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Curtis Kent* (curt.kent@vanderbilt.edu). *Homotopy properties of asymptotic cones of groups.*

In 1991, Gromov asked what groups arise as fundamental groups of asymptotic cones of finitely generated groups. In particular, he asked if the fundamental group is always trivial or uncountable. This dichotomy was shown to be false by Olshanskii, Osin, and Sapir in 2009. However, we will show that this dichotomy holds for a large class of groups which includes aspherical groups with linear Dehn function. As a corollary of the proof, we see that these cones are locally simply connected if and only if they are semi-locally simply connected. (Received January 10, 2012)