

UNIVERSITÄT TRIER

MATHEMATISCHES KOLLOQUIUM

Im Rahmen des mathematischen Kolloquiums findet

- Donnerstag, 25.06.2009
- 16 Uhr c.t.
- Raum HS 9

folgender Vortrag statt

„Interpolatory and System-Theoretic Methods for Parametric Model Reduction“

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Abstract: Model reduction has become an ubiquitous tool in simulation and control for dynamical systems arising in various engineering disciplines. Often, models of physical processes contain parameters describing material properties and geometry variations, or arising from changing boundary conditions. For purposes of design and optimization, it is often desirable to preserve these parameters as symbolic quantities in the reduced-order model (ROM). This allows the re-use of the ROM after changing the parameter so that the repeated computation of reduced-order models can be avoided. Significant savings in simulation times for full parameter sweeps or within optimization algorithms can be achieved this way. In this talk, we study several approaches for computing ROMs for linear parametric systems. Parameter dependencies can be linear, polynomial, or nonlinear in general. We study methods based on multi-moment matching. We provide an interpretation of these methods as rational interpolation methods and combine them with optimal H_2 model reduction. A further approach based on a combination of balanced truncation and sparse grid interpolation will also be discussed. Numerical results illustrate the performance of all the methods under consideration.

Hierzu laden ein

Die Dozenten der Mathematik

Gastgeber: Prof. Dr. Ekkehard Sachs

Ab 15:45 wird im E 115 (Büro Prof. Sachs) Kaffee & Tee gereicht.