Laplacians of matroid complexes

Graham Denham
University of Michigan

January 28, 1999
102 Bradley Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

Abstract

A matroid is a generalization of the (in)dependence properties shared by a finite set of points in a vector space and sets of edges in a graph. One can study some matroid properties by looking at several topological spaces that are defined purely by combinatorial data. A (combinatorial) Laplacian is a linear self-map of a chain complex that reveals homology and some additional structure.

This talk will introduce the ideas above and attempt to show how an explicit description of a certain Laplacian's eigenspaces relates to enumerative questions and applies to the theory of hyperplane arrangements.

This talk should be accessible to graduate students.