

## **The Weakly Sign Symmetric $P_0$ Matrix Completion Problem for Patterns of Digraphs of Order Two and Three**

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### **ABSTRACT**

In this paper we study weakly sign symmetric Wss  $P_0$ -matrix specifying patterns of digraphs of order 2 and 3 where necessary and sufficient conditions for a digraphs to have weakly sign symmetric  $P_0$ -matrix completion are stated and discussed. We will construct partial wss  $P_0$ -matrix of all non-isomorphic digraphs perform both zero completion and nonnegative completions. The significance of the study will also be discussed

**Keywords:** Digraphs; matrix completion; Partial matrix; Principal minor; symmetric patterns; Weakly sign symmetric  $P_0$ -matrix.