

# Alternative methods for identification of an M-matrix

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M-matrices are important in the consideration of rates of convergence of iterative methods for solving large systems of equations. M-matrices are applicable in Input-Output systems in Economic Modelling, Queuing Theory, and Engineering. The usual definition of an M-matrix has, among other requirements, that it must be nonsingular and its inverse non-negative. Following Saad (2003) a further two characterisations of an M-matrix are derived and these present simpler requirements which allow the efficient computational evaluation of the spectral radius of an associated non-negative matrix.