

M -Type and M_v -Type Operators on Ordered Banach Spaces

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Abstract

Nonnegative matrices are used in different fields such as Biology, Economics, Dynamical Systems, Numerical analysis, Probability theory and others. Several scholars have developed some characterization of inverse positive matrices and made extensions from Z-(negated-Metzler) and M-(Minkowski) matrices to generalized matrices and operator theory. In particular Le and McDonald(2006)[5] characterized inverses of M -type matrices (created with irreducible eventually nonnegative matrices) while Olesky; Tsatsomeros and Van Den Driessche [6] extended the theory to M_v -matrices (a generalization of M -matrices based on eventually nonnegative matrices). In this work we examine further extensions to Banach spaces ordered by a cone and describe new analogues we call M -type and M_v -type operators respectively. We make use of the notions of resolvent positive operators and generators of positive linear operator semigroups.

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References

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¹A preliminary list of some references

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