

RAAGs and Stable Commutator Length

Stable commutator length (scl) is a well established invariant of group elements g (write $\text{scl}(g)$) and has both geometric and algebraic meaning.

Many classes of non-positively curved groups have a gap in stable commutator length: This is, for every non-trivial element g , $\text{scl}(g) > C$ for some $C > 0$. This gap may be thought of as an algebraic injectivity radius and may be found in hyperbolic groups, Baumslag-solitar groups, free products, Mapping class groups, etc. However, the exact size of this gap usually unknown, which is due to a lack of a good source of “quasimorphisms”.

In this talk I will construct a new source of quasimorphisms which yield optimal gaps and show that for Right-Angled Artin Groups and their subgroups the gap of stable commutator length is exactly $1/2$. I will also show this gap for certain amalgamated free products.