



entropy



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Information Transfer, Entropy Production, Irreversibility and Time Series Analysis

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Message from the Guest Editor

Time series analysis is an established scientific discipline, traditionally rooted in the theory of stochastic processes. There are also new avenues in time series analysis inspired by nonlinear dynamical systems, the theory of deterministic chaos and statistical physics. Different approaches, however, are becoming unified in using notions of information, entropy, entropy rates or production and information transfer. Ideas and tools from information theory have become an important part of time series analysis and related interdisciplinary research in an increasing number of scientific disciplines.

The focus of this Special Issue is the theoretical development as well as interesting applications of methods for estimating information transfer, causality, entropy production and irreversibility from time series recorded in complex systems. We anticipate theoretical developments accompanied with explanatory examples using either simulated or experimental data and interdisciplinary applications that uncover new phenomena or shed new light on known events in different scientific fields.



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Special Issue



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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.

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