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ADAPTIVE ENGINEERING STRUCTURES 900

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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 the mass of engineering structures dramatically and to increase their performance. Additionally the adjustment to changing requirements occurring during lifetime of a building, like deployable and retractable structures, with significant changes between the configurations is another application of adaptive structures.

This mini-symposium focuses on the adaptivity of structures in civil engineering and on load carrying structures in general. It is devoted to new approaches in the computational design, analysis and optimization of such structures including (but not limited to):

- modelling and simulation
- form finding and optimization
- optimal strategies for sensor and actuator placement
- active and passive control strategies
- criteria for the evaluation of adaptive engineering structures