RESONANT COUNTER GRAVITATION.

by

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ABSTRACT

Generally covariant unified field theory has been used to show that the equations of classical electrodynamics are unified with those of gravitation using standard Cartan geometry (Einstein Cartan Evans (ECE) field theory). By expressing the ECE field equations in terms of the potential field, linear inhomogeneous field equations are obtained for each of the fundamental laws of electrodynamics unified with gravitation. These equations have resonant solutions, and in this paper the possibility of resonant counter gravitation is demonstrated by showing that the Riemann curvature can be affected by the electromagnetic field. Examples are the Coulomb law and Ampère law respectively of electro-statics and magneto-statics. At resonance the effect is greatly amplified (as for any resonant phenomenon), so in theory, circuits can be built for effective resonant counter gravitation and used in the aerospace industry.

Keywords: Resonant counter gravitation; Einstein Cartan Evans (ECE) field theory; generally covariant unified field theory; linear inhomogeneous differential equations; resonance.

53 rd paper of ECE theory

INTRODUCTION

The principle of general relativity is the fundamental hallmark of objective physics, a natural philosophy that is independent of the observer, independent of subjective input. The principle means that every equation of physics has to be generally covariant, meaning that it must retain its form under any type of coordinate transformation. The principle must evidently be applied to all equations of physics, including electrodynamics. Only in this way can an objective unified theory of physics emerge - a generally covariant unified field theory {1}. It is well established {2} that the principle of general relativity as applied to gravitational theory by Einstein and Hilbert {3} is very accurate when compared with experimental data, but the principle of general relativity is not applied to electrodynamics in the standard model. In the latter {4} electrodynamics is a theory of special relativity in which the field is thought of as an entity independent of the frame. The space-time of electrodynamics in the standard model is the Minkowski ("flat") space-time. As a result standard model electrodynamics is not generally covariant, it is Lorentz covariant, and as such cannot be unified with generally covariant gravitational theory in the standard model. It is well known that Riemann geometry with the Christoffel connection is the geometrical basis of gravitational general relativity. However in this type of geometry the torsion tensor is zero {5}. It was first suggested by Cartan{6} that the electromagnetic field be the torsion form of Cartan geometry. In 2003 {7-40} a generally covariant unified field theory was developed using this suggestion and using standard Cartan geometry. It has since been developed in many directions {1, 7-40}.

In Section 2 the field equations of ECE theory are expressed as linear inhomogeneous equations with resonant solutions. The Riemann term is isolated and it is shown that the electromagnetic part of the unified field can change the Riemann curvature, i.e. change the gravitational field. At resonance this effect is greatly amplified. In Section 3

this general conclusion is exemplified using the Coulomb ad Ampere laws unified with gravitation. This means that a static electric or static magnetic configuration can change the gravitational field. In order to maximize the effect numerical methods of solution are needed to model a circuit which optimizes resonant counter gravitation. An assembly of such circuits can be placed aboard a device such as an aircraft or spacecraft, and is expected to be particularly effective in regions of near zero gravitation in outer space. Under the usual laboratory conditions it is well known that the electromagnetic and gravitational fields are essentially independent and have no influence on each other. This is observed experimentally in the Coulomb and Newton inverse square laws for example. If two charged masses are considered, then changing the charge on one of them has no effect on the Newton inverse square law. Similarly changing the mass of one of them has no effect on the Coulomb inverse square law. However, it is known through the Eddington effect that gravitation and electromagnetism interact and ECE theory was the first to give a classical explanation of the Eddington effect {7-40}. Einstein's famous prediction was based on photon mass and a semi-classical treatment. The Eddington effect is however tiny in magnitude, the enormous mass of the sun bends grazing light by a few seconds of arc only. Therefore resonant counter gravitation is the only practical method of counter gravitation. All claims to have observed an effect of electromagnetism on gravitation without resonance are almost certainly artifactual. Recently however the Mexican group of AIAS have observed resonantly enhanced electric power from ECE spacetime, the output power form a circuit was observed reproducibly {41} to exceed input power by a factor of one hundred thousand. This has been explained using ECE theory by the use of linear inhomogeneous differential equations of the same type as used in this paper for counter gravitation. The two phenomena are explained by a generally covariant unified field theory based on Cartan geometry.