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Erratum

F. Podestà and L. Verdiani: Totally Geodesic Orbits of Isometries, *Ann. Global Anal. Geom.* **16** (1998), 399–412.

Theorem 3.1 must be changed as follows:

THEOREM 3.1. *Let M^{2n} be an even-dimensional, compact Riemannian manifold of positive sectional curvature. If a compact, nonsemisimple Lie group G acts isometrically and almost effectively on M^{2n} by cohomogeneity one, then*

(1) *the dimension of the center of G is one and the semisimple part of G acts by cohomogeneity one;*
(2) *the manifold M^{2n} is diffeomorphic to a rank one symmetric space.*

The change consists in the fact that the Cayley projective plane also admits a cohomogeneity one action of the nonsemisimple Lie group $G = \mathrm{T}^1 \times \mathrm{Sp}(3)$ [1], where the group $G_1 = \mathrm{Sp}(3)$ also acts by cohomogeneity one with the associated triple $(H, K, H') = (\mathrm{Sp}(1) \cdot \mathrm{Sp}(2), \mathrm{Sp}(1) \cdot \mathrm{Sp}(1), \mathrm{Sp}(2))$. Actually, the proof of Theorem 3.1 in [2] is not complete, since we overlooked case (4) in the table on p. 407. This case can be dealt with as follows. Keeping the same notations, we consider the case when $G_1 = \mathrm{Sp}(n)$ and $H_1 = \mathrm{Sp}(1) \cdot \mathrm{Sp}(n)$. Since the center of G acts trivially on the normal space to G_1/H_1 and since $\nu|_{H_1}$ was supposed to be not trivial, we have that $\nu(H_1)$ is either $\mathrm{Sp}(1)$ or $\mathrm{Sp}(n-1)$.

The case $\nu(H_1) = \mathrm{Sp}(1)$ can be excluded as follows. The second singular isotropy subgroup H' is easily seen to be of maximal rank so that the second singular orbit is also totally geodesic; an easy inspection of its possible dimension shows that Frankel's Theorem is contradicted.

The case $\nu(H_1) = \mathrm{Sp}(n-1)$ can be dealt with as follows. The group G_1 acts by cohomogeneity one with associated triple (H_1, K_1, H') and $\mathfrak{k}_1 = \mathfrak{sp}(1) + \mathfrak{sp}(n-2)$. Then the kernel $\mathfrak{n}'$ of the normal representation ν' can be $\mathfrak{k}_1$, $\mathfrak{sp}(n-2)$, $\mathfrak{sp}(1)$ or $\{0\}$.

If $\mathfrak{n}' = \mathfrak{k}_1$ then $\mathfrak{h}'$ is $\mathfrak{k}_1 + \mathbb{R}$ or $\mathfrak{k}_1 + \mathfrak{sp}(1)$; since $\mathfrak{h}'$ has maximal rank, then the second singular orbit is also totally geodesic, hence of positive curvature; using Wallach's list, this is possible only when $n = 3$, which was already excluded in case (6).

If $\mathfrak{n}' = \mathfrak{sp}(n-2)$, the only possibility for $\mathfrak{h}'$ is $\mathfrak{sp}(2) + \mathfrak{sp}(n-2)$; then the second singular orbit is again totally geodesic and, according to Wallach's list, we have that $n = 2$ and G has a fixed point. An application of Theorem 3.4 shows that M^8 is diffeomorphic to a CROSS.

If $\mathfrak{n}' = \mathfrak{sp}(1)$, then $\mathfrak{h}' = \mathfrak{sp}(1) + \mathfrak{sp}(n-1)$ and this again contradicts Frankel's Theorem.

If $\mathfrak{n}' = \{0\}$, then $\mathfrak{h}' = \mathfrak{sp}(1) + \mathfrak{sp}(n-1)$ or $\mathfrak{h}' = \mathfrak{sp}(2) = \mathfrak{spin}(5)$. The first case is excluded by Frankel's Theorem, while the second corresponds to the Cayley projective plane.

References

1. Iwata, K.: Compact transformation groups on rational cohomology Cayley projective planes, *Tôhoku Math. J.* **33** (1981), 429–442.
2. Podestà, F. and Verdiani, L.: Totally geodesic orbits of isometries, *Ann. Global Anal. Geom.* **16** (1998), 399–412.