The Anatomy of a Flying Saucer: Fundamental Equation With Applications

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Abstract

We derive a simple fundamental equation for a flying saucer. The equation is:

$$v/G = k\,M\,f\,a^2/r^2$$

where the v is the velocity of the craft, G the gravitational constant, M the negative gravitational mass, a the diameter of the rotating ring, f frequency of rotation, r the radius of the negative vector potential bubble, and k a constant of value 1 with units of m/kg. From the equation it is possible to deduce that:

1. inertia can be eliminated

2. the minimal size of possible for a saucer, in agreement with eye witnesses reports

3. explain the EM effect of car headlights and engines dying near UFOs

4. explain why UFOs do not cause sonic booms at supersonic speeds

5. and explain reports of levitation and loss of car control near a UFO. Our only non-standard assumption is that the saucer posses negative mass, an assumption which is NOT contrary to known physics principles

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1 Eliminating Inertia

Bondi (1) has show that the existence of negative gravitational mass does not violate general relativity. This conclusion has not been refuted.

Sciama in 1957 did the first calculation that showed that the total matter in the universe caused inertia (2). His calculation was non-relativistic. Einstein, although he never explicitly included Mach's Principle as part General Relativity, says on page 102 of *The Meaning of Relativity* that inertia was mediated by the time derivative of the vector potential **A**, that is, by gravity (3). In a recent paper entitled "On Mach's principle: Inertia as gravitation", a Spanish group did a fully relativistic analysis with linearized Einstein equations. They used the time derivative of the vector potential, $h_{0i,0}$, but also a small scalar counter term h_{00i}, retarded potentials, and included consideration of dark energy. They came within 10% of verifying **Mach's Principle**. Therefore the principle that gravitation causes inertia is well established.

Following Sciama (4) and Jefimenko (5,6) we have the vector potential

$$A = \frac{G}{c^2} \int \frac{\rho\, v}{r}\, dV \tag{1}$$

where ρ is the mass density and v its velocity. To find the vector potential created by the remote stars postulated by **Mach's principle**, Sciama carries out the integration over the mass distribution of the entire universe, assuming the universe to be receding with velocity -**v**. The v, being constant, comes out of the integral

$$A = \frac{v\, G}{c^2} \int \frac{\rho}{r}\, dV \tag{2}$$

with

$$\Phi = G \int \frac{\rho}{r}\, dV \tag{3}$$

We are left with

$$A = \frac{v\, \Phi}{c^2} \tag{4}$$

where Φ is the universal scalar gravitational potential. Sciama then changes coordinates and has the test particle move with **v** while the universe is stationary. The recent calculation (4) also uses this technique. We are going to interpret this equation to mean that the particle is subject to the **A** vector as it moves through the universes scalar potential.

Positive and negative masses repel each other through their fields, and the field has to be zero on the boundary. If a region of space existed around a gravitationally negative mass, the scalar potential would be negative and the **A** vector derived from this field would be anti-parallel to the velocity

$$A = \frac{-|\phi|\, v}{c^2} \tag{5}$$

as opposed to parallel, $A = \frac{\Phi\, v}{c^2}$.

This is to be expected as Φ and $\mathbf{A}$ form a four-vector in relativity

$$A_\mu = (A, \phi) \tag{6}$$

so if ϕ is negative, so is $\mathbf{A}$. These parallel conditions are mutually exclusive; you cannot have $\mathbf{A}$ parallel and ani-parallel to $\mathbf{v}$ at the same time. Therefore the positive and negative gravity spaces would have to be disjoint. A vector potential would tend toward zero as we approached the boundary of the negative gravitational space, become zero at the boundary, and then become negative (or anti-parallel) inside the negative gravitational space. The parallel $\mathbf{A(+)}$ vector could not exist in the negative gravitational space. Therefore the $\mathbf{A(+)}$ vector could not mediate inertia in the negative region.

This then provides the possibility of shielding from inertia. The possibility of shielding from inertia is derived from the corollary to **Mach's Principle**. If the "distant stars", that is, the universal scalar background potential, Φ, causes inertia, then the corollary is that in the in the absence of the effect of the "distant stars", or the effect of Φ, there is no inertia.

We see that as the disparity between the size of positive and negative masses increases, the field around the negative mass shrinks.

The problem is that any finite amount of negative mass, tons or even hundreds of tons, would have a gravity field that would be miniscule compared to the field of the astronomical quantities of gravitationally positive mass. The negative field would actually be confined to within the negative matter. There would not be a region of negative gravitational field in which to shield the UFO from the positive field generated by the universe that everything is usually immersed in.

If we look at the definition of $\mathbf{A}$, we see that there is a possible multiplier, the velocity $\mathbf{v}$.

$$\mathbf{A} = \int \frac{\rho \mathbf{v}}{r}\, dV \tag{7}$$

If we take a negative ring and spin it, we create a magnetic dipole $\mathbf{A}$ field. If we spin the ring faster and faster, over a million revolutions per second, we can get a finite field. Therefore we create a bubble in space of negative vector potential. If an object were to be within this bubble, it would be shielded from the positive vector potential arising out of the universe's background scalar potential. In other words, the object would be shielded from the fields that create inertia; therefore it would not be subject to inertia.

When we spin the mass, the mass is now within the bubble, and therefore has no inertia. Without inertia the inertial mass and moment of inertia of the spinning body are zero, and consequently there are no centrifugal forces to tear it apart. The possible rates of spin can be very high, the only limitation being that the rim velocity of the spinning body could not exceed the speed of light.

2 Deriving The Equation

We now use the fact that a spinning ring of negative mass can create a negative gravitational field to derive the fundamental equation for flying saucer.

At the boundary between the positive and negative gravitational spaces the total vector potential is zero. Labeling the A vectors

with + and - to keep track of where they operate

$$(A+)+(A-)=0 \tag{8}$$

$$(A+)=-(A-) \tag{9}$$

On the left hand side of the equation we have the vector potential of the universe which is given by

$$A\,(+)=\frac{\Phi\, v}{c^2} \tag{10}$$

where v the velocity of the craft.

The flying saucer generates a negative vector potential A(-) by spinning ring of negative mass. The spinning ring is a gravitational dipole that generates the A(-)

$$-A\,(-)=\frac{\mu}{r^2} \tag{11}$$

Since the equations of the gravitational weak field approximation are identical to Maxwell's, we can take over this equation. The normal magnetic dipole of a current loop is given by, where I is the current.

$$\mu=\mu_0\, I\,(A\,r\,e\,a) \tag{12}$$

The shape of the negative mass in the saucer is probably a flat ring, something like a freesbee. (You might check out the hundreds of photograph of flying saucers.) **We will simplify our calculation by replacing the flat ring with a thin massive ring of linear mass $\boldsymbol{\lambda}$**. We replace μ_0 by k, which we will discuss in a NOTE below, and I by a current of mass, $I_m=\lambda\, v$.

$$\lambda=\text{mass/circumference}=\frac{M}{2\pi a} \tag{13}$$

The area is $\pi\, a^2$. Therefore the mass current is

$$I_m=\frac{M\, v}{2\,\pi\, a} \tag{14}$$

So gravitational magnetic dipole moment will be

$$\begin{aligned}\mu &= \frac{k\,M\,v}{(2\,\pi\,a)\,\pi\,a^2} \\ &= k\left(\frac{M}{2}\right)v\,a \\ &= \frac{k\,M\,v\,a}{2}\end{aligned} \tag{15}$$

The result on the right hand side for the negative vector potential is

$$-A\,(-) = \frac{\mu}{r^2} \tag{16}$$

Because we have a negative mass (the sign of M is negative) which cancels the minus sign in front of A(-) and therefore

$$A\,(-) = \frac{k\,M\,v\,a}{2\,r^2} \tag{17}$$

We can express the formula in terms of the rotation frequency f. The velocity

$$v = a\,\omega = a\,(2\,\pi\,f) = 2\,\pi\,a\,f \tag{18}$$

where ω is the angular velocity. Then

$$\begin{aligned}A\,(-) &= \frac{k\,M\,(2\,\pi\,a\,f)\,a}{2\,r^2} \\ &= \frac{k\,\pi\,M\,f\,a^2}{r^2}\end{aligned} \tag{19}$$

The left hand side of the equation A of the universe is

$$A\,(+) = \frac{v\,\Phi}{c^2} = \frac{v}{G} \tag{20}$$

since from Sciama (4)

$$\frac{\Phi}{c^2} = \frac{1}{G} \tag{21}$$

We have the derived the fundamental equation for a flying saucer:

$$\frac{v}{G} = \frac{k\,\pi\,M\,f\,a^2}{r^2} \tag{22}$$

The equations for the vector potential **A** are vector equations but for our formula we need consider only the scalar part as the vector aspect is only a spatial component of order unity.

3 APPLICATIONS

3.1 UFO Without Inertia

In order to test whether a flying saucer is able to overcome inertia, we apply the formula to the worst case scenario, the smallest flying saucer reported with a ring radius of say 5 meters, or total diameter of 30 feet. Because the generation of the negative vector potential **A(-)** depends on the negative mass which has to be rotated, a larger UFO which could have a more massive ring, could possibly not have to rotate the ring quite as fast and still be able to overcome inertia. Also the speeds recorded by radar in Belgium in 1990 where for Big Black Triangle type UFOs.

We are limited by size (and mass) of the ring and the rotation frequency because the rim velocity cannot exceed the speed of light. The question now is, what kind of a rotational speed do we need for the spinning ring to create a field that equals the field from the universal, scalar potential, repelling it, and create a space in which the UFO can hide