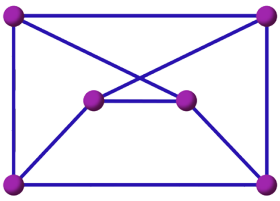

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DEGENERACY OF P_t-FREE GRAPHS WITH NO LARGE COMPLETE BIPARTITE SUBGRAPHS

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By a classic result of Gyárfás, the chromatic number of a P_t-free graph with largest clique of size w is bounded by t^w. A big open question in the area is whether this bound can be improved to a polynomial one (with respect to w).

We tackle a simpler problem – can we obtain a polynomial bound, if the size of a largest clique is replaced by the size of a largest (non-necessarily induced) biclique contained in the graph? We show that this is indeed the case:

For every t there exists a constant c, such that every P_t-free graph, which does not contain $K_{s,s}$ as a subgraph, has a vertex of degree at most s^c.

In the talk I will give an overview of the main steps and ideas of the proof. The result is obtained as a joint work with Marthe Bonamy, Nicolas Bousquet, Michał Pilipczuk, Stephan Thomassé, and Bartek Walczak.