

BIALGEBRAS AND HOPF ALGEBRAS OVER NON-COMMUTATIVE BASE

Abstract:

Generalization of (Hopf) bialgebras from commutative to non-commutative base rings was motivated by diverse areas of mathematics and even physics. In this survey type talk, after recalling several motivations, the most successful generalization, Takeuchi's bialgebroid, will be introduced. It will be shown how other structures – like weak Hopf algebras – provide examples. The theory of (co)modules will be discussed. It will be explained how one can equip a bialgebroid with an antipode, so to arrive to the generalization of a Hopf algebra. It will be commented on several areas where the use of (Hopf) bialgebroids turned out to be very useful. These include a study of ring extensions and cyclic (co)homology.

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