Mathematics > Dynamical Systems

Fundamental group of uniquely ergodic Cantor minimal systems

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We introduce the fundamental group ${\mathcal F}(\mathcal{R}_{G, \phi})$ of a uniquely ergodic Cantor minimal G-system $\mathcal{R}_{G, \phi}$ where G is a countable discrete group. We compute fundamental groups of several uniquely ergodic Cantor minimal G-systems. We show that if $\mathcal{R}_{G, \phi}$ arises from a free action ϕ of a finitely generated abelian group, then there exists a unital countable subring R of $\mathbb {R}$ such that $\mathcal{F}(\mathcal{R}_{G, \phi})=R_{+}^\times$. We also consider the relation between fundamental groups of uniquely ergodic Cantor minimal $\mathbb{Z}^n$-systems and fundamental groups of crossed product C^*-algebras $C(X)\rtimes_{\phi} \mathbb{Z}^n$.

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