

# $M_\nu$ - matrices : A generalization of M-matrices based on eventually nonnegative matrices

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An  $M_\nu$ - matrix has the form  $A = sI - B$ , where  $s \geq \rho(B) \geq 0$  and  $B$  is eventually nonnegative; i.e.,  $B^k$  is entrywise nonnegative for all sufficiently large integers  $k$ . A theory of  $M_\nu$ - matrices is developed that parallels the theory of M-matrices, in particular as it regards exponential nonnegativity, spectral properties, semipositivity, monotonicity, inverse nonnegativity, and diagonal dominance.

This is joint work with Michael Tsatsomeros and Pauline van den Driessche.