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SURVIVABLE NETWORKS DESIGN VIA RANDOM SPANNING TREES

We consider the union of k random spanning trees of K_n , drawn uniformly at random. Since trees may share edges, multiple occurrences of an edge are replaced by a single edge to form a simple graph G . We study the random variable M counting surplus edge occurrences. We derive an exact formula for $\mathbb{E}[M]$ and show that $\mathbb{E}[M] < k(k-1)$ independently of n . This bound motivates a procedure for generating sparse simple k -edge-connected graphs.

This is joint work with Dominik Bojko.