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# Erratum: Holographic RG flows in six dimensional F(4) gauged supergravity

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An argument made in the original paper is not correct. The critical point reported in equation (3.3) is actually supersymmetric. Furthermore, the fermionic supersymmetry transformations given in equations (2.9), (2.10) and (2.11) contain some typos. The correct equations are

$$\begin{aligned}\delta\psi_{\mu A} &= D_\mu\epsilon_A - \frac{1}{24}\left[Ae^\sigma + 6me^{-3\sigma}(L^{-1})_{00}\right]\epsilon_{AB}\gamma_\mu\epsilon^B \\ &\quad -\frac{1}{8}\left[B_te^\sigma - 2me^{-3\sigma}(L^{-1})_{t0}\right]\gamma^7\sigma^t_{AB}\gamma_\mu\epsilon^B, \qquad (1)\\ \delta\chi_A &= \frac{1}{2}\gamma^\mu\partial_\mu\sigma\epsilon_{AB}\epsilon^B + \frac{1}{24}\left[Ae^\sigma - 18me^{-3\sigma}(L^{-1})_{00}\right]\epsilon_{AB}\epsilon^B \\ &\quad -\frac{1}{8}\left[B_te^\sigma + 6me^{-3\sigma}(L^{-1})_{t0}\right]\gamma^7\sigma^t_{AB}\epsilon^B, \qquad (2)\\ \delta\lambda^I_A &= P^I_{ri}\gamma^\mu\partial_\mu\phi^i\sigma^r{}_{AB}\epsilon^B + P^I_{0i}\gamma^7\gamma^\mu\partial_\mu\phi^i\epsilon_{AB}\epsilon^B - \left(2i\gamma^7D^I{}_t + C^I{}_t\right)e^\sigma\sigma^t_{AB}\epsilon^B \\ &\quad +2me^{-3\sigma}(L^{-1})^I{}_0\gamma^7\epsilon_{AB}\epsilon^B\,. \qquad (3)\end{aligned}$$

Using the scalar parametrization given in equation (3.1) and the metric ansatz (4.4) as well as the projection $\gamma_r\epsilon = \epsilon$, we find the corresponding BPS equations

$$\begin{aligned} b' &= -\frac{1}{4}e^{a-3b}(e^{4b}-1)\left[g_1(1+e^{2b}) - g_2(e^{2b}-1)\right], \qquad (4)\\ a' &= -\frac{1}{16}e^{a-3b}\left[g_1(1+e^{2b})^3 - g_2(e^{2b}-1)^3\right] + \frac{3}{2}me^{-3a}, \qquad (5)\\ A' &= \frac{1}{16}e^{a-3b}\left[g_1(1+e^{2b})^3 - g_2(e^{2b}-1)^3\right] + \frac{1}{2}me^{-3a}\,. \qquad (6)\end{aligned}$$



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After correcting the typos in the critical point (3.3) namely the values of $a$ and the $AdS_6$ radius are given, respectively, by

$$a = \frac{1}{4} \ln \left[ -\frac{3m\sqrt{g_2^2 - g_1^2}}{g_1 g_2} \right] \qquad \text{and} \qquad L = \frac{1}{2m} \left[ -\frac{3m\sqrt{g_2^2 - g_1^2}}{g_1 g_2} \right]^{\frac{3}{4}}, \tag{7}$$

we find that the critical point (3.3) is actually a critical point of the potential (3.2) and satisfies all of the above BPS equations with the corrected $AdS_6$ radius. This critical point can also be seen from the related BPS equations studied in [1].

Finally, the RG flow from the $\mathrm{SU}(2)_R \times \mathrm{SU}(2)$ CFT in the UV to this critical point is driven by a vacuum expectation value of an operator of dimension 3. The flow solution can also be obtained from the BPS equations (4), (5) and (6). On the other hand, the mass spectrum in the original paper is correct as it stands.



## References

[1] P. Karndumri, *Gravity duals of 5D $N = 2$ SYM theory from $F(4)$ gauged supergravity*, *Phys. Rev.* **D 90** (2014) 086009 [arXiv:1403.1150] [INSPIRE].