

Crossed Products by Partial Actions

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Partial actions on C^* -algebras (partial C^* -dynamical systems) grew out from the desire to extend C^* -crossed products. The concept of a partial action of a group G on an abstract set X was introduced by R. Exel in (*Partial actions of groups and actions of semigroups*, Proc. Am. Math. Soc. **126** (12) (1998), 3481–3494). as a family of partial bijections of X satisfying natural compatibility conditions. It also can be defined as a partial homomorphism (partial representation) from G to the symmetric inverse semigroup $\mathcal{I}(X)$ of X , which in this case is easily viewed as a premorphism, a rather natural concept studied in the theory of inverse semigroups. Recently, partial actions of groups on abstract algebras and corresponding crossed products with trivial “twisting” (skew group rings by partial actions) have been introduced and studied in (*Associativity of crossed products by partial actions, enveloping actions and partial representations*, Trans. Amer. Math. Soc., to appear).

We shall discuss some result on crossed products defined by partial actions with non-trivial “twisting”, obtained in collaboration with R. Exel.