

abstract

GEOMETRIC PDE SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

This talk is based on joint work with YanYan Li and Eduardo Teixeira. Some geometric problems in conformal geometry lead naturally to the study of singular solutions to certain PDEs that describe "canonical" conformal metrics. A good example is the Yamabe equation. One either starts with a conformal metric $g = \rho^2 g_0$ on a compact manifold (M, g_0) such that it is complete on $M \setminus \Gamma$, with Γ denoting the singular set of g , and satisfies some curvature condition such as $\text{Scal}_g \equiv \pm 1$ on $M \setminus \Gamma$, and describe (dimensional or geometric) restrictions, if any, on Γ and the asymptotics of g on approach to Γ ; or, one starts with a set Γ with reasonable (dimensional or geometric) conditions, and tries to construct a complete conformal metric that satisfies curvature condition such as $\text{Scal}_g \equiv \pm 1$ and is singular on Γ . Much work has been in this area in the last thirty years. In particular, in an earlier work Caffarelli, Gidas and Spruck studied the asymptotics of solutions to the Yamabe equation with isolated singularity. The same problem was later approached by other people, including Korevaar, Mazzeo, Pacard and Schoen. In this talk I describe our extension of these earlier asymptotics results for solutions to the σ_k -Yamabe equation, namely, conformal metrics with isolated singularity with the k th elementary symmetric function of their Schouten-Weyl tensor equal to a constant.