Title: Extension Theory for Yetter-Drinfel'd Hopf Algebras

Abstract: The theory of extensions of Hopf algebras has been extended to Hopf algebras in categories, and therefore in particular to Yetter-Drinfel'd Hopf algebras, by the work of several authors, especially Y. Bespalov and B. Drabant. However, there are important examples of Yetter-Drinfel'd Hopf algebras that do not fit into this framework that arises via direct generalization, because in these examples, the so-called cleaving map is not a morphism in the category. We will present a generalized concept of extensions that encompasses also these examples. These generalized extensions can be described by two additional structure elements: Besides an action, a corresponding cocycle, a coaction, and a corresponding dual cocycle, which appear already in the extension theory for ordinary Hopf algebras, we use a so-called deviation map and a codeviation map. In the talk, we explain what these concepts are and how they can be used to construct extensions of Yetter-Drinfel'd Hopf algebras in the generalized sense mentioned above. The talk is based on joint work with Yevgenia Kashina.