

Nonsmooth elliptic problems on Riemannian manifolds

Ildikó Ilona Mezei

Babes-Bolyai University

Department of Mathematics and Computer Science of the Hungarian Line

`mezeiildi@yahoo.com`

We investigate a large class of elliptic differential inclusions on non-compact complete Riemannian manifolds which involves the Laplace-Beltrami operator and a Hardy-type singular term. Depending on the behavior of the nonlinear term and on the curvature of the Riemannian manifold, we guarantee non-existence and existence/multiplicity of solutions for the studied differential inclusion. The proofs are based on nonsmooth variational analysis as well as isometric actions and fine eigenvalue properties on Riemannian manifolds. The results are also new in the smooth setting