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PROGRESS REPORT ON BOOLEAN DIMENSION AND PLANARITY

Since the 1980's, the following two conjectures regarding posets with planar cover graphs have challenged researchers: (1) Dushnik-Miller dimension is bounded in terms of standard example number; and (2) Boolean dimension is bounded. In 2022, Blake, Micek and Trotter settled both conjectures in the affirmative for posets with planar cover graphs and a unique minimal element. Joined by Hodor and Seweryn, we settled conjecture (1) in full generality. The 100 page manuscript is available via the arXiv, and the journal article is under review. In the intervening four years, there has been steady progress on conjecture (2), and now the end seems in sight.

This is joint work with Heather S. Blake, Jędrzej Hodor, Piotr Micek, and Michał Seweryn.