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Planar graphs have bounded nonrepetitive chromatic number

A colouring of a graph is "nonrepetitive" if for every path of even order, the sequence of colours on the first half of the path is different from the sequence of colours on the second half. Using the planar graph product structure theorem, we show that planar graphs have nonrepetitive colourings with a bounded number of colours, thus solving a problem raised by Alon, Grytczuk, Haluszczak and Riordan in 2002. We also generalise this result to graphs excluding a fixed minor or topological minor.

This is joint work with V. Dujmović, G. Joret, B. Walczak, and D.R. Wood.