1067-03-794 **Nathanael L. Ackerman** (nate@math.berkeley.edu), University of California, Berkeley, **Cameron E. Freer*** (freer@math.hawaii.edu), University of Hawaii at Manoa, and **Rehana R. Patel** (patel@math.harvard.edu), Harvard University. *Invariant measures on countable models.*

The Erdős-Rényi random graph construction can be seen as inducing a probability measure concentrated on the Rado graph (sometimes known as the countable "random graph") that is invariant under arbitrary permutations of the underlying set of vertices. The following question arises naturally: On which countable combinatorial structures is there such an invariant measure? Up until recent work of Petrov and Vershik (2010), it was not even known if Henson's universal countable triangle-free graph admitted an invariant measure.

We provide a complete characterization of countable structures admitting invariant measures, in terms of the model-theoretic notion of *definable closure*. This leads to a characterization for ultrahomogeneous structures, as well as new examples of invariant measures on graphs, trees, and other combinatorial structures. (Received September 14, 2010)