

## 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

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## Entropy

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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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### Editor-in-Chief

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