

论文

## 乡村投递员问题的多面体

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**摘要** 设  $G=(V,E)$  是以  $V$  为顶点集,  $E$  为边集合的连通无向图. 对任意的  $E' \subseteq E$ , 以  $G[E']$  记  $G$  的由  $E'$  中的边所组成的子图, 称之为边集  $E'$  导出的子图. 称边序列  $w = \langle (i_0, i_1), (i_1, i_2), \dots, (i_{k-1}, i_k) \rangle$  为连接  $i_0$  和  $i_k$  的路, 其中  $i_j \in V, (i_j, i_{j+1}) \in E, 0 \leq j \leq k-1$ . 如果  $i_0 = i_k$ , 则称  $w$  为一个闭路. 如果  $w$  中  $i_s \neq i_t$ , 对任意  $0 \leq s, t \leq k$ ...

关键词

分类号

## THE POLYHEDRON OF THE RURAL POSTMAN PROBLEM

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**Abstract** The general routing problem proposed by C.S.Orloff in 1974 is, given a graph  $G=(V,E)$  with  $V_0 \subseteq V, E_0 \subseteq E$  and edge cost  $c: E \rightarrow \mathbb{R}_+$ , to find a closed walk of minimum cost which contains every vertex of  $V_0$  and every edge of  $E_0$ . When  $V_0 = \emptyset$ , the problem is the Rural Postman Problem (RPP). When  $E_0 = E$ , the RPP is the familiar Chinese Postman Problem (CPP). It is proved that the CPP can be solved in polynomial time while the RPP is NP-complete. The combinatorial polyhedral methods are successfully used in NP-complete problems in recent years. In this paper, the polyhedron relative to RPP is discussed and several kinds of facets of this polyhedron are described.

**Key words**

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