

List Colourings of Graphs on a Bounded Number of Vertices

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(joint work with Bruce Reed, Doug West, Hehui Wu and Xuding Zhu.)

The choice number (also called list chromatic number) of a graph G is the minimum integer k such that for any assignments of lists of size k to the vertices of G , there is a proper colouring of G in which every vertex is mapped to a colour in its list. For general graphs, the choice number is not bounded above by any function of the chromatic number.

In this talk, we will discuss a proof of Ohba's Conjecture, which states that if the number of vertices in G is bounded above by $2\chi(G)+1$, then the choice number of G is equal to its chromatic number. Moreover, we will provide a generalisation of this result which gives a tight upper bound on the choice number of graphs with at most 3χ vertices. We will conclude the talk by posing several open problems for future study.