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Advances in Structural Mechanics and Symmetry/Asymmetry

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Message from the Guest Editors

Many civil structures have good mechanical or geometric symmetry/asymmetry (e.g., high-rise buildings, large-span space structures, bridges). The use of symmetry/asymmetry can shorten the structure design time and reduce the construction and maintenance costs of civil structures. Specifically, by utilizing symmetry/asymmetry, structural models or finite element models can be significantly simplified, which can speed up the analysis process and thereby shorten the structure design time. Additionally, the application of symmetry/asymmetry in civil structures can simplify the construction process and thus reduce construction costs. To ensure structural safety and serviceability, structural health monitoring (SHM) is generally adopted in civil engineering. Based on symmetry/asymmetry analysis, the number of sensors and the complexity of sensor networks used in SHM systems can be greatly reduced, which may accordingly reduce the maintenance costs. Beyond all these considerations, the use of symmetry/asymmetry can benefit structural designers as well as construction and maintenance organizations in other aspects.



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Special Issue



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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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