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Topological Properties of Activity Orders for Matroid Bases

Abstract for the Combinatorics Seminar 2004 February 6 (Friday)

Las Vergnas recently defined partial orders on the bases of an ordered matroid using their internal and external activities. He showed that these posets are in fact graded lattices. We study the order complex of these lattices, showing that it is always homotopy equivalent to a shellable complex. This helps explain an observation of Las Vergnas, that the Mobius function of these lattices is often zero.

I will not assume any background about matroids or topology of posets.

This is joint work with Rieuwert Blok.