

FEDERICO RODRIGUEZ HERTZ  
MEASURE RIGIDITY FOR GROUP ACTIONS

Week 2, 4-8 July, 5 double lectures (each lecture is 45-50 minutes).

Measure rigidity has seen a huge development in the last couple of decades, along with many applications to different branches of mathematics, beginning with the proof by D. Rudolph of H. Furstenberg's  $\times 2, \times 3$  problem and the A. Katok and R. Spatzier geometric proof of its generalization to a broad class of abelian algebraic actions. In these series of lectures we shall present this development of measure rigidity for abelian (linear and non-linear) actions on tori and its application to global rigidity of lattice actions. The topics will include.

- 1) Measure rigidity for  $\mathbf{Z}^2$  actions by automorphisms on  $\mathbf{T}^3$ .
- 2) Measure rigidity for  $\mathbf{Z}^2$  actions on  $\mathbf{T}^3$  with the homotopic data of item 1).
- 3) Extension of 2) to higher dimensions, in particular to action of lower rank (still larger than 2).
- 4) Global rigidity of higher rank lattice actions on  $\mathbf{T}^N$ .