

论文

LONG DOMINATING CYCLES IN A KIND OF 2-CONNECTED GRAPHS

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摘要 Let G be a connected graph of order of n , and $NC2(G)$ denote $\min\{|N(u) \cup N(v)| \mid \text{dist}(u, v) = 2\}$, where $\text{dist}(u, v)$ is the distance between u and v in G . A cycle C is called a dominating cycle if every component of $G \setminus V(C)$ has order one. In this paper, we prove that if G is a 2-connected graph such that every longest cycle in G is a dominating cycle, then G contains a dominating cycle of length at least $\min\{n, 2NC2(G)\}$ unless G is the Petersen graph or belongs to a family of exceptional graphs.

关键词 [Dominating cycle, neighborhood unions](#)

分类号

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Abstract Let G be a connected graph of order of n , and $NC2(G)$ denote $\min\{|N(u) \cup N(v)| \mid \text{dist}(u, v) = 2\}$, where $\text{dist}(u, v)$ is the distance between u and v in G . A cycle C is called a dominating cycle if every component of $G \setminus V(C)$ has order one. In this paper, we prove that if G is a 2-connected graph such that every longest cycle in G is a dominating cycle, then G contains a dominating cycle of length at least $\min\{n, 2NC2(G)\}$ unless G is the Petersen graph or belongs to a family of exceptional graphs.

Key words [Dominating cycle](#) [neighborhood unions](#)

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