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On a Relationship of Two Extremal Functions

Given a subgraph F , a graph G is said to be F -saturated if G contains no copy of F as a subgraph and for any edge e not in G , $G + e$ does contain a copy of F . Denote the *minimum* number of edges in an F -saturated graph by $sat(n, F)$. A degree sequence $\pi = (d_1, d_2, \dots, d_n)$ is said to be potentially F -graphic if there exists *some* realization of π containing a copy of F . Denote the minimum degree sum that guarantees that a graphic sequence is potentially F -graphic by $\sigma(F, n)$. We give a short history of these functions and using a theorem of Kászonyi and Tuza [1], we show for particular F that

$$2sat(n, F) < \sigma(F, n).$$

If the inequality holds in general is open.

References

- [1] L. Kászonyi, Z. Tuza, Saturated graphs with minimal number of edges, *J. Graph Theory* **10** (1986), 203-210.