Meeting: 1004, Bowling Green, Kentucky, SS 10A, Special Session on Hopf Algebras and Related Topics

1004-16-242 **Julia Pevtsova** and **Sarah Witherspoon*** (sjw@math.tamu.edu). *Varieties for modules of noncocommutative Hopf algebras.* Preliminary report.

In the representation theory of a finite group G in positive characteristic p, properties of modules such as projectivity are connected to properties of certain algebraic varieties arising in group cohomology. The elementary abelian p-subgroups $Z_p \times \cdots \times Z_p$ of G play an important role, and in particular the algebraic varieties may be defined very simply in terms of subalgebras of their group algebras. Such a theory has recently been extended to finite dimensional cocommutative Hopf algebras by Friedlander and Pevtsova, building on earlier work of others. As a first approach to developing such a theory for finite dimensional noncocommutative Hopf algebras, we study a tensor product H of Taft algebras in characteristic 0, whose representation theory and cohomology are similar to that of an elementary abelian group. We give a simple definition of an algebraic variety attached to an H-module as well as some basic results about its structure. (Received January 25, 2005)