

Meeting: 999, Nashville, Tennessee, SS 3A, Special Session on Index Theory and the Topology of Manifolds

999-20-75

G. C. Bell* (bell@math.psu.edu), Department of Mathematics, Penn State University, University Park, PA 16802, and **A. N. Dranishnikov** (dranish@math.ufl.edu), Department of Mathematics, P O Box 118105, Gainesville, FL 32611-8105. *A Hurewicz-type theorem for asymptotic dimension.* Preliminary report.

We prove an asymptotic analog of the classical Hurewicz theorem on mappings which lower dimension. This theorem allows us to find sharp upper bound estimates for the asymptotic dimension of groups acting on finite dimensional metric spaces and allows us to prove a useful extension theorem for asymptotic dimension. As applications we find upper bound estimates for the asymptotic dimension of nilpotent and polycyclic groups in terms of their Hirsch length. We are also able to improve the known upper bounds on the asymptotic dimension of fundamental groups of complexes of groups, amalgamated free products and the hyperbolization of metric spaces possessing the Higson property. (Received August 09, 2004)