6th European Conference on Computational Mechanics (Solids, Structures and Coupled Problems) (ECCM 6)
7th European Conference on Computational Fluid Dynamics (ECFD 7)
June 11- 15, 2018, Glasgow, UK

ADAPTIVE ENGINEERING STRUCTURES

MALTE VON SCHEVEN[†], WALTER HAASE[*], WERNER SOBEK[*] AND MANFRED BISCHOFF[†]

[*] Institute for Lightweight Structures and Conceptual Design (ILEK), University of Stuttgart
Pfaffenwaldring 14, 70569 Stuttgart, Germany
{walter.haase, werner.sobek}@ilek.uni-stuttgart.de, http://www.uni-stuttgart.de/ilek

[†] Institute for Structural Mechanics, University of Stuttgart
Pfaffenwaldring 7, 70569 Stuttgart, Germany
{mvs, bischoff}@ibb.uni-stuttgart.de, https://www.ibb.uni-stuttgart.de/

Key words: Adaptive Structures, Load Carrying Structure, Modeling and Simulation, Architecture and Civil Engineering.

ABSTRACT

In order to meet the requirements of tomorrow's world engineers and architects must design extremely efficient structures. Making engineering structures adaptive is a promising approach to reach that target. The load carrying efficiency of structures can be increased noticeably by the employment of sensors, actuators and control units. Hence the active manipulation of the static and dynamic structural response (i.e. forces, deformations and vibrations) enables to reduce mass of engineering structures dramatically and to increase performance.

This mini-symposium is focused on the adaptivity of structures in architecture/civil engineering and on load carrying structures in general. It covers topics concerning design, modelling, simulation, optimization and construction of all types of adaptive engineering structures. Furthermore, optimal strategies for sensor and actuator placement and criteria for the evaluation of adaptive engineering structures can be presented.