

Título: "*Multiple solutions to the Yamabe problem in noncompact manifolds*".

Resumen: Unlike the compact case, the Yamabe problem does not admit complete solutions in some noncompact Riemannian manifolds. Starting from the singular Yamabe problem on the complement of a lower dimensional sphere inside an  $n$ -sphere, I will discuss a multiplicity result in manifolds that are product of a compact manifold and a symmetric space of noncompact type. This will lead naturally to the study of deformations of hyperbolic metrics on a compact surface, and of flat metrics on a Bieberbach manifold. Most of the talk will be presented in a form which should be accessible to a wide audience.

The material comes from two works in collaboration with R. Bettiol (UPenn) and A. Derdzinski (Ohio State Univ.).