

“Graph” Saturation

Michael S. Jacobson, University of Colorado, Denver CO – 80217
& National Science Foundation

Abstract

Let H be a graph. A graph G is an H -saturated graph if G does not contain H as a subgraph, but $G \cup e$ contains a copy of H for any edge e , not in G . The saturation number of H , denoted by $\text{sat}(n, H)$, is the minimum number of edges in an H -saturated graph G of order n . In this talk, I will present a survey of some of the classical results on saturation number, a comparison of the saturation number $\text{sat}(n, H)$ with the Turán extremal number $\text{ex}(n; H)$, in addition to a variety of extensions including a combinatorial game approach. One focus will be on some recent results with numerous problems and questions presented. (The quotes in the title are to indicate that these problems and questions extend to other combinatorial structures.)

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