Special Issue

Entropy in Fluids

Message from the Guest Editor

Entropy of a system provides a measure of missing information (or randomness) about the system. The concept of entropy was introduced by Clausius in 1865 to reformulate the Second Law of Thermodynamics in a more elegant way. In a revolutionary stroke in 1870, Boltzmann demonstrated how entropy can indeed be used to understand the macroscopic world via the underlying molecular dynamics. In general, the fluid flows are out of equilibrium, so it is not formally possible to ascribe the concept of entropy to fluid flows. However, one typically circumvents this issue by assuming the fluid to be locally close to equilibrium. In the same vein, fully developed turbulence (FDT) in fluids is a dissipative dynamical system with enormous strongly-interacting degrees of freedom in a state far removed from absolute statistical equilibrium. Nevertheless, as Kraichnan ingeniously pointed out in 1964, equilibrium states prove to be useful to FDT, because they indicate the direction toward which the nonlinear interactions in conjunction with a selective rapid viscous decay of high-wavenumber modes drive the system and produce an energy cascade.

Guest Editor

Prof. Dr. Bhimsen Shivamoggi

Departments of Mathematics and Physics, University of Central Florida, 4000 Central Florida Blvd, Orlando, FL 32816, USA

Deadline for manuscript submissions

closed (31 December 2023)

Entropy

an Open Access Journal by MDPI

Impact Factor 2.0
CiteScore 5.2
Indexed in PubMed

mdpi.com/si/106789

Entropy
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
entropy@mdpi.com

mdpi.com/journal/entropy

Entropy

an Open Access Journal by MDPI

Impact Factor 2.0
CiteScore 5.2
Indexed in PubMed

mdpi.com/journal/entropy

About the Journal

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.

Editor-in-Chief

Prof. Dr. Kevin H. Knuth
Department of Physics, University at Albany, 1400 Washington Avenue, Albany, NY 12222, USA

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, PubMed, PMC, Astrophysics Data System, and other databases.

Journal Rank:

JCR - Q2 (Physics, Multidisciplinary) / CiteScore - Q1 (Mathematical Physics)

MDPI