Title: Multiplier Hopf algebras imbedded in locally compact quantum groups.

Abstract:

Multiplier Hopf *-algebra's with positive integrals give rise (in a natural way) to (a special class of) locally compact quantum groups. They are purely algebraic objects, much simpler than general locally compact quantum groups and they serve as a good model for the general case. They also were a source of inspiration for the development of the general theory by Kustermans and Vaes.

In general, it seems difficult to determine if a given locally compact quantum group comes from a multiplier Hopf *-algebra.

The problem was solved in the classical case, that is when the locally compact quantum group is actually a locally compact group (cf. a joint paper with Magnus). It is the case if and only if the group contains a compact open subgroup.

In this talk, I will consider this problem for locally compact quantum groups that arise from a matched pair of locally compact groups (as in the work of Vaes and Vainerman).

First however, I will recall the definitions of a locally compact quantum group and of a multiplier Hopf algebra. I will also briefly discuss the known result in the classical case (mentioned above). Then I will explain what is meant by a matched pair and give the construction of a locally compact quantum group for this setting. Finally, I will discuss the problem of finding a multiplier Hopf algebra inside such locally compact quantum groups. I will focuss on a special case (constructed from a matched pair with p-adic numbers).

(*This is about joint work in progress with Magnus*).