

Fragility in matroid theory

Date Tuesday, October 11

Time 4:30 pm

Location 303 Mudd

Abstract: Matroids are combinatorial structures abstracting the notion of linear dependence. Matroids consist of a finite set called the ground set (think of a set of vectors), and a partition of its subsets into dependent and independent ones. There are two operations to remove an element, called deletion and contraction, which generalize the corresponding operations on edges of graphs. These operations generate a partial order, and a matroid N is said to be a minor of M if N is below M in this partial order.

A matroid M is N -fragile if, for every element e of M , either the deletion or contraction of e results in a matroid without minor isomorphic to N . In this talk I will discuss some aspects of fragility, why we are interested, what the big open problems are, and what we know. I will focus in particular on the connection with Rota's Conjecture. I will assume that my audience has had little or no prior exposure to matroid theory.