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Erratum: the energy of the analytic lump solution in SFT

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After this paper was published in JHEP, a reconsideration of all the problems tackled in it led us to [2]. In the latter we confirm all the results of this paper as well as of [1], but we correct the interpretation of ϵ as a gauge parameter contained in section 7.2 and in the last paragraph of 9.2. In [2] we provide evidence that $\langle \psi_\epsilon, \psi_\epsilon \psi_\epsilon \rangle^{(s)}$, $\langle \psi_u, \psi_\epsilon \psi_\epsilon \rangle^{(s)}$ and $\langle \psi_\epsilon, \psi_u \psi_u \rangle^{(s)}$ all depend on ϵ. Consequently ϵ is simply a regulator and cannot be interpreted as a gauge parameter. The only meaningful results are obtained in the limit $\epsilon \to 0$. Concerning the claim that "The obstruction to integrating by part is the UV divergence or the corresponding subtraction, which ... are ϵ-independent." in the last paragraph of section 9.2, it is true, but this does not lead by itself to the implicit conclusion that one can integrate by part the expression $\langle \psi_\epsilon, Q\psi_u \rangle - \langle \psi_u, Q\psi_\epsilon \rangle$ and get 0, because the UV subtraction is applied to the three-points correlators, not to the string field ψ,ψ_ϵ, to which Q applies.

References

[1] L. Bonora, S. Giaccari and D.D. Tolla, *Analytic solutions for Dp branes in SFT*, *JHEP* **12** (2011) 033 [arXiv:1106.3914] [INSPIRE].

[2] L. Bonora, S. Giaccari and D.D. Tolla, *Lump solutions in SFT. Complements*, expanded version, arXiv:1109.4336 [INSPIRE].

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