



# Workshop on Quantifying the Value of Structural Health Monitoring

## **COST Action TU1402: Quantifying the Value of Structural Health Monitoring 1<sup>st</sup> Workshop and 2<sup>nd</sup> Management Committee Meeting**

### **Objective and Aims**

The objectives of the 1<sup>st</sup> Workshop are to develop a common understanding of the aims and the ideas of the COST Action TU1402 within the Action network and their dissemination. Further and according to the Scientific Work Plan, the 1<sup>st</sup> Workshop aims at (1) the clarification of the theory on quantifying the value of SHM, (2) the formulation of the theory for applications and (3) a categorisation of SHM strategies and structural performance models.

The aims and the ideas of the Action are discussed and connected to the individual challenges of the Working Groups (WGs) and to the expertise of the Action network consisting of researchers, structural engineers, SHM engineers and infrastructure operators and owners. Based on the discussions, the individual WGs develop plans for the further proceeding according to the COST Action objectives.

### **Organisation**

The workshop is organised in mainly consecutive sessions to facilitate that the Action network can discuss the aims and ideas in conjunction with the challenges of the individual WGs (Day 1 and most of Day 2). Parallel WG sessions are conducted to allow for individual planning of the future WG activities at the end of Day 2. The 1<sup>st</sup> Steering Committee Meeting in combination with an Advisory Board Meeting takes place on Day 1. The Steering Committee will prepare plans and decisions for the 2<sup>nd</sup> Management Committee Meeting on Day 2. The workshop ends with a discussion and conclusion session.

All Action sessions will be audio and video recorded. The key presentations will be uploaded and disseminated through the Action website. The papers are compiled in a Workshop Report. A special journal issue will be considered based on the received contributions.

### **Dates**

04. and 05. May 2015

### **Venue**

Technical University of Denmark  
Building 101A, Room M1  
Anker Engelunds Vej 1  
2800 Kgs. Lyngby  
Denmark

See last page for a local area map.

### **Local Organisers**

Sebastian Thöns, Joy Schou Vestenfeldt, DTU Civil Engineering

## Agenda

### DAY 1: Monday, 04. May 2015

10:00-10:30	<b>Registration and Welcome Reception</b>
10:30-11:00	<b>Workshop Opening Presentation</b>
11:00-13:00	<b>WG 1 Session: Theoretical Framework</b> Chairs: M.H. Faber and D. Val
	<b>Authors/Speakers</b> <b>Topic of presentation</b>
	M.H. Faber and D. Val      Introduction of WG1
	D. Honfi and D. Lange      Structural health monitoring, a tool for improving critical infrastructure resilience
	J.H. Roldsgaard and M.H. Faber      Quantifying the value of structural health monitoring – A generic example
	C. Xing , R. Caspeelee, L. Taerwe      Evaluating the value of structural health monitoring with time-dependent performance indicators and hazard functions using Bayesian dynamic predictions
	S. Thöns and M.H. Faber      The dependency of the value of structural health monitoring on structural system characteristics
	P. Omenzetter      A framework for reliability assessment of a major bridge incorporating structural health monitoring data
Lunch Break	
14:00-15:30	<b>WG 3 Session: Methods and Tools</b> Chairs: D. Straub and E. Chatzi
	<b>Authors/Speakers</b> <b>Topic of presentation</b>
	D. Straub and E. Chatzi      Overview on challenges and existing methods Goals and organization of WG 3 and coordination with other WGs Discussion
	Individual poster presentations
Coffee Break and Poster Presentations	
16:00-16:55	<b>WG 4 Session: Case Studies Portfolio</b> Chairs: Jochen Köhler and Helmut Wenzel
	<b>Authors/Speakers</b> <b>Topic of presentation</b>
	J. Köhler      Introduction of WG4
	H. Wenzel      Available case studies from previous projects
	Discussion, harmonization and coordination of WG 4 with the other working groups
16:55-17:10	<b>Helder Sousa: Let's innovate in the quantification of the Value of Structural Health Monitoring</b>
17:10-18:00	<b>Steering Committee Meeting</b>
19:00	<b>Workshop Dinner</b>

**DAY 2: Tuesday, 05. May 2015**

08:30-11:00	<b>WG 2 Session: SHM Strategies and Structural Performance</b>	
	Chairs: Marios Chryssanthopoulos, Geert Lombeart and Michael Döhler	
	<b>Authors/Speakers</b>	<b>Topic of presentation</b>
	M. Chryssanthopoulos, Introduction of WG2 G. Lombeart and M. Döhler	
	G. Kaklauskas et al.	Different approaches for modelling tension-stiffening in reinforced concrete girder bridges
	M.P. Limongelli et al.	The interpolation method for the detection of localized stiffness losses
	K. Kaynardag and S. Soyoz	Seismic performance assessment of a tall building based on real-time monitoring
	M. Giżejowski, S. Wierzbicki and P.A. Król	Selected aspects of structural monitoring in the light of research carried out as part of the MONIT project
	R. Schneider, S. Thöns and D. Straub	System reliability updating of welded jacket-type structures subjected to fatigue with global monitoring information
	F. Hille	Subspace-based detection of fatigue damage on a steel frame laboratory structure for offshore applications
	S. Thöns, J. Niedźwiedź, and G. Bednarski	Pressurized Structural Member Damage Detection
	M. Maślak and M. Pazdanowski	Probability-based durability prediction for corroded shell of steel cylindrical tank for liquid fuel storage
	J. Markova et al.	Monitoring of bridges for calibration of load models
	H. Sousa et al.	Long-term monitoring system of the Lezíria Bridge – past experience, current status and future challenges
	A. Mandić Ivanković et al.	Finding a link between measured indicators and structural performance of concrete arch bridges
	Zornoza et al.	SHM with fiber optic sensors at AIMEN technology center
Coffee Break		
11:30-12:30	<b>WG 5 and WG 6 Session: Standardisation and dissemination</b>	
	Chairs: John Dalsgaard Sørensen (WG 5), Sebastian Thöns (WG 6)	
	<b>Authors/Speakers</b>	<b>Topic of presentation</b>
	J.D. Sørensen	WG5 Introduction: Standardisation perspectives
	D. Diamantidis, M. Sykora and M. Holicky	Updating information on the real performance of structures – experience gained and implementation in future guidelines
	A.E. Del Grosso	Italian Activities on Standardisation in SHM
	S. Thöns	WG 6 introduction and dissemination strategy
Lunch Break		



**DAY 2 cont.: Tuesday, 05. May 2015**

<b>13:30-14:00</b>	<b>Discussion and Conclusion</b>
<b>14:00-15:00</b>	<b>Parallel WG Meetings: Discussion, Planning and Preparation of Agendas</b> Chairs: Individual WG Leaders
Coffee Break	
<b>15:30-16:30</b>	<b>Management Committee Meeting</b>