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Matthew D Foreman* (mforeman@math.uci.edu), Mathematics Dept., UC Irvine, Irvine, CA 92697. *Classification and Anti-classification theorems for measure preserving transformations.*

Some deterministic dynamical systems exhibit apparently random or non-deterministic behavior. This phenomenon can be understood by finding an invariant measure on the system and studying it statistically. A classification of measure preserving transformations would allow such characterizations as “truly random”, or “completely predictable”. Much positive progress has been made on this project. However, using tools from descriptive set theory there are recent results that state, in a rigorous way, that there cannot be a complete classification, even for a generic class. (Received September 20, 2005)