Geometry, Groups and Topology



Contribution ID: 6

Type: not specified

Approximately fibering a manifold over an aspherical one.

Friday, October 14, 2016 3:30 PM (50 minutes)

This talk is a report on joint work with W. Lueck and W. Steimle. Let $p: M \to B$ be a continuous map between closed connected manifolds such the induced map P on fundamental groups is an epimorphism and B is aspherical. Let F(p) denote the homotopy fiber of p. An explicit model for F(p) is the covering space of M corresponding to the kernel of P.) The question addressed in this talk is to give useful sufficient conditions which guarantee that p is homotopic to an approximate manifold fibration $q: M \to B$; i.e. a continuous map such that $q^{-1}(U)$ is homotopy equivalent to F(p) for each open subset U of B which is homeomorphic to R^n where $n = \dim B$. We do this for a large class of aspherical manifolds B including all negatively curved manifolds of dimension different from 4.

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