

**ICM-9205-37** A Note on a Perturbation Analysis of Iterative Methods, with an Application to the SSOR Iterative Method, W. Niethammer and R.S. Varga, J. Numer. Linear Algebra, (to appear).

ABSTRACT: We investigate here iteration matrices  $T(\omega)$ , for solving systems of linear equations, which, like the SOR iterative method, are dependent on a single relaxation parameter,  $\omega$ . We use a local perturbation analysis, for  $\omega$  small, of the extrapolated Jacobi iteration matrix  $J(\omega)$ , which results in geometrical conditions for the convergence or divergence of  $T(\omega)$ , for  $\omega$  small. Then, an application of this analysis is given for the popular SSOR (symmetric successive overrelaxation) iterative method for solving non-Hermitian systems of linear equations.