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All Terminal Reliability and Optimality

Let G be a graph on n vertices and m edges. The all terminal reliability of G , $\text{Rel}(G, p)$, is the probability that at least a spanning tree is operational, given vertices always operate and edges operate independently with $p \in [0, 1]$. In this talk we extend the values of n and m for which most optimal simple graphs do not exist, and settling an outstanding conjecture, prove that even if multiedges are allowed, there are still cases where most optimal graphs do not exist. (This is joint work with Jason Brown.)