Special Issue

Open Quantum Dynamics in Non-Equilibrium and Complex Systems

Message from the Guest Editors

Over the past decades, it has become clear that the dynamics of realistic quantum systems cannot be understood as an isolated system. Quantum systems, from quantum devices and condensed matter, evolve under continuous interaction with structured environments and external driving. In such regimes, quantum dynamics is inherently open, out of equilibrium and often embedded in complex multiscale settings. Open quantum dynamics has therefore become a central theme in modern physics, connecting areas such as quantum information science, condensed matter physics, quantum thermodynamics, chemical dynamics and complex systems. At the same time, new theoretical perspectives are reshaping the field, including non-Hermitian descriptions, stochastic and trajectory-based formulations, hybrid quantum–classical approaches and frameworks addressing emergent phenomena in complex environments. This Special Issue invites theoretical, computational and experimental contributions on open quantum dynamics in nonequilibrium and complex systems, spanning foundational developments and applications. It aims to highlight new directions and foster connections between theory, experiment and multiscale modeling.

Guest Editors

Dr. Alessandro Sergi

Dipartimento di Scienze Matematiche e Informatiche, Scienze Fisiche e Scienze della Terra, Università degli Studi di Messina, viale F. Stagno d\'Alcontres 31, 98166 Messina, Italy

Prof. Antonino Messina

Department of Mathematics and Computer Science, University of Palermo, 90133 Palermo, Italy

Deadline for manuscript submissions

30 November 2026

Entropy

an Open Access Journal by MDPI

Impact Factor 2.1
CiteScore 4.9
Indexed in PubMed

mdpi.com/si/275328

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 2.1
CiteScore 4.9
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