Simplicity of Crossed products by Twisted Partial Actions

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a joint work with Marlon Soares and Alexandre T. Baraviera

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Abstract

We consider a twisted partial action α of a group G on an associative ring R and its associated partial crossed product $R *_\alpha^w G$. We study necessary and sufficient conditions for the commutativity of $R *_\alpha^w G$ when the twisted partial action α is unital. Moreover, in the case of twisted partial actions we study necessary and sufficient conditions for the simplicity of $R *_\alpha^w G$ in the following cases: (i) G is abelian; (ii) R is maximal commutative in $R *_\alpha^w G$; (iii) $C_{R *_\alpha^w G}(Z(R))$ is simple (iv) G is hypercentral. When $R = C_0(X)$ is the algebra of continuous functions defined on a locally compact and Hausdorff space X, with complex values that vanishes at infinity and $C_0(X) *_\alpha G$ is the associated partial skew group ring of a partial action α of a topological group G on $C_0(X)$. We study the simplicity of $C_0(X) *_\alpha G$.

Keywords

twisted partial actions, simplicity, comutativity. .