



Contribution ID: 293

Type: **Talk**

## 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. Megias, 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](http://www.ugr.es/~emegias/index_en.html)

### Internet talk

Yes

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