



# Gastvortrag

Mittwoch, 23. November 2022  
Uhrzeit: 10.00 Uhr  
Seminarraum I

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## **A hybrid-high order method for guaranteed lower eigenvalue bounds**

### Abstract:

A new class of skeletal methods provides direct guaranteed lower eigenvalue bounds (GLB) under verifiable assumptions on the maximal mesh-size and discretisation parameters.

The verification of the GLB condition requires the knowledge of some stability constants and its validity implies that the computed discrete eigenvalue is already a GLB.

This talk focusses on the explicit estimation of the stability constants for the hybrid-high order (HHO) eigenvalue solver of Carstensen-Ern-Puttkammer [Numer.Math. 149, 2021] and its recent modification with an even simpler  $p$ -robust parameter selection.

The error analysis allows for a priori quasi-best approximation and  $L_2$  error estimates as well as a stabilization-free reliable and efficient a posteriori error control. Computer benchmarks provide striking numerical evidence for optimal high-order convergence rates of the associated adaptive mesh-refining algorithm.

Eingeladen von Andreas Schröder