Splitting the $K$-terminal reliability

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Abstract

Let $G = (V, E)$ be a graph and $K \subseteq V$ a set of terminal vertices. Assume now that the edges of $G$ are failing independently with given probabilities. The $K$-terminal reliability $R(G, K)$ is defined as the probability that all vertices in $K$ are mutually connected.

In this talk a new approach for the computation of $R(G, K)$ at a vertex separating set of $G$ is proposed. The approach utilises the lattice of labelled set partitions and its incidence algebra.