

Università degli Studi dell'Insubria  
Dipartimento di Scienza e Alta Tecnologia  
Via Valleggio 11, Como

## TYOLOGY OF GROUPS

*Prof. Laurent Lafforgue* (IHES)

### Schedule

October 2, 2018 - December 18, 2018  
Each Tuesday, 11:00 - 13:00 and 14:00 - 16:00  
room *Aula Magna* Via Valleggio

### Program

1. The notion of real or complex Lie group
2. The splitting of Lie groups in the discrete part and the continuous (connected) part and then the splitting of connected Lie groups into simple groups
3. The algebraic nature of simple groups
4. The splitting of algebraic groups into linear groups and abelian varieties
5. The splitting of linear algebraic groups into unipotent radical and reductive quotient
6. Structure of reductive groups and parametrization by discrete parameters
7. Groups of points of an algebraic group with values in
  - a. a finite field (which defines the Lie-type finite groups)
  - b. the fields of real or complex numbers (which defines the main Lie groups)
  - c. the  $p$ -adic fields (which defines  $p$ -adic groups)
  - d. the ring of integers (which defines arithmetic groups)
8. Other families of discrete subgroups of continuous groups
  - a. Weyl groups and more generally Coxeter groups



Laurent Lafforgue is Permanent Professor at the *Institut des Hautes Études Scientifiques*.

In 2002, he received the Fields Medal for his fundamental contributions to the Langlands program.