On the distinguishing chromatic number in hereditary graph classes

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The distinguishing chromatic number of a graph G, denoted by $\chi_D(G)$, is the minimum number of colours in a proper vertex colouring of G that is preserved by the identity automorphism only. Collins and Trenk proved $\chi_D(G) \leq 2\Delta(G)$ for any connected graph G, and that equality holds for complete balanced bipartite graphs $K_{p,p}$ and for C_6.

In this talk, we show that the upper bound on $\chi_D(G)$ can be substantially reduced if we forbid some small graphs as induced subgraphs of G, that is, we study the distinguishing chromatic number in some hereditary graph classes.