



Guest Editor

PERSONAL BIOGRAPHY

Ye Xia

D.Eng. PE. Associate Professor

 <https://orcid.org/0000-0002-1548-0567>

 <https://faculty-civileng.tongji.edu.cn/xiaye>

 yxia@tongji.edu.cn

Educational Background

Associate Professor
Tongji University (12/2020 – Present)

Assistant Professor
Tongji University (01/2014 – 12/2020)

Post-Doctoral Associate, Rutgers
The State Univ. of New Jersey (08/2011 – 12/2013)

Ph.D., Structural Engineering
University of California, Irvine (06/2007– 08/2011)

Master of Science, Bridge Engineering
Tongji University (09/2004 – 06/2007)

Bachelor of Science, Civil Engineering
Tongji University (09/2000 – 06/2004)

Research fields

Ye Xia, Assoc. Prof. at Department of Bridge Engineering, Tongji University, P.E. (California). Secretary-General of Chinese Group of IABSE, Council Member of the Bridge and Structural Engineering Division, China Civil Engineering Society. His research interests include the intellectualization of bridge health monitoring systems and structural safety assessment theories, with long-term dedication to the hardware and software implementation of bridge monitoring, evaluation, and early warning technologies.

He has published over 100 papers indexed by SCI, authored 2 monographs, led the development of 2 group standards, and contributed to the drafting of 2 national standards and 2 industry standards. He has been selected as the Shanghai Oriental Talent, recognized as a Top 1% Highly Cited Author by CNKI, and has received honors including the IABSE Early Career Prize, the Civil Engineering Elite Award from the Shanghai Society of Civil Engineering, and the Innovation Youth Award from the China Communications and Transportation Association.

Theme of the Issue: *Intelligent Sensing · Resilience Enhancement: Innovation and Practice in Prestressing Technology*

As engineering structures continue to evolve toward larger scales, greater complexity, and increased intelligence, prestressing technology—as a core means of enhancing structural performance and controlling cracks and deformation—is seeing its application scope and theoretical foundations continuously expand. This issue focuses on the "full lifecycle" concept of prestressing technology, featuring seven cutting-edge research findings that systematically present the latest advancements in this field, spanning intelligent analysis, construction control, structural monitoring, and design optimization.

The articles in this issue cover multiple dimensions: in terms of intelligent analysis and health monitoring, studies include precise interpretation of crack width behavior in prestressed concrete beams using an explainable AI framework, as well as a low-cost, high-efficiency solution for structural health monitoring of stay cables utilizing smartphone applications. These advancements drive structural assessment from experience-based judgment toward data-driven decision-making. In terms of complex structural construction and performance enhancement, the research addresses integral force release and replacement techniques for steel strand group anchor cables in long-span cable-stayed bridges, alongside an analysis of the mechanical characteristics of the pile caps of A-shaped cable-stayed bridge towers. These studies provide critical technical support for cable force adjustment and component replacement during the service stage of large bridges. Furthermore, this issue delves into the alignment between structural characteristics and design methodologies, such as the optimization of prestressed concrete structural design using the Taguchi method and the Adaptability between structural characteristics and additional effective damping ratio Calculation Methods, reflecting a pursuit of refined design under performance objectives such as seismic resistance and crack control.