Technische Universität Braunschweig

INSTITUT FÜR AKUSTIK

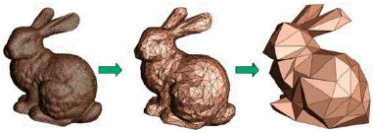
Adaptive Techniques for Model Order Reduction of Vibroacoustic Models

Study Project | Master Thesis

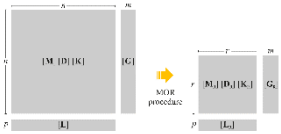
The **Model Order Reduction (MOR)** approach is a method to reduce the large-scale dimension of a system to significantly lower order without compromising on accuracy. In **Finite Element Method (FEM)**, MOR techniques can be applied to reduce the huge dimensions of the system matrices. Thereby yielding faster computations in the reduced space.

For vibroacoustic applications, Krylov-based MOR (KMOR) is one promising method to approach a complex system with higher degrees of freedom. However, for reliable and robust algorithm performing the reduction with least user-defined parameters **adaptive learning techniques,** for example by using cheap error estimates, are required.

The major focus of the project would be to study in depth the applicability and efficiency of the various adaptive learning techniques for vibroacoustic problems.



Source: Schilders, Wil (2008): Introduction to Model Order Reduction.



Tasks:

- Familiarizing the provided KMOR algorithm in MATLAB
- Investigation of suitable adaptive techniques for vibroacoustic models

Begin: Immediately

Contact

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