

A Mixed finite element discretization for plate problems

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For fourth-order problems as they arise in plate theory, standard conforming finite element methods require ansatz spaces with high regularity. This leads to complicated ansatz functions and complex implementations in finite element programs. This talk will introduce a new mixed formulation based on a Helmholtz-type decomposition that reformulates the fourth-order problem as a second-order problem. This new formulation can then be discretized with standard Lagrange ansatz functions. This enables the discretization with lowest-order ansatz functions as well as the discretization with higher polynomials. This talk will also introduce a posteriori error estimators and will show some numerical results.