

Combinatorics Seminar

Wednesday, November 20th, 2024

4:00-5:00 pm in Hume 321

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Loose elements and paving matroids

Abstract

An element of a matroid is free if it is contained in no circuits other than the spanning circuits. We call an element loose if it is contained in no circuits of size less than the rank of the matroid. Note that a matroid M is paving if and only if all elements of M are loose. In this talk, I will give a characterization of binary matroids that contain a loose element. For ternary matroids with a loose element, we show their size is linear in terms of their rank. Moreover, for a prime power q , we partially characterize all $GF(q)$ -matroids that have two loose elements. Since all elements in a paving matroid are almost-loose, we note Rajpal's partial characterization of $GF(q)$ -paving matroids as a consequence. This is joint work with Tom Zaslavsky.