MATHEMATICS DEPARTMENT
North Carolina State University

ALGEBRA SEMINAR

Friday, November 16, 2007

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North Carolina State University

Counting chains in noncrossing partition lattices

ABSTRACT: Classical noncrossing partitions are set partitions which satisfy a certain "planarity" condition. Through the work of various researchers, classical noncrossing partitions were recognized as the "type-A" (symmetric group) case of a general construction valid for any finite Coxeter group W. The general definition of "W-noncrossing partitions" arose from geometric group theory, where the classical noncrossing partitions give detailed information about the braid group, and W-noncrossing partitions give similar information about the Artin group associated to W. In particular, W-noncrossing partitions lead to the definition of Eilenberg–Maclane spaces (or "$K(\pi, 1)$'s") for Artin groups.

In this talk I will provide geometric intuition for the definition of noncrossing partitions, and show how the geometric approach leads to a pleasant recursion for counting maximal chains in the lattice of noncrossing partitions. I will assume no prior knowledge of the noncrossing partitions.

3:00 - 3:50 pm HA 335

Faculty and Students are invited to attend.