

Queen's Algebraic Geometry — Seminar —

THE ROOK MONOID IS LEXICOGRAPHICALLY SHELLABLE

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Abstract

Shellability is a combinatorial property of a cell complex (of a poset) with important topological and algebraic consequences. For example, a shellable complex has the homotopy type of a wedge of r -spheres and its Stanley-Reisner ring is Cohen-Macaulay. Among the interesting classes of shellable posets is the symmetric group with respect to the Bruhat-Chevalley ordering. The rook monoid is a finite (inverse) monoid having symmetric group as its group of invertible elements. There is a natural extension of the Bruhat-Chevalley ordering on the rook monoid (originating from the Bruhat decomposition of the $n \times n$ matrices). In this talk, we shall present our recent progress, showing that the rook monoid is a (lexicographically) shellable poset.

Monday, March 31, 2008
4:30pm – 5:30pm
319 Jeffery Hall