IUTAM symposium on intelligent multibody systems - dynamics, control, simulation

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Abstrak

This volume, which brings together research presented at the IUTAM Symposium Intelligent Multibody Systems-Dynamics, Control, Simulation, held at Sozopol, Bulgaria, September 11-15, 2017, focuses on preliminary virtual simulation of the dynamics of motion, and analysis of loading of the devices and of their behaviour caused by the working conditions and natural phenomena. This requires up-to-date methods for dynamics analysis and simulation, novel methods for numerical solution of ODE and DAE, real-time simulation, passive, semi-passive and active control algorithms.

Applied examples are mechatronic (intelligent) multibody systems, autonomous vehicles, space structures, structures exposed to external and seismic excitations, large flexible structures and wind generators, robots and bio-robots.

The book covers the following subjects:

-Novel methods in multibody system dynamics;

-Real-time dynamics;

-Dynamic models of passive and active mechatronic devices;

-Vehicle dynamics and control;

-Structural dynamics;

-Deflection and vibration suppression;

-Numerical integration of ODE and DAE for large scale and stiff multibody systems;

-Model reduction of large-scale flexible systems.