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Stochastic Thermodynamics of Microscopic Systems

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Message from the Guest Editors

Stochastic thermodynamics deals with small systems, interacting with heat, work, or particle reservoirs, and under external manipulation. The stochastic characteristic of thermodynamics led to new phenomena, such as the existence of fluctuation theorems, for heat and work, which govern non-equilibrium physics. One of its consequences is the apparent violation of the second law, or of Landauer's principle.

Since the equilibrium state is the state with the least information on it, for systems described by stochastic thermodynamics, there is very significant quantity of information.

This Special Issue aims to be a channel for recent research on mesoscopic systems, such that their interactions can be well modelled by stochastic thermodynamics. It also aims to present special systems on the frontier of biology and physics, such as nano-machines and driven enzymes, and mesoscopic manipulated systems.

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Message from the Editor-in-Chief

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.

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