



symmetry



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Advances in Photonics

Guest Editor:

Prof. Dr. Kensuke Ogawa

Department of Electrical and
Electronic Engineering, Tokyo
Institute of Technology, Chome-
12-1 Ookayama, Meguro City,
Tokyo

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Message from the Guest Editor

Dear Colleagues,

Symmetry-related properties in condensed matter systems provide the foundation of photonics for controlling lightwaves in optical communications and signal processing. Electro-optic effect of ionic atoms in non-centrosymmetric dielectric crystal and electro-refraction effect in centrosymmetric crystalline silicon, for instance, have been key items for optical signal generation in high-speed optical communications. The nonreciprocal magneto-optic effect plays essential roles in the magneto-optical memory in storage and computing and the optical isolator in laser application. Photonic integration platforms on silicon and III-V semiconductors enable versatile optoelectronic circuits in ultrasmall footprints. Further, the photonic integration platforms allow photonic devices consisting of artificial structures such as photonic crystals, metamaterials and plasmons which reveal topological effects in the propagation of lightwaves, which will open up a new arena in photonics.



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Prof. Dr. Sergei D. Odintsov

1. Institució Catalana de Recerca
i Estudis Avançats (ICREA),
Passeig Luis Companys, 23,
08010 Barcelona, Spain
2. Institute of Space Sciences
(ICE-CSIC), C. Can Magrans s/n,
08193 Barcelona, Spain

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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Symmetry Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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symmetry@mdpi.com
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