

Inequalities for trees and matroids

Federico Ardila-Mantilla

San Francisco State University

In their 1971 study of telephone switching circuitry, Graham and Pollak designed a novel addressing scheme that was better suited for the faster communication required by computers. They introduced the distance matrix of a graph, and used its eigenvalues to bound the size of the addresses in their scheme. We continue their investigation, obtaining more precise spectral information about tree distance matrices. As a consequence, we prove two conjectural inequalities for matroids, and valuated matroids. My talk will discuss joint work with Sergio Cristancho, Graham Denham, Chris Eur, June Huh, and Botong Wang, and will not assume previous knowledge of these topics.

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