P-REGULAR SPLITTING ITERATIVE METHODS FOR NON-HERMITIAN POSITIVE DEFINITE LINEAR SYSTEMS[*]

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Dedicated to Richard S. Varga on the occasion of his 80th birthday

Abstract. We study the convergence of P-regular splitting iterative methods for non-Hermitian positive definite linear systems. Our main result is that P-regular splittings of the form $A = M - N$, where $N = N^*$, are convergent. Natural examples of splittings satisfying the convergence conditions are constructed, and numerical experiments are performed to illustrate the convergence results obtained.

Key words. Non-Hermitian positive definite matrices, P-regular splitting, convergence, SOR methods, preconditioned GMRES

AMS subject classifications. 65F10, 15A15, 15F10.