose-Einstein condensation. This work is based on Refs. [1,2,3,4].

References
[1] E. Megias, V.S. Timoteo, A. Gammal, A. Deppman, "Bose-Einstein condensation and non-extensive statistics", eprint arXiv:2105.07548.
[2] A. Deppman, E. Megias, D.P.Menezes, "Fractals, nonextensive statistics, and QCD", PRD101 (2020) 3, 034019.
[3] E. Andrade, A. Deppman, E. Meǵıas, D.P. Menezes, T. Nunes da Silva, "Bag-type model with fractal structure", PRD101 (2020) 5, 054022.
[4] A. Deppman, E. Megias, D.P. Menezes, "Fractal structures of Yang-Mills fields and non extensive statistics: applications to high energy physics", MDPI Physics 2 (2020) 3, 455-480.

Is this abstract from experiment?

No

Name of experiment and experimental site

No experiment.

Is the speaker for that presentation defined?

Yes

Details

Eugenio Megias, Dr., University of Granada, Spain, webpage:
http://www.ugr.es/~emegias/index_en.html

Internet talk

Yes

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