

SYMMETRIC AND NON-SYMMETRIC DISCONTINUOUS GALERKIN METHODS FOR A
PSEUDOSTRESS FORMULATION OF THE STOKES SPECTRAL PROBLEM.

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In this talk we present symmetric and non-symmetric discontinuous Galerkin methods for the Stokes eigenvalue problem. The formulation is obtained by introducing the so-called pseudostress tensor and thanks to the structure of the system, the velocity and pressure variables are eliminated. We propose different DG discretizations to solve the resulting spectral problem and the convergence analysis is based on the abstract spectral theory for non-compact operators. We show that the proposed method is spurious modes free and asymptotic estimates for the eigenvalues and eigenfunctions are proved if the so-called stabilization parameter is sufficiently large and the meshsize is small enough. We report some numerical experiments to assess the performance of the methods.

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