



Centro de **Matemática**
Universidade do Porto

Geometry and Topology seminar

Date. February 6th, 11h00

Place. Room 0.06

Speaker. Pedro V. Silva (CMUP)

Title. Hölder conditions for endomorphisms of hyperbolic groups.

Abstract. Hyperbolic groups were introduced by Mikhail Gromov in the 80s by considering the geometry of Cayley graphs, viewed as geodesic metric spaces. One important feature of hyperbolic groups is the concept of boundary, which can be defined through the topological completion for an appropriate metric (such as the visual metrics), and has the advantages of compactness. An endomorphism of a hyperbolic group admits a continuous extension to the boundary if and only if it is uniformly continuous with respect to a visual metric, and a Hölder condition is a particularly nice way of achieving uniform continuity. In joint work with Vítor Araújo (Universidade Federal da Bahia), we have proved that an endomorphism of a hyperbolic group satisfies a Hölder condition with respect to a visual metric if and only if it is virtually injective and its image is a quasi-convex subgroup. Moreover, if the group is virtually free, then the endomorphism is uniformly continuous if and only if it satisfies a Hölder condition and only if it is virtually injective. However, this stronger claim does not hold for arbitrary hyperbolic groups.