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Lower Bound on Degenerate Induced Subgraphs

Let G be a graph and let k, d be non-negative integers such that $k \geq d$. We define $\alpha_d(G)$ to be the order of the largest d-degenerate induced subgraph of G and $\alpha_d(k) = \inf_{\text{G with degeneracy k}} \left\{ \frac{\alpha_d(G)}{|V(G)|} \right\}$. There has been a good amount of research done on α_d in the planar graph case, however, not much has been done in the general case. In this talk, we will discuss results on lower bounding α_d for the general graph case, as well as a conjecture on $\alpha_1(2)$.