Review of: "Geodesics as Equations of Motion"

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The paper rests on a misunderstanding. The author states that ``Though they (the solutions of (6-7) and (8-9) respectively) both give the same spatial projection, they correspond to different motions in space-time''.

This is incorrect. The two descriptions are simply two descriptions of the same curve in different coordinates. In the one, the time variable describes the proper time on Mercury, the other describes Mercury's motion as observed from infinitely far away. Earth observations are intermediate, but rather closer to the infinitely distant case. Thus, if measurements of Mercury's orbit are performed on Earth, they will correspond rather closely to (8-9), but (6-7) will not be wrong: simply, when matching (6-7) to Earth observations, we need to remember that s and t are slightly different.

Finally, the estimate of $E/(mc^2)$ is somehow way off. E being defined as the Newtonian energy, it is clearly equal to $mv^2/2$, so that $E/(mc^2) = v^2/(2c^2)$, which, remembering that the speed of Mercury is about 47 km/second, leads to

$$E/(mc^2) \simeq 1.23 \cdot 10^{-8}$$

which is far smaller than what the author appears to use. Over a century, the difference between the two times is approximately

$$1.23 \cdot 10^{-8} \cdot 100 \cdot 365.25 \cdot 24 \cdot 3600 \simeq 38.8$$

seconds. 39 seconds ove a century does not seem to be sufficient difference to state unequivocally that one is ``empirically observed'' and the other not.

As a final remark, the SI second is---by definition---a unit of proper time, so the author's references to the SI scond being needed to measure coordinate time are somehow misleading.