Special Issue

Entropy Production in Partially Observed Systems

Message from the Guest Editors

Over the past few decades, stochastic thermodynamics has fundamentally transformed our understanding of far-from-equilibrium statistical physics. One particularly intriguing branch focuses on stochastic thermodynamics based on the incomplete or partial information of systems, known as partially observed systems, where only a subset of degrees of freedom are accessible. Extensive theoretical and experimental efforts have been devoted to inferring dissipation for coarse or limited resolution using physics-based models, machine learning, and model-free approaches. These efforts range from modeling systems using various coarse-graining methods to estimating coarse-grained densities and fluxes, understanding information and dissipation loss in coarse-grained systems, preserving entropy production and fluctuation theorems for hidden entropy production, detecting hidden dissipative timescales, etc. This field has diverse applications across physics, biology, chemistry, engineering, computer science, and economics. This Special Issue will gather the latest cutting-edge research within this broad context, including contributions by both experimentalists and theoreticians.

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The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

Entropy is an online open access journal providing an advanced forum for the development and/or application of entropic and information-theoretic studies in a wide variety of applications. *Entropy* is inviting innovative and insightful contributions. Please consider *Entropy* as an exceptional home for your manuscript.

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