Mathematics > Differential Geometry

Integral estimates for the trace of symmetric operators

Marcio Batista, Heudson Mirandola

(Submitted on 31 Mar 2012 (v1), last revised 12 Aug 2012 (this version, v2))

Let $\Phi:TM\to TM$ be a positive-semidefinite symmetric operator of class C^1 defined on a complete non-compact manifold M isometrically immersed in a Hadamard space $\bar{M}$. In this paper, we given conditions on the operator Φ and on the second fundamental form to guarantee that either $\Phi\equiv 0$ or the integral $\int_M \mathrm{tr}\,\Phi dM$ is infinite. We will given some applications. The first one says that if M admits an integrable distribution whose integrals are minimal submanifolds in $\bar{M}$ then the volume of M must be infinite. Another application states that if the sectional curvature of $\bar{M}$ satisfies $\bar{K}\leq -c^2$, for some $c\geq 0$, and $\lambda:M^m\to [0,\infty)$ is a nonnegative C^1 function such that gradient vector of λ and the mean curvature vector H of the immersion satisfy $|H+p\nabla \lambda|\leq (m-1)c \lambda$, for some $p\geq 1$, then either $\lambda\equiv 0$ or the integral $\int_M \lambda^s dM$ is infinite, for all $1\leq s\leq p$.

Comments:	22 pages, submitted
Subjects:	**Differential Geometry (math.DG)**
MSC classes:	53C42, 53C40
Cite as:	**arXiv:1204.0108 [math.DG]**
	(or **arXiv:1204.0108v2 [math.DG]** for this version)

Submission history

From: Heudson Mirandola [view email]
[v1] Sat, 31 Mar 2012 15:49:55 GMT (15kb)
[v2] Sun, 12 Aug 2012 21:23:07 GMT (15kb)

Which authors of this paper are endorsers?