1035-03-1806 **Samuel Gregory Coskey***, Department of Mathematics, Hill Center, 110 Frelinghuysen Rd, Piscataway, NJ 08854. *On the classification of torsion-free abelian groups up to quasi-isomorphism.*

Up to isomorphism, the torsion-free abelian groups of rank $n$ are members of the following standard Borel space: $R_n =$ the subgroups of $\mathbb{Q}^n$ which contain a basis for $\mathbb{Q}^n$. Hjorth and Thomas have shown that the isomorphism equivalence relations on the $R_n$ increase in complexity with $n$.

Here is the relevant complexity notion, due to H. Friedman. For $E, F$ Borel equivalence relations on standard Borel spaces $X, Y$, write $E \leq_B F$ iff there exists a Borel function $f : X \to Y$ such that $x \mathrel{E} y \leftrightarrow f(x) \mathrel{F} f(y)$.

We compare the isomorphism equivalence relation on $R_n$ with that of quasi-isomorphism. The definition is: $A, B \in R_n$ are quasi-isomorphic iff $A$ is commensurable with an isomorphic copy $B' \in R_n$ of $B$. The advantage is that unique decomposition holds with respect to quasi-isomorphism, but fails with respect to isomorphism. This leads one to ask whether quasi-isomorphism is truly less complex than isomorphism.

Our result is a "no" answer, namely that the isomorphism and quasi-isomorphism relations on $R_n$ are incomparable with respect to $\leq_B$. The proof relies on a recent superrigidity theorem, due to A. Ioana, regarding profinite actions of Kazhdan groups. (Received September 20, 2007)