

Simplicial volume of contractible 3-manifolds

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Abstract: We show that the simplicial volume of a contractible open 3-manifold M is equal to 0 if and only if M is homeomorphic to \mathbf{R}^3 ; otherwise it is equal to $+\infty$. To this aim, we show that the excision of a compact connected codimension-0 submanifold with amenable and π_1 -injective boundary induces isometric isomorphisms in l^1 -homology in degree at least 2. In contrast, we show that in dimension $n \geq 4$ there exist open contractible n -manifolds not homeomorphic to \mathbf{R}^n with vanishing simplicial volume. We also compute the spectrum of the simplicial volume of irreducible open 3-manifolds.

This is a joint work with my advisor Roberto Frigerio.

Time: 16:00 (German time)