abstract

Joint IAS-PU Symplectic Geometry Seminar
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

Fix a metric (Riemannian or Finsler) on a compact manifold M. The critical points of the length function on the free loop space LM of M are the closed geodesics on M. Filtration by the length function gives a link between the geometry of closed geodesics, and the algebraic structure given by the Chas-Sullivan product on the homology of LM and the �dual� loop cohomology product.

If X is a homology class on LM, the "minimax" critical level Cr(X) is a critical value of the length function. Gromov proved that if M is simply connected, there are positive constants k and K so that for every homology class X of degree>dim(M) on LM,

k deg(X)<Cr(X)<K deg(X).

When M is a sphere, we prove there are positive constants a and b so that for every homology class X on LM,
a deg(X)-b<Cr(X)< a deg(X)+b.

There are interesting consequences for the length spectrum.

Mark Goresky and Hans-Bert Rademacher are collaborators.