



entropy



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Theoretical Aspects of Kappa Distributions

Guest Editor:

Dr. George Livadiotis

Space Science and Engineering,
Southwest Research Institute,
San Antonio, TX 78238, USA

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Message from the Guest Editor

Dear Colleagues,

Classical particle systems reside at thermal equilibrium with their velocity distribution function, stabilized into a Maxwell distribution. On the other hand, collisionless and correlated particle systems, e.g., space plasmas, are characterized by a non-Maxwellian behavior, typically described by the so-called kappa distributions. Empirical kappa distributions have become increasingly widespread across space and plasma physics. However, a breakthrough in the field came with the connection of kappa distributions with the solid background of non-extensive statistical mechanics. Understanding the statistical background and origin of kappa distributions was a cornerstone of further theoretical developments, e.g., among many others: the physical meaning of thermal parameters, e.g., temperature and kappa index; the N-particle description of kappa distributions; the generalization to phase-space kappa distribution of a Hamiltonian with non-zero potential; the entropy associated with kappa distributions. In this Special Issue, we welcome papers reporting on the progress of the theory of kappa distributions.

Dr. George Livadiotis

Guest Editor



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Special Issue



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Editor-in-Chief

Prof. Dr. Kevin H. Knuth

Department of Physics, University
at Albany, 1400 Washington
Avenue, Albany, NY 12222, USA

Message from the Editor-in-Chief

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Entropy Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

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