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Oriented Injective Colouring

We define an *oriented injective k -colouring* of an oriented graph G to be an oriented colouring such that, for all $v \in V(G)$, no two in-neighbours of v are assigned the same colour, nor are any two out-neighbours. The *oriented injective chromatic number* $\chi_i(G)$ is the smallest k for which such a k -colouring of G exists, i.e. the smallest number of vertices in an oriented graph H for which there is an injective homomorphism of G to H . We consider this parameter in terms of obstructions, critical graphs, cliques, products and bounds. Joint work with R. Campbell and G. MacGillivray.