

Interrelations between Hopf algebras and their duals - proposed new directions

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An essential property of finite-dimensional Hopf algebras is that they are Frobenius algebras and hence are strongly related to their duals. The Frobenius map enabled us to define the concept of "conjugacy classes" for semisimple Hopf algebras H . With additional structural properties on H , the map was also used to define a Fourier Transform on H . We shall review the basic ideas involved and suggest new directions in which to generalize some theorems from group theory to Hopf algebras. We shall also discuss some aspects of the theory when H is no longer semisimple.