

DERIVING THE OLD CURADO-TSALLIS FORMALISM OF NON- EXTENSIVE THERMODYNAMICS FROM GAUSS PRINCIPLE

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ABSTRACT

In this paper we prove that the old Curado-Tsallis formalism of non-extensive thermodynamics can be derived from both Jaynes and Gauss principles. Therefore, the two principles may be considered equivalent from this point of view.

REFERENCES

- [1] JAYNES, E.T., Phys. Rev., vol. 106, 1957, pag. 620; vol. 108, 1957, pag. 171
- [2] KULLBACK, S., Information Theory and Statistics, Wiley, New York, 1959.
- [3] KEYNES, J.M., Treatise on Probability, St. Martin 's Press, New York, 1921.
- [4] LAVENDA, B.H., Statistical Physics: A Probabilistic Approach, Wiley, New York, 1991.
- [5] LAVENDA H., DUNNING-DAVIES, J., arXiv: cond-mat/ 0312132 v1 4 Dec 2003
- [6] TSALLIS, C., MENDES, R.S., PLASTINO, A.R., Physica A, vol. 261, 1998, pag. 534.
- [7] CURADO, E.M.F., TSALLIS, C., J. Phys. A, vol. 24, 1991, pag. L69; vol. 24, 1991, pag. 3187; vol. 25, 1992, pag. 1019.
- [8] CAMPBELL, L.L., Ann. Math. Statist., vol. 41 1970, pag. 1011.
- [9] KERRIDGE, D.F., J. Roy. Statist. Soc. Ser. B, vol. 23, 1961, pag. 184.
- [10] ACZEL, J., DAROCZY, Z., On Measures of Information and Their Characterization, Academic Press, New York, 1975
- [11] TSALLIS, C., J. Stat. Phys., vol. 52, 1988, pag. 479.