Title: Categorical Aspects of Extension Theory

Abstract: Extensions of ordinary Hopf algebras can be described with the help of four structure elements: a measuring, a cocycle, a comeasuring, and a dual cocycle. To describe extensions of Yetter-Drinfel'd Hopf algebras, one needs two additional structure elements: a deviation map and a codeviation map. These two new structure elements are maps whose domain and codomain do not only involve the kernel and the cokernel of the Yetter-Drinfel'd Hopf algebra extension, but also the underlying Hopf algebra with respect to which the Yetter-Drinfel'd Hopf algebras are defined. However, given an arbitrary Yetter-Drinfel'd module, it is possible to derive from the deviation and the codeviation map two other maps whose domain and codomain only involve the kernel and the cokernel just mentioned, as well as this Yetter-Drinfel'd module. Formulated in this way, the description applies not only to the category of Yetter-Drinfel'd modules, but also to more general categories.

In the talk, we discuss this alternative form of the description in greater detail. The talk is based on ongoing research that is not yet available in published form.