

PRECONDITIONED MULTIPARAMETER AND
NEWTON-MULTIPARAMETER ITERATIVE METHODS FOR
SYSTEMS OF EQUATIONS

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We propose, in this article, three types of modified multiparameter iterative schemes which lay the foundation for us to successively establish preconditioned multiparameter iterative methods for the solution of systems of linear equations and preconditioned Newton-multiparameter iterative methods for the solution of systems of nonlinear equations. Based on the matrix version of Kantorovich inequality, we obtain successfully the proof of convergence of the preconditioned multiparameter and the preconditioned Newton-multiparameter iterative methods. Incremental unknowns preconditioners are used. Inexact Newton techniques are also applied while computing. Numerical results from examples confirm the efficiency of our new methods.