Analysis and Differential Geometry Seminar

Souls of some convex surfaces

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Abstract: The *soul* of a complete, noncompact, connected Riemannian manifold (M, g) of nonnegative sectional curvature is a compact, totally convex, totally geodesic submanifold such that M is diffeomorphic to the normal bundle of the soul. Hence, understanding of the souls of M can reduce the study of M to the study of a compact set. Also, souls are metric invariants, so understanding how they behave under deformations of the metric is useful to analyzing the space of metrics on M. In particular, little is understood about the case when $M = R^2$. Convex surfaces of revolution in R^3 are one class of two-dimensional Riemannian manifolds of nonnegative sectional curvature, and I will discuss some results regarding the sets of souls for some of such convex surfaces.

Tuesday, March 1, 2011, 4:00 pm
Mathematics and Science Center: W301

Mathematics and Computer Science
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