

Decompositions of K_n^* into orientations of $K_4 - e$

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Let K_n^* denote the complete digraph on n vertices, where each pair of distinct vertices has an arc in each direction. Let D be a digraph formed by orienting the edges of $K_4 - e$, the complete graph on 4 vertices with an edge deleted. Necessary and sufficient conditions are presented for the existence of a D -decomposition of K_n^* for eight such digraphs, and partial negative results are given for the remaining two. This research is supported by grant number A1359300 from the Division of Mathematical Sciences at the National Science Foundation.