

RESEARCH INTERESTS

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Now reaching the end of my first PhD year at ETH, my research interests have concentrated on

1. REFINEMENTS OF PROPERTY (T)

More particularly in the context of bounded cohomology - property (TT) of Burger-Monod - and property (TTT) of Ozawa. One motivation for such refinements is to yield more rigidity in generalized analogues of the dichotomy (T)/amenable. For instance, the image of a property (TT) group in a hyperbolic group is trivial (in the sense that it is relatively compact) while the image of a property (TTT) group in a hyperbolic group is also trivial under a quasimorphism.

2. ROTATION QUASIMORPHISM, WINDING NUMBERS AND $\log \eta$

In his thesis, Thomas Huber introduces a rotation quasimorphism that lives on the fundamental group of the unit tangent bundle of a hyperbolic surface and serves as a natural generalization of Poincaré's rotation number. Its geometric interpretation is that of a winding number on the fundamental group of the surface. In the case of a non-compact surface with a finite number of cusps, this coincides with the analytical construction of a family of quasimorphisms, essential analogues of the Rademacher function that arises in the transformation formula for the logarithm of Dedekind's η -function. My present occupation is to gain a more thorough understanding of these quasimorphisms.