

Correction

# Correction: Mashhoon, B. Critical Tidal Currents in General Relativity. *Universe* 2020, 6, 104

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In writing out the tidal equation for  $X$  in my recent paper [1], an inadvertent sign error led to two errant numerical coefficients in Equation (15) that propagated to Section 4. The main results and conclusions of my paper remain unchanged. All of the affected formulas are corrected below. The list consists of Equations (15), (35), (38), (40), (43), (44), (46), (47), (61), and (62), respectively.

$$\frac{d^2 X}{dT^2} + (A - 2E X) (1 - 2\dot{X}^2) + A^2 X (1 + 2\dot{X}^2) - \frac{2}{3} E [X(\dot{Y}^2 + \dot{Z}^2) + 2\dot{X}(Y\dot{Y} + Z\dot{Z})] + 2H(1 - \dot{X}^2)(Y\dot{Z} - Z\dot{Y}) = 0, \quad (1)$$

$$\frac{d^2 X}{dT^2} + (A - 2E X) (1 - 2\dot{X}^2) + A^2 X (1 + 2\dot{X}^2) - \frac{2}{3} E \dot{Y} (X \dot{Y} + 2Y \dot{X}) = 0, \quad (2)$$

$$X_S = \frac{3A}{7E - 3A^2} = 3 \frac{[r^3(r - 2M)]^{1/2}}{7r - 17M}, \quad r \neq 17M/7, \quad (3)$$

$$X_S = \frac{3}{7} r \left( 1 + \frac{10}{7} \frac{M}{r} + \dots \right), \quad (4)$$

$$\frac{d^2 P}{d\eta^2} - \frac{4}{3} E \eta \frac{dP}{d\eta} - 2 \frac{A}{X_S} P - \frac{4}{3} E X_S \frac{dQ}{d\eta} = 0, \quad (5)$$

$$\frac{d^2 Q}{d\eta^2} - 4E\eta \frac{dQ}{d\eta} + 4A^2 X_S \frac{dP}{d\eta} = 0, \quad (6)$$

$$w_1 = \frac{16}{3} E, \quad w_2 = \frac{16}{3} E^2, \quad w_3 = 2E \left[ \frac{3r - 7M}{r - 2M} - 24 \frac{M^2}{(7r - 17M)^2} \right], \quad (7)$$

$$w_4 = \frac{8}{3} E^2 \left( \frac{7r - 17M}{r - 2M} \right), \quad E = \frac{M}{r^3}, \quad (8)$$

$$q_1 = -2E \frac{[r^3(r - 2M)]^{1/2}}{7r - 17M}, \quad q_2 = \frac{1}{2} w_3 - E \left( \frac{3r - 7M}{r - 2M} \right) = -24E \frac{M^2}{(7r - 17M)^2} \quad (9)$$

and

$$q_3 = w_1 + w_3 - \frac{2}{3} E \left( \frac{11r - 25M}{r - 2M} \right), \quad q_4 = \frac{1}{2} w_5 - \frac{1}{3} w_3 E \left( \frac{13r - 29M}{r - 2M} \right). \quad (10)$$

**Conflicts of Interest:** The author declares no conflict of interest.

## Reference

- Mashhoon, B. Critical tidal currents in general relativity. *Universe* **2020**, *6*, 104. [[CrossRef](#)]



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