Special Issue

Studies of Optoelectronics in Symmetry

Message from the Guest Editors

Symmetry plays a fundamental role in optoelectronics, influencing light propagation, optical field manipulation, and photonic device design. In light–matter interactions, symmetry and its breaking (such as in chiral structures) can induce complex optical phenomena, including nonlinear effects, polarization control, and optical rotation. In photonic crystals and resonators, structural symmetry dictates light propagation modes, photonic band structures, and bandgaps. In topological photonics, symmetry governs the existence and protection of photonic edge states, enabling defect-free, lossless transmission. Asymmetric or chiral designs can lead to unconventional optical effects such as birefringence and enhanced plasmonic resonances, with broad applications in sensing, communication, and quantum optics. This Special Issue explores recent advances in symmetry and symmetry breaking in optoelectronics and their impact on the functionality, performance, and design of optoelectronic devices.

Guest Editors

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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.

Editor-in-Chief

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