

Extension of quasicocycles from hyperbolically embedded subgroups

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Abstract: In the last talk we saw how to construct non-trivial quasimorphisms on groups acting nicely on hyperbolic spaces, which implies that their second bounded cohomology is large. The construction was a more complicated version of the Brooks quasimorphisms, which are defined on the free group.

In this talk we will see another way to exploit the knowledge about the bounded cohomology of the free group to prove non-vanishing results for much more general groups, and even in higher degrees. Namely, we will explain how to extend quasicocycles (quasimorphisms and higher-dimensional analogues) from a subgroup to the ambient group, under the condition that the subgroup is hyperbolically embedded. This notion generalizes that of relative hyperbolicity, and applies to the larger class of acylindrically hyperbolic groups, proving that all such groups have large second and third bounded cohomology.