

1046-65-32

Liying Sun* (sly@gdei.edu.cn). *Constraint preconditioning for nonsymmetric indefinite linear systems.*

In this paper, we consider preconditioning the real, nonsymmetrical, and indefinite systems of linear equations. We extend the Schilders' factorization of the preconditioner to a nonsymmetrical matrix by using the different factorization from the recent results. The eigensolution distribution of the preconditioned matrix is determined. The choices of the parameter matrices in the extended Schilder's factorization are discussed. An upper bound of the degree of the minimal polynomial for the preconditioned matrix and the dimension of the corresponding Krylov subspace are determined, as well as the convergence behavior of a Krylov subspace method such as GMRES. (Received June 17, 2008)