



Instituto Universitario de Investigación  
de Matemáticas  
y Aplicaciones  
Universidad Zaragoza

# Seminario de Doctorado Rubio de Francia

## Conferencia

por

Lorenzo Moreschini

*Università degli Studi di Pavia*

título:

“Bass-Serre theory: Groups acting on trees”

### Resumen

"If a group  $G$  acts on a tree  $\Gamma$  and we know the action, then we know the group  $G$  up to isomorphism"

The line above could be taken as an informal summary describing the main result of the topic I am going to discuss in this talk. Bass-Serre theory was developed in the 1970s with the aim of retrieving informations about the structure of a group  $G$  under the hypothesis that some kind of action of  $G$  on a tree  $\Gamma$  is given.

I will start discussing the particular definition of graph adopted inside Bass-Serre theory and group actions on a graph providing concrete examples. Next I will talk about quotient graphs induced by group actions and I will show the relation between two particular kind of graphs and two well-known constructions in group theory: free products with amalgamation and HNN extensions. Finally I will state the fundamental theorem of Bass-Serre theory that allows to describe the structure of a group acting on a tree as the iteration of free products with amalgamation and HNN extensions.

Prerequisites needed in order to follow the talk are extremely limited, only basic notions about standard group theory and group actions are required. This makes the talk accessible both to university students and researchers from any area of mathematics.

**Fecha:** Miércoles, 13 de junio de 2018

**Hora:** 16:00 horas

**Lugar:** Seminario Rubio de Francia, Edificio de Matemáticas, 1ª planta