ESSAY 113: PERIHELION PRECESSION WITH ECE2 THEORY

Written by Myron Evans, broadcast by Robert Cheshire

The perihelion is the closest distance to the sun of the planar orbit of a planet around the sun or any object orbiting another object. In the Newtonian theory the planet returns to the same perihelion every orbit, but it is observed experimentally that the perihelion moves with every orbit. In the early years of the twentieth century it was claimed by Einstein that this movement is due to this theory of general relativity, a famous and influential theory which is nevertheless incorrect because it is based on a fatally flawed geometry. The interest in ECE and ECE2 theory defy hyperbole, and the Einstein theory is rejected by what is probably the majority of scientists. This is Alwyn van der Merwe's post Einsteinian paradigm shift.

The geometry used by Einstein is the same as that used by Bianchi in 1902 to infer the famous second Bianchi identity. This is a geometry that uses the concept of spacetime curvature but does not use spacetime torsion, which was inferred by Cartan and his group at about the same time as the Eddington experiment that was used to claim the correctness of the Einstein theory. Cartan corresponded with Einstein about torsion, but the latter had been catalyzed into fame and did not change his theory. It is known now that the method of forcing torsion to vanish used by the standard model of physics also makes curvature vanish, so that no torsion means no gravitation, and the Einstein theory is refuted. There are numerous refutations of the Einstein theory no available in many UFT papers, notably the classic UFT88.

ECE2 theory is also intensely studied and produces gravitational field equations which are part of a generally covariant unified field theory based on non zero torsion and non zero curvature. So the ECE2 field equations of gravitation are equations of a new type of general relativity that use the idea of spin connection. However their structure is identical with those of the Maxwell Heaviside (MH) equations. The latter are Lorentz covariant in a space without torsion and curvature. The gravitational ECE2 field equations are Lorentz covariant in a space with non zero torsion and non zero curvature. No other unified field theory has this unique property. The MH field equations are equations of special relativity, as is well known, so this property suggest that the ECE2 theory can be developed with the equations of special relativity

This is the background to recent work, beginning with UFT324, which set out to show that special relativity can explain orbital precession. This has been shown to be the case, an important discovery in cosmology and astronomy. The demonstration was made by Horst Eckardt and myself using a combination of computational and analytical methods, based on the fundamental lagrangian and hamiltonian of special relativity. No other assumption, model or theory was used. It was shown numerically by Horst Eckardt that a simultaneous solution of the lagrangian and hamiltonian results in a precessing orbit which is unique and completely original to science. Remarkably it has taken a hundred years (1915 - 2015) for it to be realized that Einstein and his contemporaries could have used special relativity to produce perihelion precession at any time after about 1905.

It is fundamentally important to realize that this type of special relativity is part of a generally covariant unified field theory, ECE2 theory. The lagrangian and hamiltonian of ECE2 happen to be the same, mathematically, as their counterparts in the old special relativity, counterparts that were written however in a space without torsion and without curvature, often called flat spacetime. The key difference is that the old special relativity has no spin connection, ECE2 has a spin connection written in to its field equations (UFT318). Perihelion precession was produced in the x theory of two or three years ago, simply by

multiplying the angle in a conic section by a factor x. However, the rigorously correct orbit and rigorously correct precession must be produced from the lagrangian and hamiltonian of ECE2 theory, solved simultaneously, and it is not that of x theory. Neither is it that of Einsteinian general relativity. One can go so far analytically, but the complete solution needs numerical methods, notably the scatter plot methods developed by Horst Eckardt in papers such as UFT328.

As explained in the next essay 114, this is the only valid theory of perihelion precession.