Special Issue

Generalized Statistical Thermodynamics

Message from the Guest Editors

Statistical thermodynamics, undoubtedly one of the most important achievements in mathematical physics, is the rigorous mathematical language that describes the equilibrium state of a system of interacting particles, classical or quantum. Its appeal, however, extends beyond molecular systems to generic stochastic populations, whether these are colloidal particles, ecological systems or financial markets. At its most fundamental level, statistical thermodynamics is a variational calculus of the most probable distribution: Out of all possible distributions, the one that materializes as the macroscopic observable is the most probable distribution. This Special Issue solicits contributions that apply the language and tools of statistical thermodynamics to systems beyond molecules. Areas of special interest include clustering and fragmentation in particulate systems, propagation and extinction of epidemics, statistical thermodynamics of networks, and the application of statistical mechanics to stochastic processes in general.

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