Special Issue

Mathematical Modeling of Large-Scale and Complex Problems in Fluid Dynamics and Other Physical Processes

Message from the Guest Editor

This Special Issue of *Entropy* will focus on these topics and on the development of novel, efficient approaches to quantify entropy and to predict the nonlinear evolution of unstable flow structures. Furthermore, methods of physical analysis rooted in statistical physics should be considered to provide conceptual insights into these questions. These insights will yield connections between deep learning and diverse physical and mathematical topics, including dynamical phase transitions, chaos, random matrix theory, probability, and nonequilibrium statistical physics. Indeed, the fields of statistical physics and machine learning have long enjoyed a rich history of strongly coupled interactions, and recent advances at the intersection of statistical physics and deep learning suggest these interactions will only deepen going forward. **Keywords**:

- mathematical modeling
- computational fluid dynamics
- entropy
- statistical physics
- numerical simulation
- hydrodynamic instability
- turbulence
- multiscale modeling
- high-performance computing
- machine learning

Guest Editor

Dr. Ahmed Kaffel

Department of Mathematical Sciences, University of Wisconsin-Milwaukee College of Letters and Science, 3200 N Cramer Street, Milwaukee, WI 53211-3029, USA

Deadline for manuscript submissions

closed (31 January 2024)

Entropy

an Open Access Journal by MDPI

Impact Factor 2.0
CiteScore 5.2
Indexed in PubMed

mdpi.com/si/175641

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