Special Issue

Thermodynamics of Dissipative Structures and Related Emergent Phenomena

Message from the Guest Editors

This Special Issue welcomes all papers that focus on the emergence and formation of dissipative structures in systems far from thermodynamic equilibrium. The scope of this Special Issue comprises all kinds of nonlinear non-equilibrium phenomena, from small-scale fluid dynamics to large-scale planetary circulations, as well as physical, chemical and biological kinetics characterized by their evolutional tendency to increase entropy associated with enhanced rates of free energy dissipation. Physical and chemical kinetic processes taking place under highly non-equilibrium circumstances are of particular interest in revealing the mechanism of spontaneous pattern formation and related emergent phenomena. The resultant organization of regular or complex structures as well as scale-invariant morphologies, often referred to as “fractal” structures, are also within the scope of this Special Issue. Both theoretical and application studies aimed at resolving issues found in experiments, observations and numerical model simulations are welcome. We invite contributions from researchers in any discipline working on any of the aforementioned topics.

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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.

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Editor-in-Chief

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