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THE (WEAKLY) SIGN SYMMETRIC P-MATRIX COMPLETION PROBLEMS*

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Abstract. In this paper it is shown that a partial sign symmetric P-matrix, whose digraph of specified entries is a symmetric n-cycle with $n \geq 6$, can be completed to a sign symmetric P-matrix. The analogous completion property is also established for a partial weakly sign symmetric P-matrix and for a partial weakly sign symmetric P_0-matrix. Patterns of entries for 4×4 matrices are classified as to whether or not a partial (weakly) sign symmetric P- or weakly sign symmetric P_0-matrix specifying the pattern must have completion to the same type of matrix. The relationship between the weakly sign symmetric P- and sign symmetric P-matrix completion problems is also examined.

Key words. Matrix Completion, P-matrix, Weakly sign symmetric P-matrix, n-Cycle.

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