



Mathematics > Functional Analysis

# Anisotropic Function Spaces on Singular Manifolds

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A rather complete investigation of anisotropic Bessel potential, Besov, and  $H^s$ -order spaces on cylinders over (possibly) noncompact Riemannian manifolds with boundary is carried out. The geometry of the underlying manifold near its 'ends' is determined by a singularity function which leads naturally to the study of weighted function spaces. Besides of the derivation of Sobolev-type embedding results, sharp trace theorems, point-wise multiplier properties, and interpolation characterizations particular emphasize is put on spaces distinguished by boundary conditions. This work is the fundament for the analysis of time-dependent partial differential equations on singular manifolds.

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Subjects: **Functional Analysis (math.FA)**; Analysis of PDEs (math.AP); Differential Geometry (math.DG)

MSC classes: 46E35, 54C35, 58A99, 58D99, 58J99

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