

On the Analysis of the HSS Method in Solving Partial Differential Equations

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We report our results on the Hermitian and skew-Hermitian splitting (HSS) method applied on solving a kind of mildly nonlinear elliptic equation. We analyze the convergence of the V -cycle multigrid algorithm with the smoother based on the HSS method. It is proved that the V -cycle multigrid algorithm defined converges uniformly if the mesh size of the first level is smaller enough. Numerical experiments shows the efficiency of this algorithm.

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