1051-51-33 **Ben Schmidt***, D308 Wells Hall, East Lansing, MI 48824. *The three gap theorem and Riemannian geometry.*

The classical three gap theorem asserts that for a natural number n and a real number p, there are at most three distinct distances between consecutive elements in the subset of [0,1) consisting of the reductions modulo 1 of the first n multiples of p. I'll discuss analogues of this theorem pertaining to isometries of a Riemannian manifold M and to equally spaced points along a geodesic in M. This talk is based on joint work with Ian Biringer. (Received July 27, 2009)