

Speaker: **Liviu I. Nicolaescu**
 University of Notre Dame

Thursday, August 26, 2010
2:00 PM
258 Hurley Building

Title: Critical sets of random smooth functions on compact manifolds

Abstract:

Given a compact Riemann manifold (M, g) and a finite dimensional vector space V of smooth functions on M I will describe a Chern-Lashof integral formula that computes the expected number of critical points of a random function in V . I will also present several applications of this formula: (a) asymptotics for the expected number of critical points of a random linear combinations of a large numbers of eigenfunctions on spheres and products of spheres; (b) upper bounds for the expected number of nodal domains of a random spherical harmonic of very large degree on the 2-sphere; (c) a probabilistic proof that a certain topological estimate of V.I. Arnold is optimal.