

Groups of automorphisms of p -adic rooted trees

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Calendario:

20/04/2009 11.30 - 13.30

21/04/2009 11.30 - 13.30

22/04/2009 9.30 - 11.30

24/04/2009 11.30 - 13.30

27/04/2009 9.30 - 11.30

28/04/2009 9.30 - 11.30

29/04/2009 9.30 - 11.30

30/04/2009 11.30 - 13.30

le lezioni si terranno in aula 2BC/30

Prerequisiti: Group theory; Profinite groups

Tipologia di esame: oral discussion

Programma del corso:

- Groups of automorphisms of p -adic rooted trees ABSTRACT: The groups of automorphisms of regular rooted trees have gained much attention in the last decade, due to their application to several important questions in group theory. Growing out from the so-called Grigorchuk groups (studied in the course by Prof. Mann on groups of intermediate growth), the theory of these automorphism groups is well established by now, and has become an active area of research. In the first part of the course, we will present the generalities of this theory. We will show how the whole automorphism group can be naturally seen as a profinite group, and we will determine its structure via iterated wreath products. We will also give some special constructions of subgroups of automorphisms which have turned out to be particularly useful. We will concentrate on the case of p -adic trees, i.e. trees in which the ramification degree is a prime p . In this case, it is interesting to work inside a Sylow pro- p subgroup of the whole automorphism group, whose structure is again connected to wreath products. As we will see, it is easy to describe an explicit Sylow pro- p subgroup. In the second part of the course, we will study some applications of this area to group theory. We will focus on the following subjects: the General Burnside Problem, the Congruence Subgroup Problem, and the Hausdorff dimension of pro- p groups. We will study in detail some of the subgroups introduced in the first part, and see how they behave with respect to these problems. If there is enough time, the course could be complemented by considering the relation of some of these groups with just- infinite (profinite) groups.