Errata: The Nature of the Fifth Dimension in Classical Relativity

Equation (11) is incorrect. This negates the conclusions of Section 7. For the cosmological implications, see instead the recent paper, Variation of the Gravitational Constant in the Radiation-Dominated Universe.

Equation (16) is missing a factor of $\phi$. It should read:

$$\tilde{U}_5 = g_{5a}U^a = \phi^2 k A_\nu \tilde{U}^\nu + \phi^2 \tilde{U}^5$$

(16)

The note at the end of Section 8, that (3) and (16) imply $d\tau/ds$ is constant, is only true for constant $\phi$.

Equation (17) is missing a factor of $\phi^2$. It should read:

$$2\tilde{\Gamma}^\nu_{5\mu} = k \phi^2 g^{\nu\alpha} F_{\mu\alpha}$$

(17)

Equation (21) is missing a factor of $\phi^2$. It should read:

$$\tilde{\Gamma}_\alpha^\mu = \Gamma_\alpha^\mu + \frac{k^2}{2} \phi^2 g^{\mu\nu} (A_\alpha F_{\beta\nu} + A_\beta F_{\alpha\nu})$$

(21)