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Corrigendum to "Chen Inequalities for Submanifolds of Real Space Forms with a Semi-symmetric Non-metric Connection"

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Abstract. We correct the coefficients in inequality (4.1) in Theorem 4.1(i), from C. Özgür and A. Mihai, *Chen inequalities for submanifolds of real space forms with a semi-symmetric non-metric connection*. Canad. Math. Bull. 55(2012), no. 3, 611–622.

Corrigendum

Due to a minor error of computation (in the expression of the sectional curvature K_{ij} one term was missed) in the proof of [1, Theorem 4.1], some coefficients in (4.1) should be simplified.

The corrected statement follows.

Theorem 4.1 *Let M^n, $n \geq 3$, be an n-dimensional submanifold of an $(n+p)$-dimensional real space form $N^{n+p}(c)$ of constant sectional curvature c endowed with a semi-symmetric non-metric connection $\widetilde{\nabla}$.*

(i) *For each unit vector X in T_xM we have*

$$\|H\|^2 \geq \frac{4}{n^2}\big[\operatorname{Ric}(X) - (n-1)(c-\Omega)\big].$$

(ii) *If $H(x) = 0$, then a unit tangent vector field X at x satisfies the equality case of* (4.1) *if and only if $X \in N(x)$.*

(iii) *The equality case of* (i) *holds identically for all unit tangent vectors at x if and only if either x is a totally geodesic point, or $n = 2$ and x is a totally umbilical point.*

Remark Relation (4.1) from [1] was

$$\text{(4.1)} \quad \|H\|^2 \geq \frac{4}{n^2}\Big[\operatorname{Ric}(X) - (n-1)c + \frac{n-1}{2}\lambda - \frac{(n-2)(n-1)}{2}s(X,X) + \frac{1}{2}(n^2-n)\phi(H)\Big].$$

These new coefficients do not affect items (ii) and (iii) of [1, Theorem 4.1].

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Remark In general, for a submanifold M^n of a real space form endowed with a semi-symmetric non-metric connection, the sectional curvature $K(\pi)$ of a plane section π (and consequently the Chen invariants) cannot be defined, because it depends of the choice of the orthonormal basis of π. For this reason, we put the condition that $\Omega(X)$ is constant for all unit vectors tangent to M^n in [1].

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References

[1] C. Özgür and A. Mihai, *Chen inequalities for submanifolds of real space forms with a semi-symmetric non-metric connection*. Canad. Math. Bull. 55(2012), no. 3, 611–622. http://dx.doi.org/10.4153/CMB-2011-108-1

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