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Su Gao* (sgao@unt.edu), University of North Texas, Dept. of Mathematics, PO Box 314330, Denton, TX. *Countable group actions and hyperfinite equivalence relations.*

I will give a survey of progress made on the countable union problem for hyperfinite equivalence relations. The main focus will be the theorem (which is a special case of the countable union problem) that every countable abelian group action induces a hyperfinite equivalence relation. Behind the proof of this theorem is an invariant geometric group theory. I will present other related results in this theory and some applications of it, for instance to a Borel coloring problem. This is joint work with Steve Jackson. (Received September 20, 2006)