

Algebra Seminar

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1:00pm., HH-3017

Introduction to Topological Dehn Functions

Abstract:

Homological and homotopical dehn functions are different ways of measuring the difficulty of filling a curve in a space X . In particular, the homological dehn function, FV_X^{n+1} , measures fillings of n -cycles by $(n+1)$ -chains, while the homotopical dehn function, δ_X^n , measures fillings of n -spheres by $(n+1)$ -balls.

A major result of Gromov (later in full generality by Alonso, Wang, and Pride) states if X is n -connected and G acts on X geometrically, then the growth rates of FV_X^{n+1} and δ_X^n depend only on G .

I will give basic definitions, discuss some results on how δ_G^n and FV_G^{n+1} relate to each other, and how dehn functions of subgroups relate to that of the original group. This is based on joint work with Eduardo Martinez-Pedroza.