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CORRIGENDUM: COMPACT EINSTEIN-WEYL MANIFOLDS WITH LARGE SYMMETRY GROUP

ANDERS BISBJERG MADSEN, HENRIK PEDERSEN,
YAT SUN POON, AND ANDREW SWANN

Guy Bonneau has kindly pointed out two errors in [1]. The first is that the manifolds $M(k)$ and $M(k)/\mathbb{Z}_2$ do not admit $U(2)$-invariant Einstein-Weyl structures for $k \geqslant 2$; thus the last four entries in Table 4 (page 422) do not occur. The error is on pages 429–430. The analysis there is correct, except that the *critical line* to consider in Lemma 7.5 and the subsequent calculation is $\tau = \sigma$, instead of $\tau = 2\sigma/k$, because of the constraint $\chi \in (D, \pi]$ (equivalently, $\tau > \sigma$) occurring in the definition of χ. On this line, one has

$$G(D,\sigma) = \frac{1}{2}(k-2)\big(1+\sigma^2\big)^2\big(2D - \sin(2D)\big),$$

which is positive for $D \in (0,\pi)$ if $k \geqslant 2$, ruling out Einstein-Weyl solutions in these cases. However, there do remain solutions when $k = 1$.

This correction has the pleasant consequence that the topological classification of compact simply connected G-manifolds M with $\dim G \geqslant \dim M = 4$ is the same for both Einstein metrics and Einstein-Weyl structures.

The second error is the assertion that there is an isolated solution on $\mathbb{C}P^2$. If D is given the value appearing in Case 3a (page 427), when $E = \pi/2$, the first factor of (7.13) does in fact vanish, and this solution is a member of the one-parameter family.

REFERENCES

[1] A. B. MADSEN, H. PEDERSEN, Y. S. POON, AND A. F. SWANN, *Compact Einstein-Weyl manifolds with large symmetry group*, Duke Math. J. **88** (1997), 407–434.

MADSEN: DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE, ODENSE UNIVERSITY, CAMPUSVEJ 55, DK-5230 ODENSE M, DENMARK

PEDERSEN: DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE, ODENSE UNIVERSITY, CAMPUSVEJ 55, DK-5230 ODENSE M, DENMARK; henrik@imada.ou.dk

POON: DEPARTMENT OF MATHEMATICS, UNIVERSITY OF CALIFORNIA, RIVERSIDE, CALIFORNIA 92521, USA; ypoon@math.ucr.edu

SWANN: DEPARTMENT OF MATHEMATICAL SCIENCES, UNIVERSITY OF BATH, CLAVERTON DOWN, BATH, BA2 7AY, ENGLAND; A.F.Swann@maths.bath.ac.uk

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