MATHEMATICS DEPARTMENT
North Carolina State University

ALGEBRA SEMINAR

Friday, November 10, 2006

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Nilpotent Lie algebras with a small second derived quotient

ABSTRACT: In a recent paper by Csaba Schneider, the structure of finite p-groups G, such that $G'' \neq 1$ and $|G'/G''| = p^3$ were found. In the two generator case, Schneider used Lie algebra calculations to inspire the ideas behind the group structure and then extended the group structure to include the cases of more than two generators. I will discuss the analogous Lie algebra problem: looking at the structure of nilpotent Lie algebras L such that $L'' \neq 0$ and $\dim(L'/L'') = 3$. We find that L has a central decomposition such that $L = H + U$ where H can be generated by at most 5 elements, the dimension of H is at most 9, and U is the direct sum of a generalized Heisenberg Lie algebra and an abelian Lie algebra. I will also present the classification of these Lie algebras over the complex numbers and give some examples.

3:00 - 3:50 pm HA 335

Faculty and Students are invited to attend.