Insalate di Matematica

presents

p-Basilica groups

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Google Meet meeting
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Abstract

Groups acting on regular rooted trees provide an answer to many problems in group theory. For example the Gupta-Sidki p-groups and the Grigorchuk groups are finitely generated infinite p-groups so they give a negative answer to the General Burnside Problem. The First Grigorchuk group is also the first example of a group with intermediate growth. In this talk we will give an introduction to the theory of the groups of automorphisms of regular rooted trees, providing examples and interesting properties of these groups. The Basilica group is a famous group acting on the binary tree. It is weakly branch but not branch, is torsion-free, is of exponential growth, and is not subexponentially amenable. We will focus on a generalization of the Basilica group to all odd primes: the p-Basilica groups acting on the p-adic tree. We will see that the p-Basilica groups have the p-congruence subgroup property but not the congruence subgroup property nor the weak congruence subgroup property. This provides the first examples of weakly branch groups with such properties. In addition, the p-Basilica groups give the first examples of weakly branch, but not branch, groups which are super strongly fractal.

This is a joint work with Gustavo Fernández Alcober, Marialaura Noce and Anitha Thillaisundaram.

Keywords:
Groups acting on rooted trees · branch groups · fractal groups · congruence subgroup property

"*Obvious*" *is the most dangerous word in mathematics. - Eric Temple Bell*

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