

Degree Ramsey and On-Line Degree Ramsey Numbers

Douglas B. West, University of Illinois

Dating implicitly to Burr, Erdős, and Lovász in 1976, the *degree Ramsey number* of a graph G , written $\text{dr}(G)$, is the least k such that every 2-coloring of the edges of some graph with maximum degree k contains a monochromatic copy of G . The *on-line degree Ramsey number*, written $\text{odr}(G)$, is the least k such that, by presenting edges one-by-one without ever exceeding degree k at any vertex, Builder can force Painter (who must color each edge when it arrives) to produce a monochromatic G . Trivially, $\text{odr}(G) \leq \text{dr}(G) \leq R(G, G) - 1$. We present a variety of results and problems about these parameters, particularly for paths, trees, and cycles. This work is joint with Jane Butterfield, Tracy Grauman, Bill Kinnersley, Kevin Milans, and Chris Stocker.