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An
Extension
of
Relativity

3rd Edition

Mr. J.V. Presogna

AN EXTENSION OF RELATIVITY
(Third Edition)
Course Textbook

Written by

Mr. J.V. Presogna

(A complete discussion of the theory I originated in 1972)

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Mr. J.V. Presogna

This work is presented as a textbook for classroom purposes,
in an effort to make teaching the theory easier
for anyone who intends to examine it.

(This is a testable and provable theory)

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I originated this theory sometime between Thanksgiving and Christmas of 1972, when I did not have a calculator, and I had plenty of free time.

I started out, not by trying to come up with a new theory, but by trying to solve a problem in physics, namely the wave-particle duality problem specifically for a photon.

In 1972, I completed all mathematics for the theory, with the exception of the kilogram-meter, which was added in 2002 for the sake of tracking photon displacement in the Light Cone.

This textbook is presented with the intent that it will be a teaching tool for the theory. While some chapters may seem out of chronological order, the presentation of the theory in this manner is intended to make understanding easier.

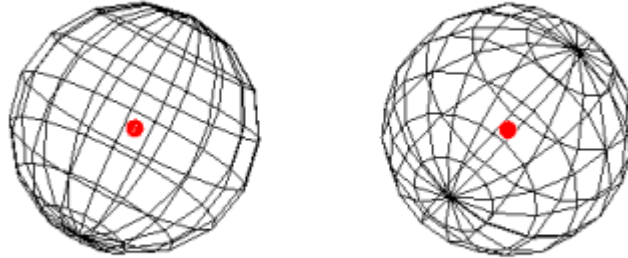
This is the Third Edition of the original textbook.

- Mr. J.V. Presogna

Dedication

With appreciation for
Ludwig Boltzmann
 $S=K\log W$

The Presogna Photon



"Two Identical Photons of Equal Wavelength"

A central speck of mass surrounded by a globular wave function

Total Energy of Photon:

$$E = \frac{hc}{\lambda} = W_f + \frac{1}{2}mv^2$$

What seems simple is very complicated because the kinetic energy requires the calculation of mass first, which is quite lengthy. Only I have that.

A Presogna Photon contains a speck of mass (KE) + Wave function (W).

Every photon has a central speck of mass surrounded by a globular wave function which gets its frequency from the vibration of the central speck of mass. The (average) mass has kinetic energy in motion, which is always the same at the speed of "c," and the globular wave function is a variable depending on frequency. Therefore, using this configuration, the momentum of a Presogna Photon here is equal to the momentum of a photon in quantum mechanics using Total Energy of a Photon. The globular wave function is not the actual wavelength of the photon, but a function of the photon.

The Presogna Photon satisfies the necessities of reality, which include mass, wavelength, kinetic energy, momentum and the influence of gravity.

In reality, every photon with (average) mass travels in the same way across space, carrying the same kinetic energy by mass, but the overall momentum is a result of the additional globular wave function surrounding it and its effect, which supports the notion of quantum mechanics that momentum is based on wavelength.

The structure of a photon is at the root of the theory,
but the theory covers much more.

The major divisions of my original scientific work are:
1) The structure of a photon, 2) The destruction of matter,
3) Photon production in stars, 4) Space-time, and 5) Negative realm relativity.
These areas provide an entirely new platform of study.

The principles can be applied to quantum mechanics, nuclear energy, astrophysics
and other areas of science, in addition to relativity.
The theory works across the board.

A Little History:

In 1919, an experiment showed that light can be deflected in a gravitational field, thus proving general relativity as fact for a single system. This also proved that light has mass, since only something with mass can be affected by a gravitational field. Although quantum mechanics accepts the fact that photons are deflected in a gravitational field and that they have momentum, quantum mechanics contrives a mass of zero for the photon. This is simply not correct, although it is accepted for the calculations they provide. In 1972, I became the first and only person to define the structure of a photon and to calculate its mass. This would lead to the development of my new theory in physics, which is both testable and provable. I am contacting universities to seek a partner in gaining federal grants for experiments to prove my theory is correct.

The 21 sets of new equations are available only in my books.

STANDARDS

Constants used in this textbook are as follows:

Sidereal Year: 365 days, 6 hours, 9 minutes, 9.5 seconds

3.15581495×10^7 seconds/year.

1.577907475×10^8 seconds/5 years.

One Light Year: $9.460895209 \times 10^{15}$ meters/year.

Five (5) Light Years: $4.730447604 \times 10^{16}$ meters/5 years.

Planck's Constant: $6.6260755 \times 10^{-34}$ Joule Seconds.

(Pi) π : 3.14159265359

Speed of Light (c): 2.99792458×10^8 meters/second.

One (1) Gross Ton: 1.016 Metric Tons.

Our Sun "burns" 4 million tons of fuel per second.

4,064,000 metric tons/second converted to energy by our Sun.

Or: 4.064×10^9 kilograms/second.

In five (5) years: $6.412615978 \times 10^{17}$ kilograms/5 years.

In Extension of Relativity: L Factor: 52.95945714

MP Factor: 1.9388

Milky Way Galaxy: One (1) Parsec: 3.26 Light Years.

1×10^{11} stars in the Milky Way Galaxy.

NOTE: The equations and calculations were performed originally on the Texas Instruments TI-36X Solar Scientific Calculator. All typographical errors have been removed, to the best of my knowledge.

INTRODUCTION

The term relativity is not a new term.

Galilean relativity was followed by special relativity, and that was followed by general relativity. In 1972, I added the extension of relativity which I intend to discuss and define herein.

One might ask what an extension of relativity means, and it is indeed the first question one should ask. Relativity, you see, is based on the speed of light, and that in itself was an arbitrary limit used by Albert Einstein (1879-1955) to make his mathematics work.

The Einstein factor is:

$$\sqrt{1 - \frac{v^2}{c^2}}$$

It seems simple.

This simple factor, however, was enough to change physics into the relativity we know today, and it has proved to be tremendously useful.

The speed of light, however, is not the true limit of the universe, but the limit that Einstein used is so great, that it does not affect our answers in any tangible way, as long as we stay inside his contained system defined by the limit of the speed of light.

There are many examples of contained systems where a limit is set to perform a function, and the function can be performed only within the confines of that system. Outside of that, the function fails to deliver the proper answer and collapses.

Extending relativity, then, means to find the true limit of the universe and extend our calculations beyond the speed of light, if possible. In order to do this, we must extend relativity "across the board," touching on everything from relativity itself to particle physics and nuclear energy.

Extending relativity becomes almost anticlimactic when we find that the universe actually *does* have a physical limit, even if it is not the speed of light. The answers we get when exceeding the speed of light, however, are profound answers which open up an entirely new universe for examination.

Additionally, an extension of relativity must build upon already known facts of the universe, which have already been proved to a degree, or facts which have already been proved outright.

There are several points which are at the base of this extension, which lead us into the new research.

We already know, for example:

1. Light has mass, since it is affected by a gravitational field.
(In 1919 an experiment for general relativity proved this fact).
2. Common theory confuses waves and particles (called "wave-particle duality").
(Niels Bohr asked everyone to ignore this problem for the photon).
3. Light is energy, the visible part of the electromagnetic radiation spectrum.
(Visible light is just one more example of a photon).
4. The mass of an object increases with velocity.
(In the positive realm, this is true, and it has been proved).
5. Energy and mass propose an equivalence ($E=mc^2$).
(In a nuclear explosion, there is a dissolution of matter).
6. Gravitation and acceleration also propose an equivalence.
(The famous thought experiment of Einstein still works well for this example).

7. Time and space are actually relative terms in themselves.

(All points have a relative aspect).

8. The speed of light is constant in a vacuum.

(While the speed is constant in a vacuum, we know light's speed can be affected as it passes through a medium such as glass or water, which causes refraction. I also state in my extension that the speed of light is a constant factor within the medium itself. If light's speed is 95% in a medium, it is a constant 95% in that medium).

9. The speed of light is indeed an arbitrary limit placed on a contained system.

(It has already been observed that the speed of light can be exceeded, even by light itself).

Upon these points, then, I can extend relativity beyond the speed of light, once the basic principles are stated. Keep in mind, however, a very serious point, which is that some of the concepts I discovered were discovered only after I did the mathematics. In other words, as I performed the series of functions used in extending the theory of relativity, I came upon some rather startling finds which then dragged me to other conclusions. Indeed, my theory predicts several things which can be examined and even measured.

Let us take a simple starting point.

In the early 19th century, Thomas Young (1773-1829) proved, by way of a truly ingenious experiment, that light acted as waves. In 1905, however, Albert Einstein proved, by way of the photoelectric effect, that light acted as particles.

Literally, two proofs cannot exist for the same item.

The extension of relativity solves this wave-particle duality dilemma for the photon.

Stated simply, Young and Einstein demonstrated only two symptoms of light, which I claim represent an entirely new structure. My structure of a photon is a globular structure, defined as having a central speck of mass of $1.633413408 \times 10^{-41}$ kilograms, which is surrounded by a globular wave function whose frequency is determined by the vibration of the central speck of mass.

This new structure of a photon which I have defined answers a lot of questions that other theories cannot answer. The kinetic energy of a photon is real, but all photons would have the same kinetic energy at "c." Most of the energy of a photon, which is the sum of the kinetic energy of the speck of mass and the globular wave function, belongs to the globular wave function. Therefore, on a small scale, as in the photoelectric effect, light acts like particles (symptom), because the kinetic energy is a part of the collision. But in larger amounts, or on a cosmic scale, light acts like waves (symptom), as the globular wave function overwhelms the kinetic energy of the speck of mass. I will demonstrate this mathematically within this textbook, to show why the photon is a unique signature in the universe.

The speed of light as a limit is also examined.

There is great resistance in the universe to anything traveling near the speed of light, and this resistance will prevent many objects from exceeding the Einstein limit. But, exceeding the speed of light is possible, and I can set up an experiment to prove it is possible.

Theoretically, any speed could be met in a controlled redundant environment, such as a revolving record album. All we have to do is control the speed of revolution and the radius of the record album, to reach the speed of light on the outside edge.

In practice, however, there is a physical limit to all matter, even if this limit is past the speed of light itself.

As an object exceeds the speed of light, overcoming the fierce resistance in the fabric of space, it enters what I call the Light Cone. This is not the Einstein-Minkowski light cone which has been used as an example in prior relativity examples. The Light Cone which I describe is a genuine and devastating funnel of destruction for all matter, inanimate or biological.

The true limit of the universe, and the limit of all matter, is within this Light Cone. No matter can exist past the endpoint of this Light Cone, including the sub-atomic particles.

This brings us to another point, which is the relationship of mass and velocity. Mass and velocity are intrinsically linked, and have always been linked. We know mass

increases as velocity increases. Therefore, mass can be destroyed by speed alone, and this speed is achieved within the Light Cone.

Since light has mass, and it can be affected by gravitational fields, photons can be displaced. Photons, however, can be displaced only by objects exceeding the speed of light. No object at sub-light speed can displace any photons.

Resistance to an object exceeding the speed of light is severe, as I will demonstrate.

As is the case with all forms of resistance, the resistance is not felt until the object approaches, or challenges, the resistance. For an airplane to exceed the speed of sound, a sound barrier must be crossed, and physical resistance is felt when the barrier is encountered, producing a shock wave when it is overcome. But, the resistance is never felt below Mach speed. When you stand in water, you do not feel resistance until you begin to move your legs to walk.

Likewise, no resistance will be felt or discerned in the universe, until the speed of light is approached. Upon this point, severe resistance is experienced, depending on the number of photons per cubic meter of space. I will do a calculation for you which represents $F = Rma$, where R is the theoretical coefficient of resistance, but it is a general calculation. Every cubic meter of space will have a different coefficient of resistance. Trying to say there is a universal coefficient of resistance is a lot like saying there is a universal depth to the Pacific Ocean.

Practical measurements, however, using rockets as robots, could be taken, just like practical measurements of the depth of the oceans may be taken.

The issue of resistance, though, is not tied to the theoretical coefficient of resistance as much as it is tied to the effects it has on mass, volume, and density of an object which challenges it.

For example, if a rocket were approaching the speed of light, we know that its own mass is increasing as it does so. This is a relativistic gain in mass for the rocket. However, once the rocket hits the wall, where resistance prohibits its further acceleration, its mass becomes reduced relativistically as acceleration becomes zero. Increasing force to overcome this resistance means that the lost relativistic mass must be recovered.

Indeed, it is recovered, as the rocket shoots through this barrier.

The tragedy is, however, that the rocket will be destroyed by this acceleration through the light barrier, unless the process can be reversed quickly. In other words, put on the brakes.

Without putting on the brakes, the rocket will continue past the light barrier through the Light Cone to its end, and no matter will be left at this point.

Theoretically, if traveling at a speed beyond the speed of light were possible, it could be done only in short spurts, accelerating and decelerating, in little bits at a time. Yet, this will put a lot of strain on those rockets, and the designs of such rockets will take some exceptional engineering, which I discuss in this textbook. The deceleration must begin almost as soon as the acceleration begins, causing headaches for your computer on board.

This particular example of a rocket blasting through the light barrier, overcoming the resistance, is an important one to remember, because it is linear in nature. We cannot expect to experiment in any linear form on this planet, with the exception of a powerful linear accelerator. Mostly, our experiments will be devised so they can be done in a controlled redundant environment, which is, in fact, a rotating plate.

There is only one place in the universe where the revolution example takes place, and that is in a black hole, where gravity itself can propel an object at speeds approaching the speed of light.

How easily anything can exceed the speed of light is dependent, as I have said, on the number of photons per cubic meter of space. Towards the center of our galaxy, resistance is far greater. Our planet is somewhere in an "average" portion of our Milky Way Galaxy, and resistance for objects in our area would be "average." The best place to attempt to exceed the speed of light would be at the farthest point between two galaxies, because the resistance would be the least at that point.

There may be a place in the galaxy where resistance is so great, because of the great amount of photons per cubic meter, that no object could exceed the speed of light.

In calculations for our galaxy, an average cubic meter is used, and this works quite well, as you will see. For any other galaxy, the average cubic meter of space would be

different, of course, depending on the configuration and number of stars producing photons.

The extension of relativity also creates a universe which is an expanding spiral. This physical shape and form is duplicated by a black hole, but the black hole operates in opposite

effect to the expanding universe. The black hole is one of the last things I will discuss in the theory, but the universe is important to review, because the equation which produces the universe is both an infinite equation and an equation which has an infinite amount of derivatives. It literally produces a pulse of the universe in what I call the universal hour.

The universal hour is not quite so much a measure of space-time as it is a formation. We can exist only at $t = 0$, the here and now.

Everything in the universe is in motion.

This, of course, seems trivial, but most people do not comprehend how it affects space-time.

No object in the universe ever crosses the same point in space twice. There is no doubt about this. Even our own orbit around the sun, as close to a circle as it is, never covers the same line twice. In addition, while the line around the sun as an orbit is never truly quite the same each time, the line is not even a true circular orbit. The sun is moving, and we move around the sun as the sun is moving. The galaxy we are in is also moving. Therefore, our orbit around the sun is a weird curlicue into space, if you look at it from afar.

The equation for the universe shows mathematically that the universe is expanding, the universe is infinite in nature, and you cannot go back in time. We can see into the past, in a sense, but we can never go there.

Essentially, this birth of life and matter is reversed in the black hole, but not mathematically in the same operational sense. In other words, the equation that produces an expanding universe does not produce a collapsing star. The graphic structures, however, of the two, are indeed similar.

The stars in the universe are quite important, as one might guess, whether they are shining or collapsing.

Photon propagation is demonstrated in a complex manner, but the mathematics shows us that it must be this way. In photon propagation, the mathematics leads us to the fact that each pulse of the sun produces a definite amount of photons, but the sum of two pulses (which would make a sphere of operation of 2 points in time, such as 2 seconds) does not equal the total photons shown in the operation, proving beyond doubt by virtue of the mathematics that propagation does indeed take place.

Why is this a mathematical proof of propagation?

You remember, I said some concepts did not appear until I had seen the mathematics.

It is proof, because of the following: The total amount of photons produced in 2 seconds of time fills a sphere of operation which has a radius of 2 seconds, and this answer is available to us by calculation. However, this 2-second sphere of operation contains more photons than is produced in 2 separate pulses of the sun's operation. Only a propagation of photons can make up the difference.

In other words, the concept of volume needs examination, because the volume of the sphere of operation is related to the photon production, and it takes more photons to fill a larger volume.

The theory states that photons are propagated, and demonstrates how this propagation takes place. This is explained mathematically, and the propagation of photons across the universe is viewed in the context of a double internal process. You do not get something for nothing. As photons propagate, it costs energy, but the cost is one of the best bargains in the universe.

The branching system of the photon propagation in the growing sphere of operation of any star, including our own sun, is one of the final things the theory predicts.

The actual phases of operation, however, are much easier to understand.

For example, if you are in the phase of 5 light years of a star, you exist 5 light years distance from it, and the average number of photons per cubic meter in your area will not change. As photons are propagated, each light year phase will remain fairly constant, as each phase is replaced by the one before it. You can picture concentric

circles as slices of a sphere, and understand this quite well. Each area between the concentric circles remains constant in its photons per cubic meter.

Our own planet Earth is hit each day with fairly the same amount of photons per cubic meter as it always has been by our sun.

This will be explained in detail in the textbook, because photon production and propagation remain a large part of the theory.

The theory, however, also encompasses the negative realm, and this is the most difficult portion of the theory to comprehend.

Negative speed, for instance, in this theory, is not deceleration, and it is not speed in reverse. Negative speed is used to describe speed within a point, and this is a very complex concept.

Positive speed is any speed which is "to or from" a point in space, whether it is a slow speed, or fast speed, or speed in any direction. Zero speed is when something is standing still, and zero speed must be crossed before negative speed is experienced. Zero speed is relative, mind you, since all objects are in motion in the universe.

However, once zero speed is reached at the point, any speed within this point is negative speed. Anything existing on the point is moved by the point, much like a particle of dust is moved by the wind. On the particle of dust, and in it, there are different sets of circumstances to define and describe.

Bizarre phenomena occur within the point, but do not confuse negative speed with the speed of, say, an electron. An electron travels at positive speed, and it can leave the point as a Beta discharge.

That, of course, is what makes the negative realm difficult to comprehend, but it does exist. As a matter of fact, an increase in negative speed means that mass will be decreased in the negative realm, which is quite the opposite from the positive realm where an increase in speed increases mass.

It follows, however, that only a very small mass can exist in the negative realm.

The negative realm will be the last thing I cover in this textbook, and I will say no more here in this introduction. I would only confuse you at this point, since I have not yet covered the positive realm.

The overall truth in the extension of relativity is the dichotomy of our very existence.

From the wave-particle duality which I explain, once and for all, to the positive and negative realms of relativity, the dichotomy exists. This can be examined philosophically as well, which is what I have done since 1972.

The philosophy of my theory will not be discussed in this textbook, however, because I have discussed that in other works. I do not wish to be redundant in such discussions.

This textbook was put together with the idea that a teaching edition should exist for my theory.

Since a general introduction has been given here to acquaint you with the basics, the textbook will take on the look of supplements, chapter by chapter opening up one of the concepts.

PREVIOUS PUBLICATIONS & OTHER WORKS:

AN EXTENSION OF RELATIVITY, 2nd Edition: 178 pages.

Written by Mr. J.V. Presogna.

© 2004-2007, All Rights Reserved by Mr. J.V. Presogna.

PUBLISHED: January 4, 2007, \$9.50 e-book download only.

AN EXTENSION OF RELATIVITY: 140 total pages.

Written by Mr. J.V. Presogna.

© 2004, All Rights Reserved by Mr. J.V. Presogna.

PUBLISHED: June 20, 2004, \$11.08 print publication only.

AN EXTENSION OF RELATIVITY (An Introduction to the Theory)

SUMMARY EDITION: 64 total pages.

Written by Mr. J.V. Presogna.

© 2003, All Rights Reserved by Mr. J.V. Presogna.

PUBLISHED: January 1, 2004, \$23.72 print publication only.

Unpublished Works:

An Extension of Relativity, Volume One: 351 pages.

Written by Mr. J.V. Presogna.

An Extension of Relativity, Volume Two: 183 pages.

Written by Mr. J.V. Presogna.



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This is the final edition of the course textbook. If I produce another work, it will be an entirely new work from the beginning, instead of a new edition of this same book.

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