Illinois Journal of Mathematics
Volume 54, Number 2, Summer 2010, Pages 787–788
S 0019-2082

CORRIGENDUM TO "THE FOLIATED STRUCTURE OF CONTACT METRIC (κ, μ)-SPACES"

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ABSTRACT. We correct the statement of a theorem in Illinois J. Math. **53** (2009), 1157–1172 concerning the Betti numbers of a compact (κ, μ)-spaces.

1. Betti numbers of (κ, μ)-spaces

In [3] the author studied the geometry of the two Legendre foliations $\mathcal{D}(\lambda)$ and $\mathcal{D}(-\lambda)$ canonically attached to any non-Sasakian (κ, μ)-space. In particular he obtained a geometrical interpretation of the Boeckx's classification of contact metric (κ, μ)-manifolds based on the Boeckx invariant $I_M = \frac{1-\frac{\mu}{2}}{\sqrt{1-\kappa}}$ [2]. Moreover, he proved the following theorem.

THEOREM 1.1. *Any contact metric (κ, μ)-manifold $(M, \varphi, \xi, \eta, g)$ such that $|I_M| > 1$ admits a Sasakian metric compatible with the original contact form η.*

Then Theorem 1.1 allows us to obtain some topological obstructions for a compact (κ, μ)-space. In fact Fujitani [4] proved that in any compact Sasakian manifold of dimension $2n+1$ the pth Betti number b_p is even for p odd and $1 \leq p \leq n$, and, by duality, for p even and $n+1 \leq p \leq 2n$ (see also [1]).

However, due to just an incorrect recalling of the above result of Fujitani, in [3] it was stated that in any compact (κ, μ)-manifold of dimension $2n+1$ such that $|I_M| > 1$ all the Betti numbers b_p, with $1 \leq p \leq 2n$, are even [3, Corollary 10].

Hence we correct the above misprint and we can state the following theorem.

2010 *Mathematics Subject Classification.* 53C12, 53C15, 53C25, 53C26, 57R30.

Key words and phrases. Contact metric manifold, (κ, μ)-nullity condition, Sasakian, Legendre, bi-Legendrian, foliation.

Theorem 1.2. *Let $(M, \varphi, \xi, \eta, g)$ be a compact contact metric (κ, μ)-manifold of dimension $2n+1$ such that $|I_M| > 1$. Then the pth Betti number b_p of M is even if $1 \leq p \leq n$ with p odd and if $n+1 \leq p \leq 2n$ with p even.*

Theorem 1.2 is the first topological obstruction known for (κ, μ)-spaces.

References

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