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Thursday, September 20, 2018

2:00 PM

258 Hurley Hall

Title: Overdetermined elliptic problems in Riemannian manifolds

Abstract:

In the context of elliptic PDE theory, an overdetermined boundary value problem is one for which both Dirichlet and Neumann conditions are imposed simultaneously on the boundary of a domain. In a seminal paper in 1971, J. Serrin proved that the only bounded domains of the Euclidean space that admit solutions to certain overdetermined elliptic problems are balls. Since then, multiple extensions of this symmetry result have been obtained. In this talk I will report on a recent joint work with A. Enciso and D. Peralta-Salas where we prove the existence of solution domains to overdetermined problems for a large class of nonlinear elliptic equations. I will also explain how our techniques allow us to make progress on the open question whether the analog of Serrin's result for the rank one symmetric spaces holds or not.