



Symmetry in Electromagnetism

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Message from the Guest Editors

Dear Colleagues,

Electromagnetism plays an essential role, both in basic and applied physics research. The discovery of electromagnetism as the unifying theory for electricity and magnetism represented a cornerstone in modern physics. From the very beginning, symmetry was crucial to the concept of unification: Electromagnetism was soon formulated as a gauge theory, in which a local phase symmetry explained its mathematical formulation. This early connection between symmetry and electromagnetism shows that a symmetry approach to many electromagnetic phenomena is recurrent, even today.

Moreover, many crucial technological advances associated with electromagnetism have shaped modern civilization. The control of electromagnetic radiation in nearly all its spectra and scales is still a matter of deep interest. With the advances in material science, even at the nanoscale, the manipulation of matter–radiation interactions has reached unprecedented levels of sophistication. New generations of composite materials present effective electromagnetic properties that permit to mold electromagnetic radiation in ways that were unconceivable just a few years ago...





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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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