

Elliptic Systems on Manifolds with Asymptotically Negative Curvature

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ABSTRACT. A class of complete noncompact Riemannian spaces with asymptotically negative curvature is introduced and the behavior of elliptic systems on weighted Sobolev spaces is studied. A criterion for an elliptic system to be Fredholm is proved. The finite dimensionality of L^2 Hodge Cohomology, except in the middle dimension, is proved using an asymptotic spectral bound for the Hodge Laplacian. An asymptotic version of McKean's inequality for forms is used to prove the Fredholm property for the scalar, conformal, vector and Hodge Laplacians on weighted spaces.

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