The paper [1] requires some corrections in our calculations, in particular we were wrong to consider the skew symmetry of the Riemann tensor, so the equations (2.5) and (2.7) in [1] become:

\[
\begin{aligned}
\Delta f - \frac{c}{m} f^2 &= 0 \\
(m + 1)|\nabla f|^2 + \frac{c}{m} f^3 &= 0
\end{aligned}
\]

We wrote \((m + 1)\) instead \((m - 1)\) because the skew symmetry of the Riemann curvature tensor causes one the terms in the trace to vanish, and since \(m\) must be negative, the terms is eliminated by adding 1. In this scenario the \((2,-2)\)-POLJ manifold does not exist, but exists the \((3,-3)\)-POLJ manifold. In case where \(n = 3\), \(m = -3\), \(\lambda = \mu = 0\), \(R_B = R_{f_B}\), \(h \neq 0\) and by setting \(x = (2/h)f\), the equations (2.8) and (2.9) in [1] become: (1) \(\Delta x - 2x^2 = 0\) and (2) \(|\nabla x|^2 - x^3 = 0\). The technique used remains the same as [1] and by performing the new calculations we obtain: (3) \(\omega_2^2 + \omega_3^2 = x^{1/2}(E dy^2 + 2F dy dz + G dz^2)\), for some functions \(E\), \(F\) and \(G\) on the domain of the coordinate chart \((x, y, z)\) that satisfy \(EG - F^2 = 1\). Now assume that our metric has the form: (4) \(g = x^{-3}dx^2 + (x^a dy)^2 + (x^b dz)^2\), then this is equivalent to having: (5) \(2a + 2b - 1 = 0\) and the condition that \(R_{f_B} + 6x = 0\) (i.e. the \(f\)-curvature-Base [2]), since the scalar curvature is: \(R_B = -(2(a^2 + ab + b^2) + a + b)x\). Hence the equation becomes: (6) \(6 - 2(a^2 + ab + b^2) - a - b = 0\). Since these two equations ((5) and (6)) are satisfied only for \(a = 1\), \(b = -1/2\), or \(a = -1/2\), \(b = 1\), then we have the following metric: \(g = x^{-3}dx^2 + x^2 dy^2 + x^{-3}dz^2\). Then our \((3,-3)\)-POLJ manifold metric is: \(ds^2 = x^{-3}dx^2 + x^2 dy^2 + x^{-3}dz^2 - ((cx^2)/36)(dx^2 + d\varphi^2 + d\theta^2)\). We underline that the fiber-manifold (derived-manifold with negative dimension) is intended as \(\mathbb{R}^d\) bundle of obstruction ([3]), therefore on \(F\) we consider the valid Riemannian geometry defined on \(\mathbb{R}^d\) paying attention to the dimension.