

Speaker: **Nan Li**
 University of Notre Dame

Thursday, September 29, 2011
2:00 pm
125 Hayes-Healy Hall

Title: The Shrinking Rigidity with Curvature Lower Bound

Abstract:

Let $X, Z_\alpha, \alpha = 1, 2, \dots, M < \infty$ be compact Alexandrov spaces (on which the curvature is bounded from below in the sense of triangle comparison) and $Z = \coprod_{\alpha=1}^M Z_\alpha$ be the disjoint union. If there is a shrinking (distance non-increasing onto) map $f : Z \rightarrow X$ which preserves the Hausdorff volume, then f has to be a projection map induced from a boundary isometric gluing, i.e., X is isometric to a glued space produced from $\{Z_\alpha\}_{\alpha=1}^M$ along their boundaries. A consequence of this is the inverse of Petrunin's Gluing Theorem: if the glued space $Z_1 \cup_\phi Z_2$ is an Alexandrov space, then ϕ is an isometry, provided that Z_1, Z_2 are Alexandrov spaces and $\phi : \partial Z_1 \rightarrow \partial Z_2$ is a bijection.