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Symmetry in Mechanical Behavior and Structural Analysis of Materials

Guest Editor:

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Deadline for manuscript submissions:
closed (31 August 2024)

Message from the Guest Editor

Dear Colleagues,

In material mechanics and structural analysis, symmetry is an important concept, where common types of symmetry include axial symmetry, planar symmetry, and spatial symmetry. By analyzing the geometric shapes and physical properties of materials and structures, the existing symmetry in the system can be revealed. As materials with axial symmetry exhibit certain regularity and symmetry in stress distribution and deformation patterns along the axis, they can be utilized to simplify mechanical analysis and problem solving. Symmetry can also limit the possible responses and failure modes of materials and structures, providing valuable guidance for design and optimization, reducing weight and cost as well as improving the stability and performance of structures. Furthermore, by studying the influence of symmetry on material performance, specific material properties can be discovered in relation to the crystal structure, molecular symmetry, or microscale arrangements. This Special Issue of *Symmetry* seeks to show the importance of expressing new ideas and conducting research...

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Editor-in-Chief

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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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