



Editorial

Editorial for the Special Issue on High-Performance Structures

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Civil engineering construction has made great contributions to the economic and social development of countries around the world, but its unbalanced development has resulted in the excessive consumption of nonrenewable resources and in serious levels of environmental pollution. Civil engineering construction still faces challenges, such as the low sustainability of civil engineering structures and insufficient performance-recovery capability after major disasters. Developing high-performance materials and structural systems, improving high-performance structural analysis theory, innovating key technologies for high-performance structures, and improving structural sustainability and recoverability are essential approaches to achieve the green, industrialized, and sustainable development of civil engineering.

In order to promote academic exchanges in the field of high-performance structure research and to share the latest research results, this special issue was launched by the Chinese Academy of Engineering (CAE). Professor Xu-hong Zhou from Chongqing University, an academician of the CAE, and Professor Ahsan Kareem from the University of Notre Dame, a member of the US National Academy of Engineering, served as the Editors-in-Chief of this special issue; Professor Jian-guo Nie from Tsinghua University, an academician of the CAE, and Professor Yukio Tamura from

Chongqing University, a Foreign Academician of the CAE, served as the Executive Editors-in-Chief. A number of famous scholars in the field of structural engineering were members of the editorial board of this issue.

This special issue launched by the CAE comprises two journals: *Engineering* and *Frontiers of Structural and Civil Engineering*, the journal *Engineering* focuses on publishing and sharing high-level major achievements in engineering science and technology, while the journal *Frontiers of Structural and Civil Engineering* focuses on the research results in the field of structure and civil engineering. The special issue contains a total of 19 invited papers, including 11 papers published in the journal *Engineering* and 8 papers published in *Frontiers of Structural and Civil Engineering*. All the papers published in this special issue have been written by renowned scholars in the field of civil engineering from Canada, China, Japan, the United Kingdom, and the United States. This special issue covers six research directions: high-performance fiber-reinforced composite materials, high-performance steel for building structures, high-performance and multifunctional cement-based materials, high-performance building structural systems and disaster prevention and mitigation, theory and methods for the analysis of complex building structures, and the health monitoring of large-scale engineering structures.

The papers published in this special issue comprehensively report on advanced achievements in the field of high-performance structure research. In future, scientists in the field of structural engineering will continue to develop high-performance structures characterized by high levels of safety, durability, and environmental friendliness, and low maintenance requirements. Perfect analytical theories and design methods, along with an appropriate set of technologies, are expected to be established, which will promote the application of high-performance structures in civil engineering construction, enhance the sustainability and restorability of civil engineering structures, and contribute to the economic and social sustainable development of countries around the world.