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Innovation & Sustainability of Structures

Proceedings of the International Symposium on Innovation & Sustainability of Structures in Civil Engineering

Edited by

Jie Li
Ying Lei
Zhishen Wu
Ruifeng Liang

Volume 1

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PREFACE

There are great challenges in Civil Engineering and innovation & sustainability of structures in civil engineering have become increasing important themes. In response to these challenges, the International Symposium on Innovation & Sustainability in Civil Engineering is dedicated to promoting related research and practice. As the on-going series symposia which were held sequentially in 2005 (Nanjing, China), 2007 (Shanghai, China) and 2009 (Guangzhou, China), the objective of this symposium (ISISS'2011) is still to provide an international forum for researchers, specialists, professionals and public administrators and for all concerned with the promotion and exchange of information on innovation in civil engineering, especially for sustainability of structures and disaster prevention & mitigation. The symposium is aimed at presenting and publishing the most recent research & development on innovative materials, metrologies and technologies, intelligent structure and monitoring and security monitoring, structural safety and durability, structures and systems with high performance and sustainable capacity. ISISS'2011 is organized by the School of Architecture and Civil Engineering, Xiamen University, and is sponsored by the National Natural Science Foundation of China (NSFC). On behalf of the Organizing Committee of the International Symposium on Innovation & Sustainability in Civil Engineering (ISISS'2011), we would like to welcome professionals involved in the related fields in civil engineering from all over the world to the City of Xiamen in China on Oct. 28–30, 2011 for ISISS'2011.

Xiamen City is at its proximity to the World Heritage Hakka Tulou. An International Workshop on Rammed Earth Materials and Sustainable Structures & Hakka Tulou Forum 2011 is included as a special session of ISISS'2011. This workshop is being organized as the 2nd event of Hakka Tulou Forum Series. The workshop to take place in a city near the Hakka villages offers a unique opportunity for the workshop participants to witness the sustainability of Hakka architecture, look back in order to move forward, and adapt the past for the world to come.

The Proceedings of ISISS'2011 contain the papers of invited keynote and plenary lectures from more than 20 distinguished international experts and technical presentations in 8 professional sessions under the topics of Monitoring, Damage Detection and Identification for Engineering Structures; Structural Seismic Analysis and Seismic-resistant Structural Systems; Composite Structures and RC Structures; Design, Construction and Analysis of Bridge Structures; Disaster Prevention and Mitigation for Civil Structures; Reliability, Probabilistic Assessment and Uncertainty Evaluation; Novel Analytical and Experimental Methods for Civil Structures; and Rammed Earth Materials and Sustainable Structures & Hakka Tulou. The proceedings of

ISISS'2011 highlight the state-of-the-art innovations in these fields.

ISISS'2011 has received enthusiastic responses from the worldwide. More than 220 papers had been submitted to the symposium, and 202 full papers were accepted for publishing in the proceedings, especially more than 20 distinguished international researchers have contributed their papers of keynote and plenary lectures. The final revised papers are from 15 countries and areas such as Australia, Canada, China, Japan, Iran, Italy, Saudi Arabia, Singapore, Sweden, Switzerland, the United Kingdom (U. K.), and the United States of America (U. S. A.).

We would like to express our sincere thanks to all the members of the International Scientific Committee, the International Advisory Committee as well as the Organizing Committee, whose dedication is the key for the success of ISSS'2011, especially some of them who spent so much time and effort in organizing technical sessions and the workshop on Rammed Earth Materials and Sustainable Structures & Hakka Tulou. Thanks are due to all the contributors to the proceedings for their careful preparations of their manuscripts and all the invited keynote and plenary speakers for their special strong support, which make the Proceedings of ISSS'2011 high quality. We gratefully acknowledge the generous funding support from the National Natural Science Foundation of China (NSFC). We sincerely hope that all the participants to ISSS'2011 will have a good opportunity to meet colleagues from the world for technical and scientific discussions and enjoy their stays in Xiamen when attending ISSS'2011.

Prof. Jie Li (Tongji University, China)

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