CUBIC GRAPHS WITH TOTAL DOMATIC NUMBER AT LEAST TWO

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Abstract

Let G be a graph with no isolated vertex. A total dominating set of G is a set S of vertices of G such that every vertex is adjacent to at least one vertex in S . The total domatic number of a graph is the maximum number of total dominating sets which partition the vertex set of G . In this paper we provide a criterion under which a cubic graph has total domatic number at least two.

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REFERENCES

- [1] N. Alon and Z. Bregman, *Every 8-uniform 8-regular hypergraph is 2-colorable*, *Graphs Combin.* **4** (1988) 303–306.
doi:10.1007/BF01864169

- [2] B. Chen, J.H. Kim, M. Tait and J. Verstraete, *On coupon colorings of graphs*, Discrete Appl. Math. **193** (2015) 94–101.
doi:10.1016/j.dam.2015.04.026
- [3] E.J. Cockayne, R.M. Dawes and S.T. Hedetniemi, *Total domination in graphs*, Networks **10** (1980) 211–219.
doi:10.1002/net.3230100304
- [4] T.W. Haynes, S.T. Hedetniemi and P.J. Slater, *Fundamentals of Domination in Graphs* (CRC Press, 1998).
- [5] T.W. Haynes, S.T. Hedetniemi and P.J. Slater, *Domination in Graphs: Advanced Topics* (Marcel Dekker, 1998).
- [6] M.A. Henning and A. Yeo, *Total Domination in Graphs* (Springer, 2013).
doi:10.1007/978-1-4614-6525-6
- [7] M.A. Henning and A. Yeo, *2-Colorings in k -regular k -uniform hypergraphs*, European J. Combin. **34** (2013) 1192–1202.
doi:10.1016/j.ejc.2013.04.005
- [8] J. Spencer, *Asymptotic lower bounds for Ramsey functions*, Discrete Math. **20** (1977) 69–76.
doi:10.1016/0012-365X(77)90044-9
- [9] J. Spencer, *Ten Lectures on the Probabilistic Method* (SIAM, 1987).

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