ss & sssMOR - Analysis and Reduction of Large-Scale Dynamic Systems in MATLAB

Abstract:
The accurate modeling of dynamical systems often results in a large number of differential equations. In this case, the system matrices then easily become too large to define state-space models (ss objects) in MATLAB. In this contribution we present two new toolboxes that allow the definition and analysis of large-scale models by introducing sparse state-space objects (sss). Through model order reduction (sssmOR) it is possible to obtain high fidelity, low order approximations of the relevant dynamics to further reduce the computational complexity.

Kongress- / Buchtitel:
KoMSO Challenge Workshop on Reduced-Order Modeling for Simulation and Optimization

Jahr:
2016

Jahr / Monat:
2016-11

Monat:
Nov

TUM Einrichtung:
Lehrstuhl für Regelungstechnik

Occurences:
· Hochschulbibliographie > 2016 > Fakultäten > Maschinenwesen > Lehrstuhl für Regelungstechnik (Prof. Lohmann)
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