



entropy



*Special Issue Reprint*

## Nonadditive Entropies and Nonextensive Statistical Mechanics

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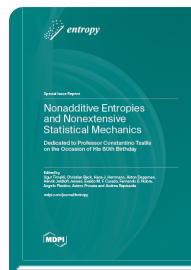
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The aim of this Special Issue was to collect original research articles on the most recent research in nonadditive entropies and nonextensive statistical mechanics with their applications in physics and elsewhere, as well as comprehensive review articles covering these topics from a theoretical, experimental, or computational viewpoint.

This generalization of the centennial Boltzmann–Gibbs statistical mechanics and of the entropy upon which it is based were proposed in 1988 and have received, since then, many applications in natural, artificial, and social sciences. The undeniable success of the Boltzmann–Gibbs theory is deeply related to strongly chaotic nonlinear dynamical systems. In particular, for classical systems, the standard requirement is that the maximal Lyapunov exponent is positive. At the edge of chaos, where the maximal Lyapunov exponent vanishes, the need emerges for nonadditive entropies and consistent generalizations of quantities such as Maxwellian distributions of velocities, the celebrated Boltzmann–Gibbs weight function, and Pesin-like identities. This generalized theory has received uncountable applications in complex systems.

Professor Constantino Tsallis has had an outstanding global impact on physics, astrophysics,



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