

Generalized Iterative Methods for augmented linear systems*

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In this paper we study the solution of large sparse augmented linear systems. The generalized modified extrapolated SOR (GMESOR) method is considered. We find sufficient conditions for GMESOR to converge and determine its optimal iteration parameters and the corresponding minimum value of its convergence factor. Under the assumption that the eigenvalues of a key matrix are real it is shown that optimum GMESOR becomes equivalent to optimum GSOR [1], [2] whose convergence factor equals to the one of the Conjugate Gradient (CG) method. For comparison, we develop a similar analysis for the Generalized Modified Preconditioned Simultaneous Displacement (GMPSD) method.

References

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