

Special Issue

Advances in Nonlinear Optics and Symmetry

Message from the Guest Editors

The study of nonlinear optics is closely related to symmetry. For example, second-order nonlinear optical interactions (described by a $\chi^{(2)}$ susceptibility) can occur only in noncentrosymmetric crystals—that is, in crystals that do not display inversion symmetry. The study of how to obtain materials without inversion symmetry is a critical issue in the design and synthesis of new nonlinear optical materials. Moreover, the essential properties for nonlinear optical materials including second harmonic generation tensor and birefringence are also determined by symmetry (i.e., crystal symmetry, intrinsic symmetry, and Kleinman symmetry). Therefore, symmetry is also a topic of intensive investigation in the structure–property relationship in nonlinear optical materials. This Special Issue invites researchers to submit original research papers and review articles related to nonlinear optical materials in which theoretical or experimental issues of symmetry are considered.

Guest Editors

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Deadline for manuscript submissions

closed (31 October 2022)



Symmetry

an Open Access Journal
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Impact Factor 2.2
CiteScore 5.3



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About the Journal

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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