

## ***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.

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