239(6): Calculation of the Minkowski Force of a Precessing Elliptical Orbit

From previous work:

$$\underline{F} = m\left(\gamma^4 \frac{d^2 r}{dt^2} - \gamma^2 \frac{L_0^2}{m^2 r^3}\right)\underline{e}_r + \frac{\gamma^4}{c^2}\frac{dr}{dt}\frac{d^2 r}{dt^2}\,\omega r\,\underline{e}_\theta \quad -(1)$$

where

$$\underline{e}_r = \underline{i}\cos\theta + \underline{j}\sin\theta \quad -(2)$$

$$\underline{e}_\theta = -\underline{i}\sin\theta + \underline{j}\cos\theta \quad -(3)$$

$$\gamma = \left(1 - \frac{v^2}{c^2}\right)^{-1/2} \quad -(4)$$

If the second term in eq. (1) can be neglected in the limit:

$$v \ll c \quad -(5)$$

then:

$$\underline{F} \rightarrow m\left(\gamma^4 \frac{d^2 r}{dt^2} - \frac{\gamma^2 L_0^2}{m^2 r^3}\right)\underline{e}_r \quad -(6)$$

As in previous work for a precessing ellipse:

$$F = -\frac{\gamma^2 L_0^2}{m r^2 d}\left(\frac{d}{r}\left(1 - x^2\gamma^2\right) + x^2\gamma^2\right) \quad -(7)$$

where

$$v^2 = \left(\frac{L_0}{mr}\right)^2\left(1 - x^2\epsilon^2\right) + 2\left(\frac{x\epsilon L_0}{md}\right)^2\frac{d}{r} \quad -(8)$$

2) Now graph eq. (7) with computer algebra and compare with the Einstein result using:

$$d = \frac{L_0^2}{m^2 M G} \quad - (9)$$

The Einstein result is:

$$F = -\frac{mMG}{r^2} - \frac{3L_0^2 MG}{mc^2 r^4} \quad - (10)$$

and is radial, so:

$$\underline{F} = \left(-\frac{mMG}{r^2} - \frac{3L_0^2 MG}{mc^2 r^4} \right) \underline{e}_r \quad - (11)$$

So the $\underline{e}_\theta$ component of the Minkowski force is missing completely from the Einstein theory. This is a basic contradiction in relativity theory.

In the Einstein theory:

$$x = \frac{3GM}{dc^2} \quad - (12)$$

so eqs. (9) and (12) can be used in eq. (7) for a direct comparison. To an excellent approximation for small x, then:

$$d = (1+\epsilon) r_{min} = (1-\epsilon) r_{max} \quad - (13)$$

3) or:

$$d = a\left(1-\epsilon^2\right) \quad -(14)$$

where a is the semi major axis and r_{min} and r_{max} are distances of closest approach and furthest separation of m from M.

It seems that eq. (12) is an accurate experimental or empirical result in the solar system, but eq. (11) is riddled with errors and the method of deriving eq. (12) in the Einstein theory contains many approximations. It has also been shown in previous work that the method of deriving x by Marin and Thomas is also riddled with errors.