

Generalized statistical mechanics

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ABSTRACT:

We discuss the most general statistical theory preserving the basic mathematical structure of ordinary statistical mechanics.

Specific requirements, emerging within the Maximum Entropy Principle framework, impose that generalized logarithms are solutions of a differential-functional equation depending on three parameters.

The relative three-parameter trace-form entropy includes several already-known one- and two-parameter entropies.

The family of statistical distributions that is produced by maximizing this entropy is a three parameter deformation of the classical Maxwell-Boltzmann distribution.