



Quantum Optics: Trends and Challenges

Guest Editors:

Dr. Syed Assad

Dr. Jie Zhao

ARC Centre of Excellence for
Quantum Computation and
Communication Technology,
Department of Quantum Science,
Australian National University,
Canberra, ACT 2601, Australia

Deadline for manuscript
submissions:

20 April 2025

Message from the Guest Editors

The entanglement between photons has spurred new perspectives for defining, encoding, manipulating, and transmitting information, which laid the foundation of the burgeoning field of quantum communication and computation. Entwined with the development of quantum information, quantum optics has unveiled a host of unprecedented science and technologies that are impossible in the classical world.

The topics of this Special Issue include but are not limited to:

- What are the boundaries and limitations of these new quantum-enhanced technologies?
- In what regime would sensing benefit from a nonclassical light source? How do we best leverage entanglement or the non-classicality of an electromagnetic field in a particular sensing task?
- What is limiting our quantum communication capability and how do we resolve that?
- What is the universal performance metric for quantum computing (QC) that can unite photonic QC and other physical platforms?
- Combining continuous variable and discrete variable encodings in the context of photonic quantum information for advanced capabilities and improved scalabilities?





an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Kevin H. Knuth

Department of Physics, University
at Albany, 1400 Washington
Avenue, Albany, NY 12222, USA

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.

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)

Contact Us

Entropy Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/entropy
entropy@mdpi.com
[X@Entropy_MDPI](https://twitter.com/Entropy_MDPI)