Monatsh Math (2018) 186:559–560
https://doi.org/10.1007/s00605-017-1150-y

CORRECTION

Correction to: Geometry of Warped Product *CR*-submanifolds in Kaehler Manifolds

Bang-Yen Chen[1]

Published online: 28 December 2017

Correction to: Monatsh. Math. 133, 177–195 (2001) https://doi.org/10.1007/s006050170019

We follow the notation from the original article [1]. One part of statement (4) of Theorem 5.1 in [1] is incorrect. The correct statement (4) should read as follows.

(4) *Let M be anti-holomorphic with $p = 1$. The equality sign of* (5.1) *holds identically if the characteristic vector field $J\xi$ of M is a principal vector field with zero as its principal curvature. Conversely, if the equality sign of* (5.1) *holds, then the characteristic vector field $J\xi$ of M is a principal vector field with zero as its principal curvature only if $M = N_T \times_f N^{\perp}$ is a trivial CR-warped product immersed in $\tilde{M}$ as a totally geodesic hypersurface.*

Also, when M is anti-holomorphic with $p = 1$, the equality sign of (5.1) *holds identically if and only if M is a minimal hypersurface in $\tilde{M}$.*

Proof When $p = 1$, M is a real hypersurface of $\tilde{M}$. In this case, if the characteristic vector field $J\xi$ is a principal vector field with zero as its principal curvature, (5.12) in [1] holds. Hence we also have the equality case of (5.1) if the characteristic vector field $J\xi$ is a principal vector field with zero as its principal curvature.

Conversely, if the equality sign of (5.1) holds, using (5.12) we conclude

$$\langle A_\xi(J\xi), J\xi\rangle = \langle \sigma(J\xi, J\xi), \xi\rangle = 0. \tag{0.1}$$

The original article can be found online at https://doi.org/10.1007/s006050170019.

✉ Bang-Yen Chen
chenb@msu.edu

1 Michigan State University, East Lansing, MI, USA

From Lemma 4.1(3) it follows that

$$\langle \sigma(JX, Z), JW\rangle = (X \ln f)\langle Z, W\rangle \tag{0.2}$$

for $X \in \mathcal{D}$ and $Z, W \in \mathcal{D}^{\perp}$. Replacing W and Z by $J\xi$ in (0.2), we obtain

$$\langle A_{\xi}(J\xi), JX\rangle = \langle \sigma(JX, J\xi), \xi\rangle = -(X \ln f)\langle J\xi, J\xi\rangle. \tag{0.3}$$

Hence, (0.1) and (0.3) imply that the characteristic vector field $J\xi$ of M is a principal vector field with zero as its principal curvature only if M is a trivial *CR*-warped product in $\tilde{M}$. Since the warping function f is constant, the equality sign of (5.1) implies that M is totally geodesic.

Finally, it follows from the first condition in (5.7) in [1] that the condition (5.12) in [1] holds if and only if M is minimal in $\tilde{M}$. Consequently, we have the last part of statement (4). □

Acknowledgements The author thanks Professor Mirjana Djorić and Miloš Antić for pointing out the error in the original statement (4).

Reference

1. Chen, B.-Y.: Geometry of warped product CR-submanifolds in Kaehler manifolds. Monatsh. Math. **133**(3), 177–195 (2001)