



Geometric Analysis Minisymposium

Freitag, 15. Juli 2022 im Hörsaalzentrum 7 E 02

14.00 -14.45 Uhr Kaffee im Hankelzimmer

14.45 - 15.45 Uhr Vortrag

Simon Brendle
(Columbia University)

Isoperimetric and Sobolev inequalities in Riemannian manifolds

Abstract:

I will present a proof, using the ABP technique, of the Sobolev inequality in a manifold of nonnegative Ricci curvature. This method also gives a Michael-Simon-Sobolev inequality for submanifolds in ambient spaces with nonnegative sectional curvature.

15.50 - 16.50 Uhr Vortrag

Florian Johne
(Columbia University)

On a generalized Geroch conjecture

Abstract:

Closed manifolds with topology $N = M \times S^1$ do not admit metrics of positive Ricci curvature by the theorem of Bonnet-Myers, while the resolution of the Geroch conjecture implies that the torus T^n does not admit a metric of positive scalar curvature. In this talk we explain a non-existence result for metrics of positive m -intermediate curvature (a notion of curvature reducing to Ricci curvature for $m = 1$, and scalar curvature for $m = n-1$) on closed manifolds with topology $N^n = M^{n-m} \times T^m$ for $n \leq 7$. Our proof uses minimization of weighted areas, the associated stability inequality, and delicate estimates on the second fundamental form. This is joint work with Simon Brendle and Sven Hirsch.

Hierzu wird herzlich eingeladen.

Gerhard Huisken

