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# An Additive Schwarz Method for the Morley Element Approximation of a Non-Linear Biharmonic Equation

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**Abstract:** We consider the well-known Morley non-conforming finite element approximation of a nonlinear biharmonic equation which is related to the well-known two-dimensional Navier-Stokes equations.

In this talk, we discuss a two-level additive Schwarz method for the discrete nonlinear algebraic system. For sufficiently small Reynolds number, the method is optimal, i.e., the convergence rate is independent of the mesh size and the number of subdomains. Numerical results will be presented.

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