

Corrigendum

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Corrigendum to: Kaluza-Klein Cosmological Model, Strange Quark Matter, and Time-Varying Lambda

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Corrigendum to: Namrata Jain, Shyamsunder S. Bhoga, and Gowardhan S. Khadekar. Naturforsch. 69a, 90–96. (DOI:10.5560/ZNA.2013-0079):

1) In the above article, equation (2) has been stated incorrectly. The corrected equation (2) reads:

$$T_j^i = (\rho + p)u^i u_j + pg_j^i \quad (2)$$

where u_i is the five velocity vector, which satisfies the relation $u^i u_i = -1$.

Since the line element (1) has the signature $(-, +, +, +, +)$, so the energy-momentum tensor (2) has to be written accordingly.

The calculations from equations (3–17) are assured to be correct.

2) Moreover, the form of equation (18) stated in the article is incorrect. The corrected equation (18) reads:

$$H(t) = \sqrt{\frac{k_2}{2}} a \cosh \phi (a \sinh \phi + k_3)^{-1} \quad (18)$$

This requires further changes in the subsequent equations:

$$q(t) = -\frac{R\ddot{R}}{\dot{R}^2} = -\frac{a \sinh^2 \phi + k_3 \sinh \phi - a}{a \cosh^2 \phi} \quad (19)$$

$$\Lambda(t) = \frac{[\alpha]k_2 a^2 \cosh^2 \phi + 2\beta(a \sinh \phi + k_3)}{2(a \sinh \phi + k_3)^2} \quad (20)$$

$$\rho(t) = \frac{[3(n+1) - \alpha]k_2 a^2 \cosh^2 \phi + 2(3k - \beta)(a \sinh \phi + k_3)}{2(a \sinh \phi + k_3)^2} \quad (21)$$

$$p(t) = \frac{[3(n+1) - \alpha]k_2 a^2 \cosh^2 \phi + 2(3k - \beta)(a \sinh \phi + k_3)}{6(a \sinh \phi + k_3)^2} - \frac{4B_c}{3} \quad (22)$$

Consequently, equations (27–29) are also modified as given below:

1] For a flat universe, i.e. $k=0$, equation (27) is further corrected as:

$$\rho(t) = \frac{\frac{3(n+1)(n+2)}{(n+3)}k_2 a^2 \cosh^2 \phi + \frac{9(n+1)}{(n+3)}(a \sinh \phi + k_3)}{2(a \sinh \phi + k_3)^2} \quad (27)$$

2] For a closed universe $k=1$, equation (28) is reformed as:

$$\rho(t) = \frac{\frac{3(n+1)(n+2)}{(n+3)}k_2 a^2 \cosh^2 \phi + \frac{9(n+2)}{(n+3)}(a \sinh \phi + k_3)}{2(a \sinh \phi + k_3)^2} \quad (28)$$

3] For an open universe $k=-1$, equation (29) is now written as:

$$\rho(t) = \frac{\frac{3(n+1)(n+2)}{(n+3)}k_2 a^2 \cosh^2 \phi + \frac{9n}{(n+3)}(a \sinh \phi + k_3)}{2(a \sinh \phi + k_3)^2} \quad (29)$$

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The discussion and conclusion remain the same as that in the original manuscript. Dividing by a factor of 2 in the root does not cause any changes in the matter under discussion.