1039-53-153 **Chad Sprouse*** (chad.sprouse@csun.edu), Dept. of Mathematics, CSUN, Northridge, CA 91330. *Eigenvalue Pinching with Lower Curvature Bounds.*

The well-known theorem of Lichnerowicz-Obata states that a complete Riemannian manifold with Ricci curvature $\geq n-1$ has first eigenvalue $\geq n$, with equality only in the case that M is isometric to the unit sphere. If $\lambda_1(M)$ is merely close to n, then M need not be homeomorphic or metrically close to a sphere, but rather M must be close to a spherical suspension due to work of Cheeger and Colding. We discuss several related pinching theorems, for instance on domains $\Omega \subset M$, for the lower eigenvalues of the Laplacian on manifolds with curvature bounded from below, and examples which indicate optimality. (Received March 11, 2008)