

Warped cones - metric spaces defined by group actions

One approach to study infinite groups is to treat them as geometric objects. In the talk we will refine this approach by associating a geometric object to an action on a compact space (a manifold or a Cantor set).

The geometry of the associated invariant reflects topological and ergodic properties of the action (amenability, Haagerup property, spectral gap) and may even remember the action completely. When provided with actions with the appropriate properties, the construction yields exotic examples of interest in computer science and large scale geometry: super-expanders and counterexamples to the coarse Baum-Connes conjecture.