

# Mechanics of Structures and Materials: Advancements and Challenges

Editors: Hong Hao & Chunwei Zhang

Volume 2



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# Mechanics of Structures and Materials: Advancements and Challenges

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## VOLUME 2



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MECHANICS OF STRUCTURES AND MATERIALS: ADVANCEMENTS  
AND CHALLENGES



## Preface

The Australasian Conference on the Mechanics of Structures and Materials (ACMSM) was originated at the University of New South Wales in 1967. Since then it has been held at various locations in Australia and New Zealand biannually, and has been grown into one of the most important events for academics, researchers and engineers in the Australasian region. The conference series has also been building its international reputation as a premier location for presenting new research results and exchanging research ideas in the area of Mechanics of Structures and Materials, and has been attracting more and more international delegates outside Australasian nations.

The 24th Australasian Conference on the Mechanics of Structures and Materials (ACMSM24) is the third time the conference will be held in Perth, Western Australia. The previous two ACMSM in Perth were the ACMSM7 in 1980 and the ACMSM18 in 2004, with 40 and 195 papers respectively included in the proceedings. This year's Conference consists of 302 papers, including 6 invited keynote papers, prepared by 780 authors from 17 countries. The significant increase in the number of papers demonstrates the continued growth in efforts of many researchers devoted to developing better technologies for building more sustainable and resilient civil infrastructure. Mankind started building structures thousands of years ago and some of those structures, such as the Great Wall in China and the Pyramids in Egypt, still stand. However, construction technology continues to evolve and improve as human civilization develops. Engineers always seek technologies to build structures taller, longer, more aesthetically appealing, and more sustainable and cost effective. These require constant exploring of new materials and new structural forms for use in constructions. Papers included in the current proceedings reflect the recent research advancements and challenges in these areas.

More than 430 abstracts were received in responding to the call for abstracts to ACMSM24. All the abstracts were reviewed by the local organizing committee for their relevance. Authors of the accepted abstracts were invited to prepare full papers. All the full papers were reviewed by two independent reviewers, which led to required revisions of most of the submitted papers and rejections of a few. Papers included in the proceedings were all reviewed and accepted by two independent reviewers. We would like to take this opportunity to thank special session organizers, reviewers, international scientific committee members, and local organizing committee members for reviewing the papers. Their efforts are essential for maintaining the standard of proceedings of the ACMSM series. We would like also to acknowledge the keynote speakers and all the authors for publishing their new research results in the proceedings, which reflect the enormous research efforts of all the authors in recent years.

Hong Hao & Chunwei Zhang  
*September 2016*



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## *Mini-symposiums*

*Young experts mini-symposium on structural health monitoring*



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