

Special Issue

Transport and Diffusion in Quantum Complex Systems

Message from the Guest Editors

Our understanding of the transport of energy, mass, charge, or information in complex quantum systems plays a key role from both a fundamental and technological point of view. As such, it is triggering a large amount of theoretical and experimental research that aims to understand and exploit quantum coherent phenomena for the development of quantum devices that may outperform their classical counterparts. Quantum interference is the origin of a number of peculiar effects, such as ballistic transport along lattices and resonant tunneling. On the other hand, the presence of unavoidable interactions with the surrounding environment typically leads to a loss of coherence and to the emergence of a diffusive behavior, closer to the classical scenario, that, in some cases, enhances the transport efficiency. The control of such phenomena, together with our understanding of the transition from microscopic to macroscopic or from single-particle to few- or many-particle systems, is of utmost importance for the successful build-out of quantum technologies, and constitutes the focus of this Special Issue.

Guest Editors

Dr. Paolo Bordone

1. Dipartimento di Scienze Fisiche, Informatiche e Matematiche, Università degli Studi di Modena e Reggio Emilia, via Campi 213/A, 41125 Modena, Italy

2. Centro S3, CNR-Istituto di Nanoscienze, via Campi 213/A, 41125 Modena, Italy

Dr. Dario Tamascelli

Dipartimento di Fisica "Aldo Pontremoli", Università degli Studi di Milano, via Celoria 16, 20133 Milano (MI), Italy

Deadline for manuscript submissions

closed (15 July 2021)



Entropy

an Open Access Journal
by MDPI

Impact Factor 2.0
CiteScore 5.2
Indexed in PubMed



mdpi.com/si/36487

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

[mdpi.com/journal/
entropy](https://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](https://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)