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Supersolvable Geometric Lattices

Abstract for the Combinatorics and Number Theory and Algebra Seminars 2002 December 10 (Tuesday)

A sufficient condition for the characteristic polynomial of a geometric lattice to have a complete integral factorization is that the lattice be supersolvable, which means it has a maximal chain of modular elements. (However, supersolvability is not a necessary condition for such a factorization.)

Other than some basic lattice theory, I will not assume prior knowledge of the topics discussed during this talk.

Supersolvable Matroids of Biased Graphs

Abstract for the Combinatorics and Number Theory Seminar 2002 December 11 (Wednesday)

In his 1997 paper “A characterization of supersolvable signed graphs”, Young-Jin Yoon presents necessary and sufficient conditions for the bias matroid of a signed graph to be supersolvable. In his 2001 paper “Supersolvable frame-matroid and graphic-lift lattices”, Zaslavsky does the same for biased graphs, a generalization of signed graphs. I will discuss why the two results are not compatible and will prove parts of the correct theorem.