Asteroidal Numbers and Hamiltonicity of L1-Graphs

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Abstract

A graph $G$ is called an L1-graph if, for each triple of vertices $u, v, \text{ and } w$ with $d(u, v) = 2$ and $w$ is in $N(u) \cap N(v)$, $d(u) + d(v)$ is at least $|N(u) \cup N(v) \cup N(w)| - 1$. Let $G$ be a $k$-connected ($k$ is at least 2) L1-graph. If $an(G)$ is less than or equal to $k$, then $G$ is Hamiltonian or $G$ is in a special family of graphs, where $an(G)$ is the asteroidal number of $G$. 