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Vibrational World (work in progress)

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ABSTRACT

This is a writing that we thought worth publishing as is. It was a breakthrough on my life long research for the basics laws that account for my experience, till of this writing. The bases of it is that every signal in the universe could be expressed by means of harmonic oscillations in time (Fourier series). Thus harmonic oscillations occurring in time that are found in are experience take a very special role of all the signals that we observe. From these we derive a general relationship between physical quantities. This looks like a bases for a theory that will account potentially for every experience of our live or the universe. The mathematical symbols used are to be taken with reflection. LaTeX language knowledge will make reading of this more understandable.

Keywords

theory of everything, Fourier series, new correlation between physical quantities (reinterpretation)

THE WRITING

Thinking that time and mass are correlated, like mass and energy are (E = m*c^2). The period of oscillation of the simple oscillator, with a mass M and spring with coefficient k, is given by:

T = 2*Pi*Sqrt(M/k); (1)

or

T ~ Sqrt(M); (2)

All the time capers that we use are harmonic oscillators, all the signal in the world can potentially be expressed by means of harmonic oscillators, so (2) can be thought physically as a general law: t ~ Sqrt(m) (3) The same goes for time and space. From the pendulum, we have: t~Sqrt(l); (4) Conclusion:

E ~ m ~ t^2 ~ l (5)

This is physically a general low, that states that energy, mass, time and space are different "point of views" of the same thing. Next step is a good interpretation of (5). For achieving this, we would need a view of the world, from the point of the harmonic oscillator, we know that this view can be complete, and in this we concluded (5) is a general law of that complete physics. So, we suppose that:

> "*every law, observed in a "physical" harmonic oscillator, is a general law for physics.*" (I)

From (5) choosing the appropriate unit system we have:

+-Sqrt(E) = +- sqrt(m) = t = +-sqrt(l) = T; (6)

With T we symbolize all the parts of the equalization. From (6) we can derive: T - linear => E, m, l - not linear (E_total not= sum(E_part), same goes for m and l). This can provide another explanation for the dark matter phenomena at large scales. So:

if T(1+2) = T(1) + T(2); (7)

then: m(1+2) = m(1) + m(2) + 2*sqrt(m(1))*sqrt(m(2)); or m(1+2) - (m(1) + m(2)) = 2*sqrt(m(1))*sqrt(m(2)); taking m(1) = m(2) = m than: m(1+2) - (m(1) + m(2)) = 2*m; (8) So, if we consider m(1+2) - (m(1) + m(2)) to be the mass of dark matter, from (8) we have that it is proportional to the mass of standard matter, with a proportion 1 : 1 of matter : dark matter. So, dark matter accounts for 50% of mass in the universe. Doing the same for E and l we have that there is 50 of dark energy and 50% of linear "dark space" in the universe.

How, can we interpret this, because it sounds a lot of fundamental laws breaking. But maybe we can overcome it, bay looking again at (5) and its interpretation and the concept of part and object. Well we are costumed to a concept of object, in which the mass and length makes an object. And in this concept the fundamental laws hold. Our mind can divide in parts and objects in any arbitrary way. If we chose to name "harmonic objects" the ones for which (7) holds and "classical objects" the parts for which standard fundamental laws hold. We are good to go. What propriety's have this entity called harmonic objects? If we have N identical harmonic objects *i* then T of the group will be T(N*i) = N*T(i). We will call this group a harmonic union of harmonic objects. In this harmonic union we have m(N*i) = N^2*m(i). Knowing that a given mass corresponds to a given classical object j we derive that the harmonic union of the number N of a classical object j is the group with a N^2 of j. The classical union of N identical classical object gives a group of N of this objects. So the harmonic union of objects acts as addition for the number of the harmonic objects which are put on one group, and as a power of two for classical objects. But how can we interpret this. From combinatorics we now that the number of groups of two, if we consider to be a group of two also the group of one with itself, of N objects is N^2, or N*(N-1)+N. So the harmonic union of identical classical objects can be interpreted as the addition of "N^2 identical objects", which are the N classical objects and the N*(N-1) combinations in groups of two between them.

We can call all the Energy, mass, length quantities, and all the ones linear to them from (I), with only one name: “resistance to change” quantity. The resistance to change quantity is proportional with time at a power of two,

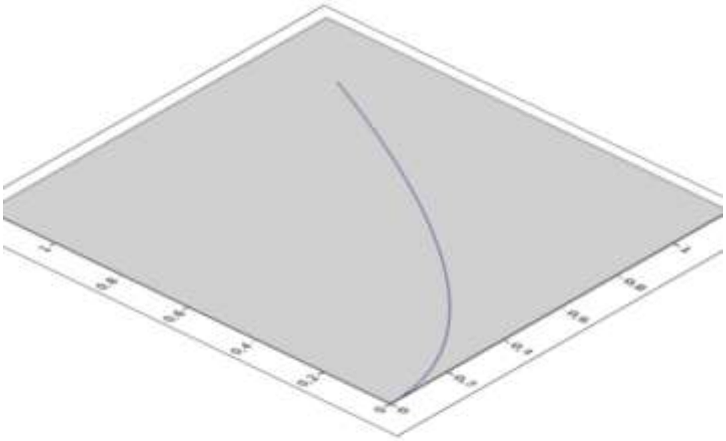

Fig. 1. The relation between time and the resistance to change (the non commutable linearity between them).

If we consider Fig. 1. we see that the relationship between time and the resistance to change is with a derivate from one and a integrate from the other. So classical objects are a derivate of harmonic objects and harmonic objects are integrals of classical objects.

We sad early that every signal could be expressed by means of harmonic oscillations, but also a harmonic oscillator itself could be expressed by means of other harmonic oscillators. These more basic harmonic oscillators are as well characterized by the time to the power of two equal to resistance to change equivalence. So is turtles all the way down and up.

If we consider: a = dv/dt = 1; (11)

and a_l = dv/dl = (1/2)*1/sqrt(l); (12)

from (11): a - constant over time;

from (12): a = 0, for l = very large; (may be when the universe is very large it stop accelerating)

from (12): a = very large, for l = very small; (when the universe is small the acceleration is great)

Let's summarize in formalism

The fundamental component of physics can be, if we like to, the harmonic oscillator. This physics has the potential, as our knowledge of the Fourier Expansion of a function implies, to be complete. The basic building blocks of the world, in this view, are the harmonic oscillators. If we have two physical quantities, p1 and p2, and a constant greater than zero, C. Than the system has a building block that obeys this equation:

d^2p1/dp2^2+C^2p1=0 (1)

This gives a solution, a relationship, between p1, p2 and C, of this kind:

p1 = a cos(Cp2-b) (2)

where a and b are two grades of freedom for this relation. If we take a = 1 and b = 0, then the period of the oscillation will be 2*pi:

Cp2=2*pi, => C=2*pi/p2 (3)

If we find a relationship as of (2), in an experiment, then (3) is a property of the “Central Harmonic Oscillator” (CHO) of the physics of the world. If we “sum of all the experiments”, N experiments, that give (2), for a given p2 to be t, then we have N number of C that satisfies (3). And we will have:

t = 2*pi/C_1=2*pi/C_2=...=2*pi/C_i=...=2*pi/C_N (4)

(4) is the basic property of the CHO of the world we live in.

REFERENCES

1. Georgi P. Tolstov (1976). *Fourier Series*. Courier-Dover. ISBN 0-486-63317-9.
2. Karl H. Pribram; Kunio Yasue; Mari Jibu (1991). *Brain and perception*. Lawrence Erlbaum Associates. p. 26. ISBN 978-0-89859-995-4.
3. Donald E. Knuth: *The TeXbook.* Addison-Wesley, Boston 1986, ISBN 0-201-13447-0, S. 1