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**Rostislav I Grigorchuk\*** ([grigorch@math.tamu.edu](mailto:grigorch@math.tamu.edu)), Department of Mathematics, Texas A&M University, College Station, TX 77843, and **Dmytro M Savchuk** ([savchuk@usf.edu](mailto:savchuk@usf.edu)), Department of Mathematics and Statistics, University of South Florida, 4202 E Fowler Ave, CMC342, Tampa, FL 33620. *Ergodic decomposition of group actions on rooted trees.*

First, we prove a general result about the decomposition on ergodic components for group actions on boundaries of spherically homogeneous rooted trees. Namely, we identify the space of ergodic components with the boundary of the orbit tree associated with the action, and show that the canonical system of ergodic invariant probability measures coincides with the system of uniform measures on the boundaries of minimal invariant subtrees of the tree.

A special attention is given to the case of groups generated by finite automata. Few examples, including the lamplighter group, Sushchansky group, and the, so called, Universal group are considered in order to demonstrate possible applications of the theorem. (Received August 21, 2014)