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Kochol, Martin, Slovak Academy of Sciences, Slovakia

Superposition – a method for constructing graphs without nowhere-zero k-flows

A graph admits a nowhere-zero k-flow if its edges can be oriented and assigned by values $\pm 1, \ldots, \pm(k-1)$ so that the sum of the incoming values equals to the sum of the outcoming ones for every vertex of the graph. We present a new method for constructing graphs without nowhere-zero k-flows. We apply it for constructions of snarks with arbitrary large girth and several new results about nowhere-zero flow problems.

Reference: M. Kochol, Snarks without small cycles, J. Combin. Theory Ser. B **67** (1996), 34-47.