Hopf25

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Two families of non-factorisable ribbon Hopf algebras and 4d topology

Factorizable ribbon Hopf algebras and their representation categories are essential ingredients in many constructions of invariants of 3-manifolds. More recently, there have been considerable interest in the non-factorizable counterparts, due to their analogous role in constructing 4-manifold invariants, in particular the Hennings-type invariants of 2-handlebodies, due to Beliakova and De Renzi, based on the work of Bobtcheva and Piergallini. In this talk I will present two families of such non-factorizable ribbon Hopf algebras, one based on the work of Nenciu, the other extending her ideas to particular smash products involving the small quantum $\mathfrak{sl}_2$. I will explain how the non-factorizability can be ensured, and hint at what the resulting invariants of manifolds are. Joint work with Q. Faes.