p-Laplacian And Topology Of Complete Manifolds

Stefano Pigola

University of Insubria, Italy

It is well known that topological aspects of a Riemannian manifold are often reflected in the behavior of extremal or stationary points of certain energy functionals. One of the most natural examples is represented by the p-energy functional. The corresponding Euler-Lagrange equations involve a (nonlinear) differential operator usually called the p-Laplacian. This, in turn, gives rise to the concept of p-harmonicity which appears naturally e.g. in L^p Hodge-de Rham theories, in the study of the homotopy class of manifold-valued maps or in the investigation of the topology at infinity of complete manifolds. In this talk we shall describe recent progress in understanding p-harmonicity along some of these directions.