

1035-51-854

D. B. McReynolds* (dmcreyn@math.uchicago.edu), University of Chicago, Chicago, IL 60637,
and **Christopher J Leininger**, **Walter D. Neumann** and **Alan W. Reid**. *Length and
eigenvalue equivalence.*

Two Riemannian manifolds are called length (eigenvalue) equivalent when the sets of lengths of closed geodesics (eigenvalues for the Laplace-Beltrami operator) forgetting multiplicities on the manifolds are equal. We give a construction of length and eigenvalue equivalent Riemannian manifolds (that are non-isometric and non-isospectral) that works in some generality. For example we show that every finite volume hyperbolic n -manifold has an infinite family of pairs of length equivalent finite covers. (Received September 17, 2007)