

Special Issue

Advances in Optical and Electrical Integrated Circuits with Symmetry/Asymmetry

Message from the Guest Editor

Optical integrated circuits refer to the miniaturization of optical systems, integrating several optical functions onto a single chip. They have the potential to revolutionize communications, computing, and sensing, by providing fast, compact, energy-efficient, and cost-effective solutions. Electrical integrated circuits, on the other hand, are a well-established technology which form the basis of modern electronics, with applications in virtually all electronic devices. Symmetry and asymmetry in the context of integrated circuits could refer to the physical layout of the circuit (symmetrical vs. asymmetrical design) or to the properties of the materials and components used (for example, a material might exhibit different properties in different directions, a phenomenon known as anisotropy). Asymmetric designs can have several advantages. For instance, they can allow for more efficient use of space, which can be particularly important in the miniaturized world of integrated circuits. They also can provide a way to break symmetry-induced degenerates, leading to new functionalities.

Guest Editor

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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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