

1083-05-233

**Stuart Margolis, Franco Saliola and Benjamin Steinberg\*** (bsteinberg@ccny.cuny.edu).

*Poset topology and global dimension of algebras arising in combinatorics.*

Bidigare, Hanlon and Rockmore used the representation theory of hyperplane face monoids to analyze Markov chains. This was further investigated by Diaconis and Brown. Brown generalized the whole theory to a class of monoids called left regular bands. Walks on matroids, oriented matroids, and real and complex hyperplane arrangements fit into this class. Further work was done by Björner, Chung and Graham.

In this talk we consider the global dimension of left regular band algebras. This is intimately connected with poset topology and Leray numbers of simplicial complexes. (Received August 29, 2012)