

The Problem of Understanding Gravitation

by

Roger Ellman

Abstract

Contrary to mathematical analyses or studying empirical behavior, understanding gravitation can only be achieved by understanding the origin of the Universe from which gravitation arises. The only way a universe can come into existence from prior absolute nothing, *ex nihilo*, without an infinite rate of change and while maintaining conservation, is as a pair of oscillations of the form $\pm [1 - \cos(2\pi ft)]$ which were so unstable that they promptly exploded into the mass of particles of our universe which propagate a related oscillatory outward flow.

Doctrine is that forces are carried by minute non-matter particles, e.g. the graviton, but they are actually carried by matter particles' propagated outward flow. The mechanism of gravitation is presented and some related topics developed.

Roger Ellman, The-Origin Foundation, Inc.
320 Gemma Circle, Santa Rosa, CA 95404, USA
RogerEllman@The-Origin.org
<http://www.The-Origin.org>

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To contend, as does Einstein, that gravitating mass “curves” “space”, without presenting, nor even knowing, what “space” is and how, by what mechanics, gravitating mass “curves” it is all quite absurd.

Again, many particles simultaneously exhibit both electric and gravitational action – generate what we refer to as electric field and gravitational field; but, for particles to simultaneously generate two distinctly different fields rather than a single sole field for all of its actions is also absurd.

Until now mankind had no choice in learning about those phenomena except by observing their external behavior; but, a correct understanding can only be obtained by understanding their origin – what they are and how they came to be.

Only absolute nothing [emptiness containing nothing, the zero of existence] requires no explanation of how it came to be. It is to be expected, as the natural condition. The only way something else, a universe, can come into existence from prior absolute nothing without an infinite rate of change at its beginning is to begin as an oscillation of the form $[1 - \cos(2\pi ft)]$. That oscillation was three-dimensional because three dimensions is the minimum number that can involve space part of which is not its own boundary. Therefore the oscillation was spherical.

The only way that can happen without violating the principle of conservation [no something from nothing and vice versa] is for there simultaneously to come into existence the negative or opposite of that oscillation $-[1 - \cos(2\pi ft)]$ so that the two together are still equivalent to absolute nothing ¹.

Because we are here thinking about this we can observe that apparently the two oscillations did not promptly mutually annihilate, which means that they were so unstable that they even more promptly exploded into the mass of particles of our universe. That mass of particles can themselves only be like their parents, spherical oscillations of the forms $+[1 - \cos(2\pi ft)]$ and $-[1 - \cos(2\pi ft)]$ ². The correspondence between those two and our universes' positive and negative electric charges is clear.

If one of two separate such particles having electric charge [e.g. electrons or protons] moves, the change affects the other charge only after the elapse of time of the distance between them divided by the speed of light. That time delay is because something flows from one charge to the other at light speed, c . The electric effect being radially outward from each charge, every charge propagates such flow radially outward. It is the "electric field".

If one of two separate such particles having mass [e.g. electrons or protons] moves, the change affects the other mass only after the elapse of time of the distance between them divided by the speed of light. That time delay is because something flows from one particle of mass to the other at light speed. The gravitational effect of mass

being radially outward from each mass, every mass particle propagates such flow radially outward and it is the "gravitational field".

Therefore the fundamental particles of atoms, of matter, which have both electric charge and gravitational mass have something flowing outward continuously from them. Either the particles have two simultaneous, separate, different outward flows, one for the effects of electric charge and another for gravitation, or they have one common universal outward flow that produces both effects.

There can only be the one. It would be absurd for there to be two separate, different, simultaneous, independent outward flows from the same source.

The problem of gravitation has remained unsolved for many decades because of a fundamental decision about the nature of matter and forces made in error in the early 20th Century. Because of the success of Einstein's explanation of the photoelectric effect and the failure of science to understand matter waves in that no reasonable matter wave frequency could be discovered it became assumed and accepted that not only is matter particulate but also that its forces are carried by minute non-matter particles. Thus the mistaken search for the "graviton" the hypothesized particle of gravitation, which will not be found because it does not exist.³

GRAVITATION

The forces are carried by the outward flows. Gravitational attraction develops as follows. The original oscillations and the commencement of their outward flows took place in otherwise prior absolute nothing. Yet the outward flow is at the speed of light, a speed set by the dielectric constant, ϵ_0 , and the permeability μ_0 involved.

$$c = \frac{1}{\sqrt{\epsilon_0 \mu_0}}$$

The absolute nothing could not have either of those; having them would be different from nothing. By default ϵ_0 and μ_0 came into existence as an inherent part of the original oscillations. It is the flow itself which carries its speed determining dielectric and permeability.

The dielectric constant and permeability are scalar quantities but the flow is a vector quantity having both magnitude and direction. Furthermore, the magnitude of the flow varies inversely as the square of distance from its source because it is a spherical propagation. The result is that when two different such flows encounter each other, the vector flows are unable to combine because of each one's separate independent inverse square decrease, but the scalar dielectric constant and permeability of each naturally sum in magnitude – therefore each of two encountering flows tends to slow the speed of propagation of the other.

The particle's outward flow carries momentum. That is the case because it is the only available source and means of action being transmitted from one particle to another, "action at a distance", the Coulomb Effect of one charge on another. But conservation requires that the departure of a cycle of oscillatory momentum away from its source particle be accompanied by an equal impulse of momentum back on the particle. Because the outward flow is, normally uniformly spherically outward the impulse back

on the particle is uniformly spherically inward – the particle may be visualized as under compression but there is no net affect on its motion.

Thinking now of the action of two separate such particles, one named the “source” and the other named the “encountered”, when the flow from the “source” encounters the “encountered” it slows the “encountered’s” otherwise light speed outgoing propagation in the direction toward the “source”. That reduces the impulse of momentum propagated toward the “source” outward from the “encountered” because momentum depends directly on velocity.

$$p = m \cdot v$$

That reduction in the outgoing momentum reduces the reaction back on the “encountered”. The otherwise uniformly spherical inward “compressing” reaction to the “encountered’s” outward propagation becomes non-uniform, slightly reduced in its action away from the “source”.

The net effect is that the reaction back on the “encountered” on its side opposite the side where the “source” flow encounters it is greater and causes motion of the “encountered” particle toward the “source” particle which is gravitational attraction ⁴.

[This article is about gravitation. A brief summary of how the Coulomb Effect participates in the action of flow is as follows. The Coulomb Effect in which like electric charges mutually repel and opposite ones mutually attract results not from changes in flow speed of propagation but from interactions involving flow amplitude. The flow carries impulses of momentum and encountering a like charge particle its “delivered” momentum adds to the there reaction to the outward propagation, reaction back on the encountered particle causing repulsive motion. But, encountering an opposite charge particle its “opposite” “un-momentum” subtracts from the there outward propagation reaction back on the encountered particle causing attractive motion.] ⁵

THE ENERGY ASPECT AND THE SOURCE OF THE FLOW

The energy of gravitational field is in its flow radially outward from all gravitational masses. But, for there to be a continuous flow outward from each particle, each must have a supply, a reservoir, of that which is flowing. The original supply came into existence at the “Big Bang” the beginning of the universe.

Since the original “Big Bang” the outward flow has been very gradually depleting the original supply. That process, an original quantity gradually depleted by flow away of some of the original quantity is an exponential decay process and the rate of the decay is governed by its time constant. In the case of the overall universal decay, appearing among other places in the outward flow from every gravitating mass, the time constant is about $\tau = 3.57532 \cdot 10^{17} \text{sec}$ ($\approx 11.3373 \cdot 10^9 \text{years}$).⁶

If that immense reservoir of energy could be tapped by tapping some of its appearance in its outward flow, the gravitational field, it could supply all of civilization’s energy needs cheaply, cleanly, and permanently without [for practical human / Earth purposes] being used up ⁷. It would solve the problems of: global warming to the extent it is caused by fossil fuel use and its pollution, the hazards of nuclear power, and the ultimate running out of energy sources.

References

- [1] in R. Ellman, *The Origin and Its Meaning*, The-Origin Foundation, Inc., <http://www.The-Origin.org>, 1997. [The book may be downloaded in .pdf files from <http://www.The-Origin.org/download.htm>]. See in:
 - Section 10 “The Probable Beginning” and Detail Notes 2 ”Analysis: All Derivatives Finite, Selecting U(t)”.
- [2] - Section 20 ”The Cosmic Egg”.
- [3] - Section 15 “Quanta and the Atom”
- [4] - Section 19 “Gravitation”
- [5] - Section 12 “Mass and Matter”
- [6] - Section 21 “The Probable End”
- [7] R. Ellman, *Gravitics – The Physics of the Behavior and Control of Gravitation*, The-Origin Foundation, Inc. <http://www.The-Origin.org>, 2008.