Local Multigrid for Biharmonic Equation

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In this talk, we shall present some local multigrid algorithms for solving linear algebraic systems arising from the adaptive finite element method for the biharmonic equation. The abstract Schwarz theory is applied to analyze the multigrid methods with Jacobi or Gauss-Seidel smoother performed on local nodes on each level. It is shown that the local multigrid methods are optimal, which means that the convergence rates are independent of the mesh sizes and mesh levels.