

Homology spheres and cyclic branched coverings of knots

Bruno Zimmermann
Università degli Studi di Trieste, Italy

Abstract. We discuss work in collaboration with Boileau-Paoluzzi and Mecchia-Reni on the following problem: given a homology 3-sphere M (or more generally, a closed orientable 3-manifold), for how many distinct primes p can M be a p -fold cyclic branched covering of knots in the 3-sphere? For a homology sphere M , there are five such primes if and only if M is the 3-sphere, and this result is best possible (this might remain true also for arbitrary 3-manifolds).