

SMART STRUCTURES –MODELLING AND SIMULATION

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The scope of the "**Symposium on Smart Structures –Modelling and Simulation**" is to provide a comprehensive overview of modeling methods and computational simulation techniques for all types of so-called smart materials and structures. Special emphasis is on the scientific exchange among specialists working in the fields of structural mechanics, materials science, actuator and sensor technology, and control of smart structures. The Symposium is focused on the methods, not on a specific field of application. Therefore, scientists from all areas are welcome. Thus, it is the purpose of the Symposium to enhance the transfer of methods and experience among different fields.

Possible topics include but are not limited to:

Modeling and computational issues, e.g.

- Modeling of smart structures and materials
- Finite Element technology and implementation for statics, stability and dynamics of smart structures
- Geometrically and physically linear or nonlinear simulation of smart structures
- Experimental investigation of smart materials and structures
- Identification of material and system parameters
- Modeling and simulation of nonlinear properties in smart materials and systems
- Modeling and simulation of hysteretic material and structural response
- Control of smart systems with nonlinear and hysteretic properties
- Damage, fatigue, aging and fracture mechanics of smart materials and systems
- Micromechanical and thermodynamical modeling of smart materials
- Application to microsystem technology and nanotechnology

Computational and experimental work on, e.g.

- Shape and vibration control
- Noise and acoustics control
- Stability and flutter control
- Structural health monitoring
- Energy harvesting
- Optimization of smart structures

Modeling, analysis, and design concepts using smart materials, e.g.

- Piezoelectric materials
- Magnetostrictive materials
- Electrostrictive materials
- Shape memory alloys
- ER and MR fluids

Applications of active structural control in aerospace, marine, automotive, civil engineering, commercial systems etc.