

# Interactive IABSE – COST Actions Workshop in Zagreb

## ***'The Value of Structural Health Monitoring for the reliable Bridge Management'***

At the beginning of March 2017 an interesting workshop took place at the Faculty of Civil Engineering of the University of Zagreb. The Workshop was organised by two European cooperation and networking projects under auspices of the COST framework and the Working Commission 1 of IABSE.

COST Action TU 1402 dedicated to quantifying the value of Structural Health Monitoring and COST Action TU 1406 dealing with Quality specifications for roadway bridges, were initiated in 2014/2015 and together involve about 250 participants from 38 European countries and 15 countries from outside Europe. IABSE WC1 is dedicated to the problems related to structural performance, safety and life-cycle cost.

The long-term objective of this workshop is to contribute jointly to the improvement of the bridge management leading to satisfied users and bridge operators, and sustainable development of European road network. More specific objective is to reveal the value of using sophisticated methods of collecting, updating and processing data and subsequently their inclusion in the probabilistic-based reliability analysis.

The workshop gathered 120 participants from 40 countries and was organised through three main sessions:

- Performance assessment of existing Bridges for their reliable management;
- Framework, Strategies and Tools towards the Quantification of the Value of SHM;
- Management and Performance-assessment of Existing Structures



*The workshop in Zagreb gathered 120 participants from 40 countries with different professional background*

Four important keynote lecturers were sharing their knowledge on assessment, monitoring and life cycle management of bridges:

- Dan M. Frangopol from the Department of Civil and Environmental Engineering at the Lehigh University in USA lectured on Risk-, Resilience- and Sustainability-Informed Decision Making for Bridges in a Life-Cycle Multi-Objective Optimization Context;
- James L. Beck from the Dept. of Computing & Mathematical Sciences at the California Institute of Technology in USA introduced participants to Bayesian uncertainty quantification and sparse Bayesian learning for model updating in SHM;
- Ho-Kyung Kim from the Department of Civil and Environmental Engineering at the Seoul National University in South Korea shared the experience in What We Have Learned from Operational Monitoring and Serviceability Assessment of Long-Span Bridges and

- Hitoshi Furuta from the Faculty of Informatics at the Kansai University in Japan gave an overview of New Technologies for Condition Assessment of Existing Structures.



*Keynote presenters from Lehigh University in USA – Frangopol; from California Institute of Technology in USA – Beck; from Seoul National University in South Korea – Kim and from Kansai University in Japan – Furuta, shared their knowledge as external advisors*



*Active discussions during the Workshop, particularly during the Closing Session initiated future cooperation: left upper photo: Jose Matos, Chair of the Cost Action TU 1406, Niels Peter Höj, Vice-chair of the IABSE WC1, Sebastian Thöns, Chair of the Cost Action TU 1402 ; right upper photo: Michael Havbro Faber, Scientific Chair of the TU 1402  
left bottom photo: Maria Pina Limongelli, TU 1406 Innovation Committee  
right bottom photo: Helder Sousa, TU 1402 Innovation Committee*

Twenty authors with different backgrounds presented their theoretical and practical knowledge and experience, recent research and application examples in the area of the structural health monitoring, performance assessment, quality control, maintenance and management of bridges.

In addition, a technical visit to several Sava bridges was organised. Altogether 5 bridges on 3 different locations – old composite Sava Bridge, railway steel Green Bridge, arch steel Liberty Bridge, prestressed girder Adriatic Bridge and extrados prestressed Homeland Bridge were visited and their structural specificities, history details and curiosities were explained to the participants.

After the closing of the Workshop, the Joint Steering committee of both Cost Actions TU 1406 & 1402 and IABSE WC1 decided to continue the cooperation through

- a joint special issue in the SEI journal,
- selecting a joint case study bridge example,
- developing joint training schools and
- organising interactive Short term Scientific Missions.

*Further information:* <http://www.grad.unizg.hr/joint-zagreb-workshop>

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