

GEOMETRIC AND ASYMPTOTIC GROUP THEORY  
WITH APPLICATIONS  
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*Affine Automorphisms of Rooted Trees*

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*Abstract:*

As a natural generalization of the lamplighter type groups we introduce the class of automorphisms of rooted  $d$ -regular trees, arising from affine actions on their boundaries viewed as free infinite dimensional  $\mathbb{Z}_d$ -modules. We build the automata defining these automorphisms and apply the developed techniques to completely describe the structure of a group generated by 4-state bireversible automaton that was beyond the reach of other known methods. This is a joint work with Said N. Sidki.