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*Approximating the minimum  $k$ -edge connected multi-subgraph problem*

Here we are given a weighted graph and wish to find a minimum cost  $k$ -edge connected spanning subgraph. Our subgraph may use the same edge multiple times. While for unweighted graphs a  $1 + O(1/k)$  approximation is known, the weighted case only has a  $3/2$  approximation from the 80s. We show a simple  $1 + o(1)$  approximation as  $k$  goes to infinity, demonstrating that the problem gets easier as  $k$  grows. The entire (elementary) analysis will be explained in this talk and serves as a gentle introduction to Strongly Rayleigh distributions.

Based on joint work with Anna Karlin, Shayan Oveis Gharan, and Xinzhi Zhang.