

MODEL ORDER REDUCTION FOR PARAMETRIZED CONTINUUM MECHANICS

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MINISYMPOSIUM

While physical simulation has become an indispensable tool in engineering design and analysis, many real-time and many-query applications remain out of reach for classical high-fidelity analysis techniques. Model reduction is one approach to reduce the computational cost in these applications while controlling the error introduced in the reduction process. In this mini-symposium, we discuss recent developments in model reduction techniques. Topics include, but not limited to, nonlinear approximation techniques; high-dimensional problems; hyperreduction methods for nonlinear PDEs; data-driven methods; incorporation of machine-learning techniques; error estimation and adaptivity; and their applications to optimization, feedback control, uncertainty quantification, and inverse problems in fluid and structural dynamics, with an emphasis on large-scale industry-relevant problems. The minisymposium will bring together researchers working on both fundamental and applied aspects of model reduction to provide a forum for discussion, interaction, and assessment of techniques.