

Preface

SMAR 2017 is the fourth conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures to be held at ETH Zurich, Hönggerberg, Switzerland, from 13 to 15 September 2017 co-organized by Empa, the Swiss Federal Laboratories for Materials Science and Technology and ITU, Istanbul Technical University. It is a follow-up of the biannual successful SMAR conference series starting in 2011 in Dubai, 2013 in Istanbul and 2015 in Antalya. SMAR 2017 proceeds with presenting innovative materials and technologies for structural health monitoring as well as rehabilitation, such as application of smart fiber optic sensors, Fibre Reinforced Polymers, Shape Memory Alloys, and much more.

As an interdisciplinary research institute of the ETH Domain, Empa, the Swiss Federal Laboratories for Materials Science and Technology, conducts cutting-edge materials and technology research. Empa's R&D activities focus on meeting the requirements of industry and the needs of society, and thus link applications-oriented research to the practical implementation of new ideas.

ITU, the Istanbul Technical University, is a reputable institution known for its history, science, technology, art and sport achievements over the period of 244 years. ITU is the cradle of science, industry and technology conducting over 200 R&D projects in the scope of ARI Techno City. With the priority for continuous development, innovative perspective and strong international contacts ITU proves to be the university of the past, present and future.

The modern ETH Zurich Hönggerberg campus is the conference venue, which is located on the outskirts of the city of Zurich. It is a perfect example of the links between science, industry and the general public. That is why it won the European Cultural Award for Science in 2010. The Hönggerberg campus offers plenty of room for further development. Not only are new buildings for research and education being built on the campus but also apartment blocks for students.

Zurich has a unique position in Switzerland. It is the country's largest city and home to an internationally reputed financial centre as well as being the focus of an economic region which acts as the motor of Switzerland, and along with Geneva is the most important gateway to the country. The wide variety of cultural activities and educational institutions define Zurich's character as a diverse, open city with a passion for life. Zurich is the capital of the canton of the same name and the centre of a number of regions which together have some 1.9 million inhabitants. It is famous for its lakeside location and green, densely wooded chain of hills which run through the city from north to south.

The conference is hosting 240 scientists and experts from around the world to present their solutions and findings in the following areas:

- Structural Health Monitoring
- Performance and damage assessment
- Damage control, repair and strengthening, fire protection
- Durability of material systems and structures related to harsh environment
- Practical applications and case studies

In addition to the regular sessions, several special sessions such as 'Strengthening, Monitoring and Life-cycle Assessment of Metallic Structures', 'session in honor of Professor Urs Meier's lifetime

achievements: 25 years of CFRP in construction - materials from aerospace make career in civil engineering and 'vibration-based Structural Health Monitoring' were organized.

SMAR 2017 is sponsored jointly by the International Society for Structural Health Monitoring of Intelligent Infrastructure (ISHMII) and International Institute of FRP in Construction (IIFC) and International Union of Laboratories and Experts in Construction Materials, Systems and Structures (rilem).

The proceedings contain a total of 200 papers written by authors from around countries worldwide. The contributions include six interesting Keynote Papers on dynamic modeling of retrofitted structures, resilient reinforced concrete building structures in Japan, hybrid experimental/numerical strategies, seismic retrofit of cultural heritage buildings, performance-based assessment and retrofit strategies and application of Carbon Fibre tension members. Furthermore, there is a healthy balance between papers of theoretical nature concerned with various aspects of computational issues and those of a more practical nature.

We would like to thank all authors for preparing their work towards this compilation, which will undoubtedly serve as a useful reference to practitioners, researchers, students and academics and allied disciplines. Special thanks are due to Members of the International Scientific Committee, who reviewed the papers carefully. The support of the Sponsoring Organizations and Companies is gratefully acknowledged. We are indebted to our colleagues in Organization Committee. Thanks to the Empa and ITU conference team, Bernadette Havranek and Pinar Inci the conference secretaries, for their tireless efforts and quick responses to many demands of the conference.

Masoud Motavalli (Empa) and Alper Ilki (ITU)

Co-Chairs, SMAR 2017

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