

MATHEMATICS DEPARTMENT  
North Carolina State University

ALGEBRA SEMINAR

Friday, September 22, 2006

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NC State University

Lattice Congruences of the Weak Order

**ABSTRACT:** A lattice is a partially ordered set in which least upper bounds and greatest lower bounds exist. The primary example of a lattice in this talk will be the weak order on a finite Coxeter group. The lattice structure of the weak order constitutes an alternate algebraic structure on the Coxeter group (aside from the group structure). This alternate structure is very rich: for example, the combinatorics of generalized associahedra (which underly cluster algebras of finite type) can be recovered by a simple construction in the lattice theory of the weak order.

The talk will start with an introduction to Coxeter groups and the weak order, and a brief introduction to very basic notions of lattice theory. With these basic ideas in place, I will sketch my work on the lattice theory of the weak order, which has largely focused on quotients modulo lattice congruences. This will pave the way for the presentation (in an anticipated sequel) of the generalized associahedron example and perhaps other examples.

3:00 - 3:50 pm    HA 335

Faculty and Students are invited to attend.