



Correction

Correction to: ‘On Multimatrix Models Motivated by Random Noncommutative Geometry II: A Yang-Mills-Higgs Matrix Model’

Carlos I. Perez-Sanchez

Correction to: Ann. Henri Poincaré

<https://doi.org/10.1007/s00023-021-01138-w>

Three equations in the body of Theorem 6.1 of [1] (present in the author’s submission) did not appear in the published article due to a mistake by the *Author Corrections Team of Springer Nature Journals Production*. In that theorem, the spectral action $\frac{1}{4} \text{Tr}_{\mathcal{H}} g(D)$ for polynomial g is computed in terms of several sectors. However, in the published version, only one of such, namely

$$S_{\text{YM}}^{\text{f}}(\ell, \omega) := -\frac{a_4}{4} \text{Tr}_{M_{N \otimes n}^{\text{c}}}(\mathcal{F}_{\mu\nu} \mathcal{F}^{\mu\nu}), \quad (6.2)$$

appears defined. The correct group of equations (6.2), as the author submitted them, should have been displayed as:

$$S_{\text{YM}}^{\text{f}}(\ell, \omega) := -\frac{a_4}{4} \text{Tr}_{M_{N \otimes n}^{\text{c}}}(\mathcal{F}_{\mu\nu} \mathcal{F}^{\mu\nu}), \quad (6.2a)$$

$$S_{\text{g-H}}^{\text{f}}(\ell, \omega, \Phi) := -a_4 \text{Tr}_{M_{N \otimes n}^{\text{c}}}(\mathcal{d}_{\mu} \Phi \mathcal{d}^{\mu} \Phi), \quad (6.2b)$$

$$S_{\text{H}}^{\text{f}}(\Phi) := \text{Tr}_{M_{N \otimes n}^{\text{c}}} g_{\text{e}}(\Phi), \quad (6.2c)$$

$$S_{\vartheta}^{\text{f}}(\ell, \omega) := \text{Tr}_{M_{N \otimes n}^{\text{c}}} g_{\text{e}}(\vartheta^{1/2}). \quad (6.2d)$$

(Secondarily: In the proof, the polynomial appearing in this errata in the spectral action $\frac{1}{4} \text{Tr}_{\mathcal{H}} g(D)$ was called f there; here, we use g in order not to give the impression that the ‘f’ in $S_{\text{YM}}^{\text{f}}, \dots, S_{\vartheta}^{\text{f}}$ refers to the polynomial; straight ‘f’ rather means ‘fuzzy space’. The enormous flexibility of arXiv regarding the font choices takes care of this distinction; hence the polynomial in question

The original article can be found online at <https://doi.org/10.1007/s00023-021-01138-w>.

is uniformly called f in the preprint version which is, and already before this errata was, correct.)

Acknowledgements

The author is thankful to Makoto Yamashita for pointing out at the missing lines. This work was funded by the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation program (grant agreement No818066) and also by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) under Germany's Excellence Strategy EXC-2181/1-390900948 (the Heidelberg STRUCTURES Cluster of Excellence).

Declarations

Conflict of interest The author has no conflict of interest to declare that are relevant to the content of this article.

Open Access. This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Reference

- [1] Pérez-Sánchez, Carlos I.: On multimatrix models motivated by Random Noncommutative Geometry II: A Yang-Mills-Higgs Matrix Model. *Ann. Henri Poincaré*, **23**, 1979–2023 [arXiv:2105.01025](https://arxiv.org/abs/2105.01025)

Carlos I. Perez-Sanchez
Institute for Theoretical Physics
University of Heidelberg
Philosophenweg 19
69120 Heidelberg
Germany
e-mail: cperez@fuw.edu.pl;
perez@thphys.uni-heidelberg.de

Communicated by Claude-Alain Pillet.

Received: May 24, 2024.

Accepted: May 28, 2024.