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*Comparing the local chromatic number of a digraph and its underlying undirected graph*

The local chromatic number of a graph was introduced in 1986 and its natural generalization to directed graphs in 2005. Here we investigate the relation of the local chromatic number of an oriented graph to that of its underlying undirected graph. We show the existence of a graph where the two values differ for any orientation. We prove that the opposite is true for fractional versions. Thus the minimum possible ratio of these two fractional parameters is 1. We also determine the largest possible ratio of these two invariants. Joint work with Gábor Tardos and Ambrus Zsbán.