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# Mechanik-Seminar

Referent: **Prof. Olivier A. Bauchau**
Thousand Scholar Plan
Zhiyuan Chair Professor of Mechanical Engineering,
University of Michigan-Shanghai Jiao Tong University Joint Institute,
Shanghai, China
Datum: Donnerstag, 20.03.2014
Uhrzeit: 15:45 Uhr
Ort: Geb. 10.81, HS 62 (R 153)
Titel: **Dimensional Reduction Procedures for Flexible Multibody Systems**

## Abstrakt

The comprehensive dynamic simulation of many flexible multibody systems, such as helicopter or wind turbines among many others, requires considerable skills and enormous amounts of computational power. For the modeling of structural components, it is common practice to use dimensionally reduced models such as beams, plates, or shells. This presentation will describe a general procedure for the dimensional reduction of complex structures made of advanced composite materials. The approach can be viewed as a Global/Local technique. The local model is based on conventional finite element techniques, and the key of the proposed approach is an energy equivalence condition that relates the variables of the global and local models to achieve highly accurate reduced models. Applications of the proposed approach will be presented for beams and plates made of highly anisotropic composite materials. This approach allows the recovery of three-dimensional stress states, a pre-requisite for design and fatigue analysis of advanced composite structures.

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Alle Interessenten sind herzlich eingeladen.

Prof. Dr.-Ing. Peter Betsch