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Corey A. Hoelscher*, 110 Frelinghuysen Road, Department of Mathematics, Piscataway, NJ 08854, and **Shari Ultman**. *The topology of low dimensional cohomogeneity one manifolds*. Preliminary report.

In essence, a cohomogeneity one manifold can be understood as a manifold with so much symmetry that every point can be carried to some point on a fixed line within the manifold by some transformation of the space. W. D. Neumann and J. Parker classified this type of manifold in dimensions 4 and lower and C. Hoelscher classified compact simply connected cohomogeneity one manifolds in dimensions 5, 6 and 7. In this talk we will discuss this classification and recent progress on understanding the topology of these manifolds. (Received September 09, 2008)