

Rainbow matchings of size m in graphs with total color degree at least $2mn$

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The existence of a rainbow matching given a minimum color degree, proper coloring, or triangle-free host graph has been studied extensively. This paper, generalizes these problems to edge colored graphs with given total color degree. In particular, we find that if a graph G has total color degree $2mn$ and satisfies some other properties, then G contains a matching of size m ; These other properties include G being triangle-free, C_4 -free, properly colored, or large enough.

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