RESEARCH INTERESTS (FOR VENTOTENE 2013)

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One aspect of my research interests relevant to this conference is the study of group actions on CAT(0) cube complexes. Recall that one interesting feature in this context is that essential actions detect relative ends. Together with I. Chatterji and T. Fernós we constructed a bounded cohomology class for the groups of automorphism of a finite dimensional CAT(0) cube complex, that we coin the " median class", as its construction, very geometric in nature, relies on the fact that CAT(0) cube complexes are median spaces. We then characterize non-elementary group actions by the non-vanishing of the pullback of the median class. This leads to super rigidity results for irreducible lattices in a product of locally compact groups.

Motivated by the problem of understanding elementary actions, we initiated with D. Guralnik a study of the relationship between the CAT(0 boundary and the cube boundary of a finite dimensional CAT(0) cube complex, with the aim of classifying point stabilizers of ideal points in either boundaries.

Other aspects of my recent research involve: maximal, weakly maximal and causal representations of surface groups; isometric properties of bounded cohomology; ℓ^1-stability and homomorphism rigidity into the mapping class group (see M. Burger's description); relative property (T); volumes of $\mathrm{SL}(n,\mathbb{C})$-representations of lattices in $\mathrm{SL}(2,\mathbb{C})$; proper (affine) isometric actions of RAAGs on higher rank spaces; tempered representations of Gromov hyperbolic groups (see T. Steger's description).

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