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**Irregular networks.** (English) Zbl 0671.05060

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Summary: [For the entire collection see Zbl 0663.00003.]

A network N is a graph in which each edge is assigned a positive integer weight. The degree of a vertex in N is the sum of the weights of its incident edges. A network is irregular if its vertices have distinct degrees. The strength of a network N is the maximum weight among the edges of N. The irregularity strength s(G) of a graph G is the minimum strength among the irregular networks having G as an underlying graph. It is shown that s(G) is defined for every connected graph G of order $p \geq 3$ and that $s(G) \leq 2p-3$. Further, if N is a network of strength at least 2, then there exists an irregular network having same strength as N and containing N as an induced subnetwork.

**MSC:**

05C99 Graph theory
05C75 Structural characterization of families of graphs



**Keywords:**

network; degree; irregularity strength; irregular networks