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**Enric Ventura\*** ([enric.ventura@upc.edu](mailto:enric.ventura@upc.edu)), Av. Bases de Manresa 61-73, 08242 Manresa, Barcelona, Spain, and **Zoran Sunic**. *Automaton groups with unsolvable conjugacy problem*.

In this talk we construct a family of examples of self-similar groups generated by finite self-similar sets of automorphisms of infinite regular trees. And among them, we prove there are some with unsolvable conjugacy problem. Along the way, orbit undecidable, free subgroups of  $GL_d(\mathbb{Z})$  for  $d > 5$ , and of  $Aut(F_d)$  for  $d > 4$ , are constructed as well. (Received February 02, 2015)