

Meeting: 1004, Bowling Green, Kentucky, SS 14A, Special Session on Geometric Topology and Group Theory

1004-53-179 **Valera N Berestovskii** and **Conrad Plaut*** (cplaut@math.utk.edu), Department of Mathematics, University of Tennessee, Knoxville, TN 37803. *Universal covers of uniform spaces*. Preliminary report.

The behavior of universal covers and the fundamental group with respect to Gromov-Hausdorff convergence of Riemannian manifolds with Ricci curvature bounded below has been studied recently by C. Sormani and G. Wei. This problem is at least tangentially related to Milnor's 1968 conjecture that any complete noncompact manifold M of nonnegative Ricci curvature has a finitely generated fundamental group. Using inverse limits of traditional covers Berestovskii and Plaut previously developed a very general theory of (generalized) covers and fundamental groups of topological groups that significantly generalizes the traditional theory by dispensing with assumptions such as arcwise connectedness and local simple connectedness. For example the theory applies to any connected, locally connected, metrizable topological group and even some totally disconnected groups. These ideas seem to carry over fairly well to metric spaces and more generally to uniform spaces, and have the potential to provide insight into limits of Riemannian manifolds for which local simple connectivity breaks down. (Received January 24, 2005)