

THE WELL-COVERED DIMENSION OF PRODUCTS OF GRAPHS

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Abstract

We discuss how to find the well-covered dimension of a graph that is the Cartesian product of paths, cycles, complete graphs, and other simple graphs. Also, a bound for the well-covered dimension of $K_n \times G$ is found, provided that G has a largest greedy independent decomposition of length $c < n$.

Formulae to find the well-covered dimension of graphs obtained by vertex blowups on a known graph, and to the lexicographic product of two known graphs are also given.

Keywords: well-covered dimension, maximal independent sets.

2010 Mathematics Subject Classification: 05C50, 15A03.

REFERENCES

- [1] J.I. Brown and R.J. Nowakowski, *Well-covered vector spaces of graphs*, SIAM J. Discrete Math. **19** (2005) 952–965.
doi:10.1137/S0895480101393039

- [2] Y. Caro, M.N. Ellingham and J.E. Ramey, *Local structure when all maximal independent sets have equal weight*, SIAM J. Discrete Math. **11** (1998) 644–654.
doi:10.1137/S0895480196300479
- [3] Y. Caro and R. Yuster, *The uniformity space of hypergraphs and its applications*, Discrete Math. **202** (1999) 1–19.
doi:10.1016/S0012-365X(98)00344-6
- [4] A. Ovetsky, *On the well-coveredness of Cartesian products of graphs*, Discrete Math. **309** (2009) 238–246.
doi:10.1016/j.disc.2007.12.083
- [5] M.D. Plummer, *Some covering concepts in graphs*, J. Combin. Theory **8** (1970) 91–98.
doi:10.1016/S0021-9800(70)80011-4
- [6] D.B. West, *Introduction to Graph Theory*, Second Edition (Prentice Hall, Upper Saddle River, 2001).

Received 13 December 2012

Revised 19 November 2013

Accepted 19 November 2013