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Symmetry/Asymmetry in Extreme Nonlinear Optics

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

Light–matter interaction is the cornerstone of our world and life. It has the huge diversity depending on the time scale and spatial scale, and matter types. Despite the huge diversity, the symmetry/asymmetry is located at the central position in the light-matter interactions all the time. For example, the breaking of the central inversion symmetry gives rise to the second order harmonic generation, which is the hallmark of the birth of nonlinear optics. With the development of laser technology and material science, now the nonlinear optics has already entered the domain of extremely nonlinear optics, i.e., strong-field physics and attosecond science, where the intensity of the light field is comparable to the strong Coulomb field inside atoms and the pulse duration is close to the electron natural time scale. Strong laser fields will trigger many interesting non-perturbative phenomena, such as high-order harmonic generation, above-threshold ionization, non-sequential double ionization, etc. For the research systems, scientists have extended from gas-phase atomic and molecular systems to liquids and solids...

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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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