TOUGHNESS TRESHOLD FOR THE EXISTENCE OF 2-WALKS IN K_4-MINOR FREE GRAPHS

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A 2-walk is a closed spanning trail which uses every vertex at most twice. The *toughness* of a non-complete graph is $t(G) = min(\frac{|S|}{c(G-S)})$, where the minimum is taken over all nonempty vertex sets S, for which $c(G-S) \geq 2$ and $c(G-S)$ denotes the number of components of the graph $G-S$. We show that every K_4-minor free graph with toughness $t(G) > \frac{4}{7}$ has a 2-walk. We also give an example of a $\frac{4}{7}$-tough K_4-minor free graph with no 2-walk.

References

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