

# Two extremes of Dehn functions

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## Abstract

In this talk I will discuss two extremes of Dehn functions. On one end we have every geometric group theorist's favourite groups: hyperbolic groups, which have linear Dehn functions. On the other end, we will look at a group  $\Gamma$  with Ackermann Dehn function (a function that is not even primitive recursive). I will firstly give a brief introduction to hyperbolic groups and give the definition of a Dehn function for a group. I will then show the construction of  $\Gamma$  and give a sketch proof of the lower bound of its Dehn function.  $\Gamma$  is an interesting example of a group built as an HNN extension of a free-by-cyclic, one-relator, CAT(0) group  $G$ , relative to its free subgroup  $H$ . It shows that even groups that may seem 'nice' can have wild properties.

**Time:** 12 p.m, 8<sup>th</sup> June 2022

**Location:** B3.02

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