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On the Structure of Dominating Graphs of Trees and Cycles

The dominating graph of a graph G has as its vertices all dominating sets of G, with two vertices adjacent if the corresponding dominating sets differ by the addition or deletion of a single vertex of G. We are interested in the properties of such graphs. In particular, we show that the dominating graph of any tree has a Hamilton path and that the dominating graph of a cycle on n vertices has a Hamilton path if and only if n is not a multiple of 4. Joint work with K. Adaricheva, H. Smith Blake, C. Bozeman, R. Haas, M. Messinger, and K. Seyffarth.