

MATHEMATICS DEPARTMENT  
North Carolina State University

ALGEBRA SEMINAR

Friday, February 23, 2007

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Borel subalgebras of  $gl(\infty)$

**ABSTRACT:** I will describe all maximal locally solvable subalgebras of  $gl(\infty)$ , the Lie algebra of finitely infinite matrices. Namely, I will prove that the Borel subalgebras are the stabilizers of a particular type of chains of subspaces of the natural representation of  $gl(\infty)$ . I will then analyze this result and point out some striking differences between  $gl(\infty)$  and the finite dimensional reductive Lie algebras. In particular there are maximal locally solvable subalgebras of  $gl(\infty)$  which are also locally nilpotent! The talk will be concluded with a description of some conjectures and open questions. This talk is based on joint works with I. Penkov.

3:00 - 3:50 pm HA 335

Faculty and Students are invited to attend.