

UNIFYING CROSSED AND BICROSSED PRODUCTS

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ABSTRACT. Crossed and bicrossed products are two completely different constructions making an appearance in various areas of algebra. The crossed product was studied at the level of groups, rings, Hopf algebras and C^* -algebras. It is a fundamental object (in the construction of which a weak action α and a α -cocycle are involved), used in extension theory, Galois cohomology, Brauer group theory, classifications of finite Hopf algebras, etc. The bicrossed (knot, factorization or Zappa-Szep) product was defined and studied until now at the level of groups, algebras, Hopf algebras and Lie algebras. It is the construction required to reconstruct an object that factorizes through two subobjects of itself: two actions (each of the subobjects acting on the other) are involved in the construction of a bicrossed product, instead of one action and a cocycle as appear in the crossed product construction.

In this talk we are going to introduce a new and more general product that unifies the concepts of crossed and bicrossed product and study its basic properties at the level of groups, algebras, etc.

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