Special Issue

The Landauer Principle and Its Implementations in Physics, Chemistry and Biology: Current Status, Critics and Controversies

Message from the Guest Editor

The Landauer principle, establishing the energy equivalent of information, has remained as a focus of investigations in the last decade. Although non-equilibrium and quantum extensions of the Landauer principle have been reported, the exact meaning and formulation of the principle remain debatable, and both aspects have been the subject of intense discussion. In its strictest, tightest, and simplest meaning, the Landauer principle states that the erasure of one bit of information requires a minimum energy cost equal to kT ln2, where T is the temperature of a thermal reservoir used in the process and k is Boltzmann's constant. The Landauer principle was also extended to the transmission of information.

This Special Issue aims to present different approaches to the implementation of the Landauer principle in physics, chemistry and biology. Submissions addressing engineering applications of the Landauer principle are especially welcome. Review papers are encouraged.

- Landauer principle
- entropy
- information
- the second law of thermodynamics

Guest Editor

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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.

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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