Self-similar groups and graphs

Ádám Timár

Hausdorff Center for Mathematics, Bonn University, Germany

adam.timar@hcm.uni-bonn.de

Abstract: Recently, there has been great interest in so-called self-similar or fractal groups. Such a group is a collection of certain automorphisms of an infinite rooted regular tree, which collection can also be defined by a finite state automaton. Despite the seeming simplicity of the definitions, self-similar groups provide many peculiar examples of groups (the Grigorchuk group, which is a group of superpolynomial and subexponential growth, being the most famous of them). Each member of the rich family of self-similar groups comes with a representation that provides an alternative to the traditional representation by defining relators, and is often a lot easier to handle.

Self-similar group (together with their action on the tree) define natural probability measures on rooted graphs. This talk will be about certain properties of the examples resulting this way.