



New Trends in Quantum Electrodynamics

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Message from the Guest Editor

Quantum Electrodynamics is one of the most successful physical theories, in which predictions agree with experimental results with exceptional accuracy. Nowadays, even after several decades since its introduction, it is a very active research field from both theoretical and experimental point of view. The aim of this Special Issue is to present recent relevant advances in quantum electrodynamics, both theoretical and experimental, and related aspects in quantum field theory and quantum optics.

Topics that will be included are:

- Quantum electrodynamics in external environments such as static or moving boundaries
- Cavity quantum electrodynamics
- Coherent energy transfer
- Macroscopic quantum electrodynamics
- Radiative processes in structured environments such as static and dynamic photonic crystals or photonic crystals waveguides
- Physical phenomena related to vacuum fluctuations, including cosmological aspects
- Dispersion and resonance interactions between atoms
- Casimir and Casimir-Polder effects, also in nonequilibrium configurations
- Quantum optomechanics
- Quantum electrodynamics in curved space and the Unruh effect





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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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