Induced Saturation of Graphs

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The saturation number of graph is a well-known, and often difficult to calculate, graph parameter. In 2011, Martin and Smith introduced a new variant of the saturation number for induced subgraphs, known as the induced saturation number. In this paper they determine the induced saturation number for cliques, cliques minus an edge, and the path on four vertices. In particular, the only known examples of graphs with induced saturation number were cliques minus an edge.

In this talk we show that many other graphs, such as the paw, stars, odd cycles, and matchings, each have induced saturation number zero. Additionally we define a new parameter for graphs $H$ with induced saturation number zero, in which we look for the minimum number of edges in an $H$-induced-saturated graph. We determine this value completely for the paw, as well as the order magnitude for claws.

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