



Jan Naudts

# Generalised Thermostatistics

- This book is the first to present the recent progress in generalising the well-established idioms of statistical physics
- Theory is supplemented with pointers to application-based references
- Provides readers with the opportunity to learn in a systematic manner about  $q$ -deformed exponential and logarithmic functions, their role in Tsallis' nonextensive thermostatistics, and how everything fits into a more general mathematical formalism

The domain of non-extensive thermostatistics has been subject to intensive research over the past twenty years and has matured significantly. Generalised Thermostatistics cuts through the traditionalism of many statistical physics texts by offering a fresh perspective and seeking to remove elements of doubt and confusion surrounding the area. The book is divided into two parts - the first covering topics from conventional statistical physics, whilst adopting the perspective that statistical physics is statistics applied to physics. The second developing the formalism of non-extensive thermostatistics, of which the central role is played by the notion of a deformed exponential family of probability distributions. Presented in a clear, consistent, and deductive manner, the book focuses on theory, part of which is developed by the author himself, but also provides a number of references towards application-based texts. Written by a leading contributor in the field, this book will provide a useful tool for learning about recent developments in generalized versions of statistical mechanics and thermodynamics, especially with respect to self-study. Written for researchers in theoretical physics, mathematics and statistical mechanics, as well as graduates of physics, mathematics or engineering. A prerequisite knowledge of elementary notions of statistical physics and a substantial mathematical background are required.

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