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Title: Ergodic actions and integral approximations of Gromov's simplicial volume

Authors: R. Frigerio

Abstract: The simplicial volume is a homotopy invariant of closed manifolds defined by Gromov in 1982. For a manifold M , it is bounded from above by the minimal number of top-dimensional simplices in a triangulation of M , and roughly speaking it measures the minimal size of triangulations of M “with real coefficients”. A long-standing conjecture by Gromov asserts that, for aspherical manifolds, the vanishing of the simplicial volume implies the vanishing of the Euler characteristic. In this talk I describe an approach to this conjecture that makes use of discrete approximations of the simplicial volume in towers of coverings, as well as of ergodic actions of the fundamental group of M on suitable probability spaces.