

1023-37-780

Alex Furman* (furman@math.uic.edu), Mathematics, Statistics and Computer Science, (m/c 249), 851 S. Morgan Str, Chicago, IL 60607. *Cohomology of measurable cocycles*. Preliminary report.

For a fixed group G consider the category of all ergodic probability measure preserving G -actions. Given a topological group H , associate to a G -action on (X, μ) the set $H^1(X, H)$ consisting of the equivalence classes of all measurable cocycles $G \times X \rightarrow H$ modulo conjugation by measurable maps $X \rightarrow H$. (In Mackey's terminology these are equivalence classes of representations in H of virtual subgroups of G).

We shall discuss the properties of H^1 as a contravariant functor from G -actions to sets, in particular showing that often $H^1(-, H)$ takes push-outs to pull-backs. In some situations this allows to show that a G -action has a well defined *minimal relatively cocycle superrigid factor*. The arguments involve the condition of relative weak mixing, and a discussion of various classes of target groups H . (Received September 21, 2006)