FIM Nachdiplomvorlesung

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Topics in scalar curvature

30 March to 01 June 2017

Thursdays, 09:15 to 11:00

HG G 43, ETH Zürich, Rämistrasse 101

Abstract

The scalar curvature plays an important role in geometry and physics. Understanding the geometry of manifolds of positive scalar curvature is intimately connected with understanding gravitational mass in general relativity. There are two general methods to deal with such problems, the Dirac operator and the theory of minimal hypersurfaces. A third method, inverse mean curvature flow, has been used effectively in three dimensions. This lecture series will focus mainly on the minimal hypersurface approach and will discuss attempts at local characterizations of manifolds of positive scalar curvature (which are related to quasilocal mass). We will then discuss approaches to proving theorems in the presence of minimal hypersurface singularities which can occur in dimension greater than seven.

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