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PACKING-LIST COLORING OF GRAPHS

The pack-list coloring is a generalization of colorings from list assignments. Given an assignment to the k -list L , a L pack is a collection of k pairwise edge-disjoint colorings, each selecting one color from every list. This framework naturally extends classical list coloring by requiring several compatible list colorings to coexist simultaneously.

We study the *packing proper connection*, where every coloring in the packing is proper-connected, that is, between every pair of vertices there exists a properly edge-colored path. The minimum list size guaranteeing such a packing is called the proper packing connection number and is denoted by $pc_\ell^*(G)$.

We also introduce a stronger variant, the *one-path packing proper connection*, where for every pair of vertices, there exists a single path that is properly colored in every layer of the packing.

We also briefly discuss several other packing-list coloring variants.

This is joint work with Jarosław Grytczuk and Małgorzata Śleszyńska-Nowak and Michał Tuczyński.