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Erratum

Corrigendum to "Conformal invariants of twisted Dirac operators and positive scalar curvature" [J. Geom. Phys. 70 (2013) 39–47]

Moulay Tahar Benameur [a], Varghese Mathai [b,*]

[a] Laboratoire et Département de Mathématiques, UMR 7122, Université de Metz et CNRS, Bât. A, Ile du Saulcy, F-57045 Metz Cedex 1, France
[b] Department of Mathematics, University of Adelaide, Adelaide 5005, Australia

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ABSTRACT

Statement of conformal invariance in the said paper is corrected here.

Thomas Schick pointed out to us that Formula (4) in [1] does not extend to the twisted case as claimed. Therefore, the sentence in [1] (right after formula (4)):

"*It follows that the twisted Dirac operator* $\eth_H^{X,\varepsilon}$ *is also conformally covariant with the same weights*"

is incorrect.

We now give the correct statement. We keep the notations of [1] and set for instance $H = \sum_j i^{j+1} H_{2j+1}$. Then with

$$H_u := \sum_j e^{-(2j+2)u} i^{j+1} H_{2j+1} \quad \text{and} \quad \eth_{H_u}^{ug} = \eth^{ug} + \hat{c}(H_u)$$

and with $\hat{c}$ denoting the Clifford representation associated with the new metric ug, we have for any spinor ψ,

$$\eth_{H_u}^{ug}\left(e^{-\frac{n-1}{2}u}\,\hat{\psi}\right) = e^{-\frac{n+1}{2}u}\,\widehat{\eth_H^g\,\psi}.$$

This is the content of Proposition 1.1 in [2]. The conformal invariance of the twisted rho can be stated as follows (this is Theorem 1.3 in [2] and should now replace Theorem 2.6 in [1]):

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* Corresponding author.
E-mail addresses: benameur@math.univ-metz.fr (M.T. Benameur), mathai.varghese@adelaide.edu.au, vmathai@maths.adelaide.edu.au (V. Mathai).

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Theorem 0.1 (*Conformal Invariance of the Spin Rho Invariant*)**.** *The spin rho invariant* $\rho_{spin}(Y, \mathcal{E}, H, g)$ *of the twisted Dirac operator depends only on the conformal class of the pair* (H, g)*. Said differently,*

$$\rho_{spin}(Y, \mathcal{E}, H_u, ug) = \rho_{spin}(Y, \mathcal{E}, H, g).$$

We notice that the conformal invariance theorem was only stated in [1] and not used at all in the sequel of that paper. We also point out that Theorem 0.1, although proved for general u, is only used in the case of constant u in [2].

References

[1] M.T. Benameur, V. Mathai, Conformal invariants of twisted Dirac operators and positive scalar curvature, J. Geom. Phys. 70 (2013) 39–47. arXiv:1210.0301. MR3054283.
[2] M.T. Benameur, V. Mathai, Spectral sections, twisted rho invariants and positive scalar curvature, Preprint, arXiv:1309.5746.