SOBOLEV SPACES ON METRIC SPACES

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It is well known that theory of Sobolev spaces is a central analytic tool in the study of various aspects of partial differential equations, calculus of variations, Differential geometry, complex analysis and in probability theory.

The fundamental results of Sobolev spaces defined on R^n space (or on some domain of R^n) are the so-called Sobolev embedding theorems and the Rellich-Kondrachov compact embedding theorem. Recently there have been attempts to generalize Sobolev spaces to metric spaces equipped with a measure. (for example theory on infinite graphs, analysis on fractals.)

The aim of this Report is to present the problems of introduction of Sobolev spaces on metric spaces by using Poincare type inequalities.