Hamiltonian Like Indices

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Abstract

The concept of hamiltonian index was first introduced by Chartrand and Wall, who showed that if a connected graph $G$ is not a path, then $L^k(G)$ is defined for any positive integer $k$. The hamiltonian index $h(G)$ of $G$ is the smallest positive integer $k$ such that $L^k(G)$ is hamiltonian. Clark and Wormald extended this idea and introduced Hamiltonian like indices. For a property $P$ (Hamilton connected, edge-hamiltonian, pancyclic, vertex pancyclic, edge pancyclic) and a connected nonempty graph $G$ which is not a path, define the $P$-index of $G$, denoted $P(G)$, as

$$P(G) = \left\{ \begin{array}{ll}
\min\{k : L^k(G) \text{ has property } P\} & \text{if at least one such } k \text{ exists} \\
\infty & \text{otherwise}
\end{array} \right.$$ 

We summarize the recent results about Hamiltonian like indices.