



New Trends in Quantum Optics

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Message from the Guest Editor

In the past few years, the field of quantum optics has expanded from its original domain, covering basic photon(ic) and atom(ic) systems, into many-body physics. Theory and experiments have progressed to the point where the traditional boundaries between the different areas have become fuzzy.

This area of research is instrumental for developing modern technologies, like lasers and atomic clocks, as well as emerging innovations, such quantum computers and secure quantum communications.

In this Special Issue we intend to present an up-to-date collection of papers dealing with the latest developments in the fundamental aspects of quantum optics.

Topics include (but are not restricted to):

- non-classical and multi-mode states
- quantum correlations
- quantum tomography
- quantum communication
- quantum metrology
- open quantum systems
- quantum atoms with atoms, ions, molecules
- cavity and circuit QED
- optomechanical systems





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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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