

1106-54-312

Zahra Sinaei*, sinaei@cims.nyu.edu, and **Christina Sormani**. *Almost Homotopies and Intrinsic Flat Convergence*.

Covering spaces of topological manifolds are defined as homotopy equivalent classes of curves with a fixed endpoint. Epsilon-covering spaces of a metric space are defined as epsilon almost homotopy equivalent classes of epsilon chains of points with a fixed endpoint [Beretovskii-Plaut]. These covering spaces were shown to be equivalent to the Sormani-Wei delta covering spaces of geodesic metric spaces by Plaut Wilkins. Sormani-Wei proved that when a sequence of geodesic metric spaces converges in the Gromov-Hausdorff sense, then the delta covering spaces converge to a cover of the limit spaces. Here we study sequences of Riemannian manifolds without boundary with finite fundamental groups and prove that if such Riemannian manifolds converge in the intrinsic flat sense to a connected limit space then a subsequence of their delta covers converges to a disjoint union of isometric connected covering spaces of the limit space. This is joint work with C. Sormani. (Received August 20, 2014)