Seminar über Fragen der Mechanik

zu folgendem Vortrag wird herzlich eingeladen

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DEIM for the Efficient Computation of Contact Interface Stresses

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The computational effort for the simulation of reduced order models containing contact stresses is determined by these nonlinear terms. Recent publications suggest the utilization of interpolation methods to overcome this bottleneck. The applicability of the Discrete Empirical Interpolation Method (DEIM) for the efficient computation of contact stresses is demonstrated.

The modeling of a mechanical structure containing an interface using zero thickness elements is outlined first. This is followed by a reduction method using joint interface modes as extension to the well known Craig Bampton approach. The basic idea of interpolation methods and a summary of the applied DEIM algorithm is given. Finally the numerical example of a bolted cantilever is investigated for two loadcases and the results are discussed for different trial function bases. It is clearly shown that DEIM can be used to significantly improve the computational efficiency for this type of problems while keeping accuracy at an acceptable level.

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