
Hopf25

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Braided tensor product of dynamical von Neumann algebras

Whenever locally compact group acts on von Neumann algebras M, N , it gives rise to a canonical “diagonal” action on their tensor product $M \otimes N$. This is no longer true, if we consider actions of locally compact quantum groups (which include “coactions” of discrete groups). Nonetheless, not all is lost. If the quantum group acting on von Neumann algebras M, N is quasi-triangular (i.e. it is equipped with an R -matrix), then one can form a twisted version of tensor product, called the braided tensor product $M \overline{\otimes} N$. This is a new von Neumann algebra which contains M, N as subalgebras and which carries a canonical action of G . As a special case, G can be taken to be the Drinfeld double of some (quantum) group H , then action of $G = D(H)$ on M, N amounts to compatible actions of H and its dual quantum group. I will discuss construction of $M \overline{\otimes} N$, its extension to the case of a bicharacter, some examples and properties. This is a joint work with Kenny De Commer.