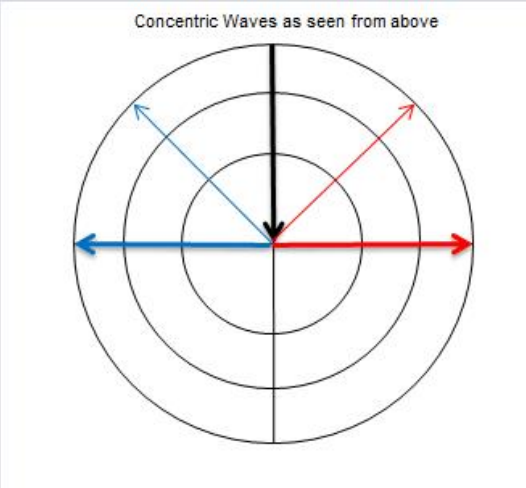
The unified electromagnetic field

By Adolfo Rios Pita Giurfa

Our concern with these matters occurred after a casual event: When we were asked to obtain a known inorganic salt compound in two varieties, having both the same particle size, but one should have a bulk density less than 1.0 g/cm3 and the other up to 1.25 g/cm3. Or more.

We did it, in practice, by trial and error. We then observed that the one having the lower bulk density though the same particle size as the other obviously owed this characteristic to the electrostatic charges of the particles composing it, while the one having a higher bulk density, also evidently, because it occupied a smaller volume, it had less electrostatic charge in its particles. Thus in the first case it had a bigger emission field and, in the second case, a lower emission field.

As the existence of polarity could not be neglected, as it is an obvious characteristic of matter and we deal with it every day and we observe it everywhere. So we asked ourselves what does relate them so as to figure out one and only description of it.



Let us imagine we drop a stone in a water pond from right above (orthogonally to the surface, as we would be seeing from 90°).

• It will produce on the surface of the pond a beautiful round wave, in the shape of a perfect circle, a round note "C" Clearly an emission field (EF). That wave will produce successive waves around the first wave and with longer radii. Those waves will form round crests in between (called warps by others) which in music are called intervals or gaps in a developing octave, and called planets in the solar system, where there are two bigger than the others: In our example case of decreasing frequency, as we are "playing back":

• Note-Freq.Hz) Wavelength (cm)

Between the notes: G#0/Ab0 25.96 1320.

Between the notes: C#0/Db0 17.32 1990.

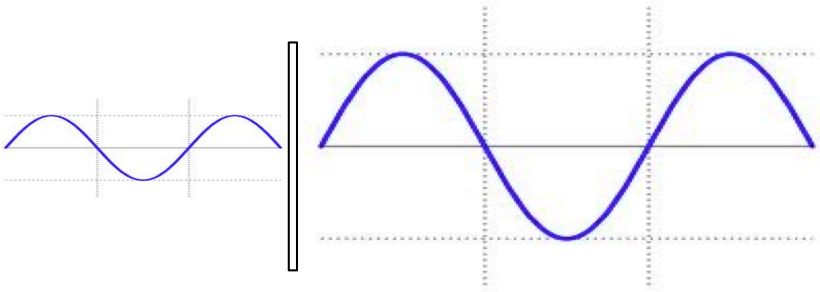
• These gaps, crest or wraps are caused by the resistance, in our example, of water, and in general by the medium or by the interference of other waves from

different emission sources.
• Now, let us imagine we draw on the surface of the circle/wave two diameters at right angles. It will be obvious that the ratio between two radii, if we consider each of them equal to unity will be ONE.
• As we pondered about the constants which appear everywhere in physics to describe the different phenomena we were interested in, and thinking what could establish a relation among them, we found in Planck´s equation, that the amount of energy "E" equals frequency "V" multiplied by the constant which bears his name "h" , this last one he found it to be equal to 0.66252 x 10-23Js
• 0.66252, it seemed us a weird number by being an irrational number, which we suspected could involved something which could lead us to the desired relation. That number, of course, we supposed, was obtained from actual experimentation.
• In order to know whence it came, we thought to replace it by a harmonic number, rounding it to 0.6666, that is equal to the ratio 2/3, which is the inverse of the perfect fifth 3/2.
• Note.-The suspected difference or irrationality between 0.66252 and 0.66666 could be explained by the action of the local field where the Planck´s experiment was done: On the earth. This gives a 1.98756/3 ratio and not the expected 2/3 ratio.
• The 2/3 ratio (free from local influence) it is not a simple mathematical ratio, but a real one, then the expression of two forces combining, one which goes from the center to the periphery, in this case 2 and the other opposing that force, which decreases the resultant force, in this case 3, the first being the expression of the manifestation of the vector of the octave developing centrifugally, the other the vector opposing centripetally to it from the media, called by some "Gravity".
• The resultant force of this triangle of forces is what we see as a wave crest, a warp, and, of course we live on one of these where "mass" can be understood as the transient existence of what some call a discrete amount of energy, a quanta.

(Note: Those clever enough would have noticed that the modified field –ether- by the stone in this case is Water, so with everything and in every relative dimension-size-)

As we think from daily experience that everything is related to polarity, to ions, to electrons and protons, in the end to Electricity, then we went to revisit the photoelectric phenomenon, which we thought it was also wrongly interpreted: It proved, beyond doubt, the electrical nature of the photon, the incident UV light on the electroscope plate contained in itself the energy of the afterwards emitted electron.

So let us be clear: It is not that a "~~photon~~" goes in and an "~~electron~~" goes out. Let us stop calling names: It is energy which goes in and energy which goes out, a higher frequency goes in and a lower frequency goes out, a shorter wave length goes in and a longer wave length goes out; of course part of the energy is lost as the higher frequency wave interacts with a lower frequency medium (the transformer core, in the case of an electric current transformer):



"~~PHOTON~~" >>>>

• A very important phenomenon occurred when the photoelectrical activity was first detected: If the electroscope was charged leaves fell, but when there was a big "positive" charge in it the leaves did not fall. This shows that what we consider "negative " or "positive" is the resultant force of the ratio of the two forces, or the two radii in our example: When, for instance, its ratio is, say 3/2 then obviously is more than ONE, so it is "positive"; being the "primum mobile" force greater than the one which opposes to its movement, when it is the contrary, say 2/3, or 0.666, it is less than the unity thus we can call it "negative", so in this case, the force opposing the first force, is greater than the one which starts the movement, the "primum mobile". Thus we know, also, if the octave is developing toward higher or lower "pitches".
• Now, if we were to observe closely where waves are resisted, at the crests, and we could watch it as in an instant, we could see transversally a circle where forces are acting as a triangle of forces inscribed in it.

• As surfers on a round wave, living a fleeting eternal and transient instant, we would call that wave of energy "mass", the earth, and the force which keep us on it, gravity.

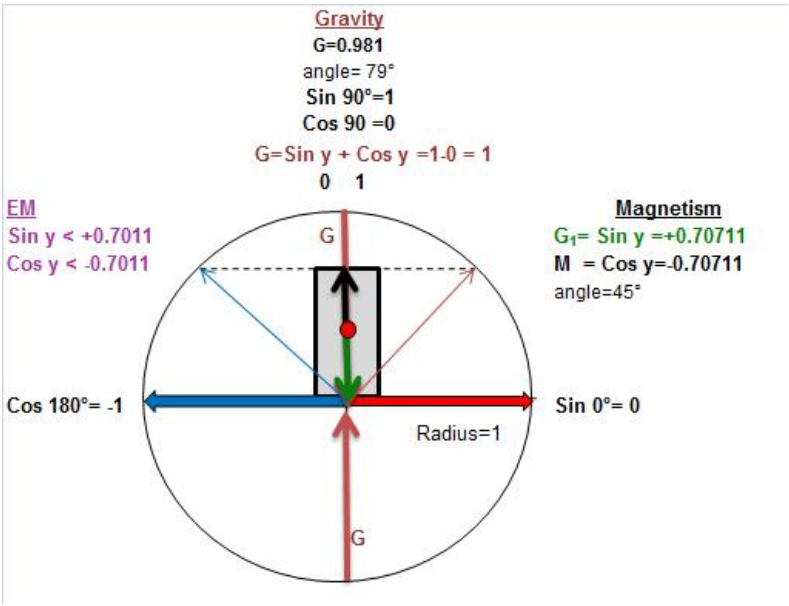
We could make a digression here and think that apparently all phenomena and reality happens in between 0 and 1, or in between the force=1, and the void=0, where the force tendency is ever to fill the void. Either we could say that reality is encompassed in between 0 and 9, with 8 digits in between the extremes: the octave.

We have seen that the EM field is such a force, which goes from the center to the periphery.
• Then, in the circle we made with our stone on the water pond, the outward force is the EM field, so we can put it as starting from the center, where the stone fell in the water, then if Gravity it is the force which opposes to it we can draw it from the periphery to the center.
But, as the EM field irradiates in every direction from the center outwards, as the waves produced by our stone proves it, then we can choose to draw anyone of them; then let's draw an arrow from the center to the periphery but in right angles to the one representing Gravity.
• Thus we now have a nice triangle of forces, a square triangle.
• The force of Gravity, the arrow ending in the center we know it is 9.81, a weird number too, because if we ideally have two equal cathetes (radii) and we make them equal to 1 each one, then our hypotenuse would be equal to Sqr.2. So if we realize that weird 9.81 number is affected by the local EM field, chances are that it can really be equal to 10, so we can have each one of the two cathetes forming our triangle (radii) equal to 10 and our hypotenuse would be equal to Sqr.200.
• Then if we want to turn our troublesome cathetes, Gravity, equal to Zero, we should have to make the other cathetes equal to the hypotenuse, that's equal to Sqr.200=14.1421.

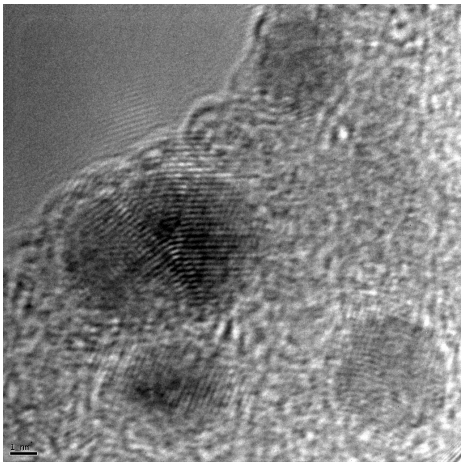
Then that "primum mobile" that "stone" is the "first force" which has been opposed by a constant and contrary force, apparently from the "medium".
The forces, the two radii combine in a ratio which goes from 0 to 1 (sine and from -1 to 0 (cosine).

That, we thought, was the origin of the polarity of the EM field.

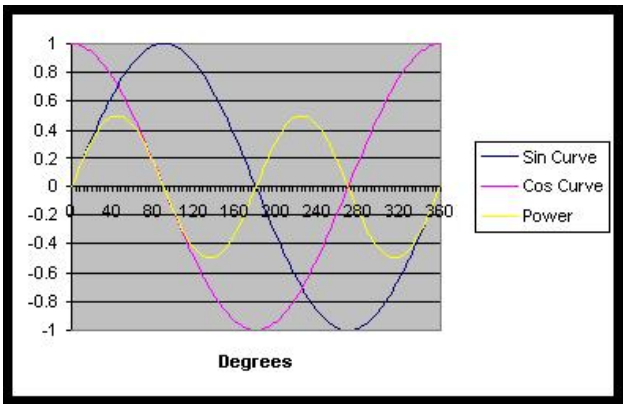
- But...what does it happen when our two initially opposing vectors, approach parallelism, as the angle between them approaches zero?, each one of them having moved in 90° as counted from its starting point? They add one another originating that dynamically neutral force which we imagine coming from "outside" coming from "out there" as a piercing spear which nail us to the ground: Gravity!
- VERY IMPORTANT NOTE: LET US NOT FORGET THAT EVERY "VECTOR", EVERY "FORCE" IT IS NOT SINGULAR BUT EVERY TIME IT IS COMPOSED OF TWO VERY CLOSED FORCES, FORMING ALSO AN EXTREMELY ACUTE PYTHAGOREAN TRIANGLE.
- Note.-They "add" and turn 180º, just because each force is composed, again, of a triangle of forces, where the angle in between the two is 90º ("right hand law"); and if one decreases so much as to approach zero, it turns around.
  However, if we could see the earth as a small particle, as one of those of our chemical compound, we could call it its electrical charge or its static electric charge, which is the same.



When the positive electric charge of the emission field approach unity (the sine of 90°) and the negative force approaches zero (cosine of 90°), both forces assemble equilibrated, MASS (gravity/force/power) appears, as it can be seen in this TEM picture of copper nanoparticles , where there is a regular arrangement, along axis:



Then, if we consider the two forces of a field, one to the right (+) and one to the left (-), we will find that one approaches (following the law of sine) the unity=1, the other, starting at 180 degrees, being equal to -1 approaches (following the law of cosine) zero.



So Gravity is the sum:

$$G = \sin y + \cos y$$

$$G = 1 + 0$$

Which means that the resultant force will be equal to 1, or almost one, as 0.981 . Now, G, the constant, the gravitational constant, in Newton´s equation:

$$F=G\ (M1M2)/r2$$

Actually represents the sine added to the cosine of the angle equal to 90°

$$G = Sin\ y + Cos\ y = 1 - 0 = 1$$

The actual value: 0.981 reveals that the local emission field, though small subtracts it to its measured and known value.

Where M1 and M2 (both mass quantities) equals the diameter of the circles, on a plane, particles or planets alike, in the present case = 2, and Gravity= 1, then it follows that the EM in the case of the Earth would be the difference between 0.981- 1.0 = -0.019, thus its force would be 1.94 % that of gravity and opposed to it.

We find, also, that when forces are arranged each at an angle above the horizontal being equal to 45 degrees, the resultant force will be composed of two vertical vectors: One from the periphery to the center (Gravity) and the other, from the center to the periphery (EM field):

MAGNETIC FIELD

$$G_1 = Sin\ y\ 0 = + 0.70711$$

$$M = Cos\ y = - 0.7011$$

Then the resultant central vector equals a PERMANENT MAGNET, where its attraction is Gravity (to the center) and its repulsion is the EM field (to the periphery)

When both vectors are at an angle lesser than 45°:

EMISSION FIELD

$$\text{Sin } y < +0.7011$$

$$\text{Cos } y < -0.7011$$

In order to exemplify how these phenomena proceed, let us consider when on a certain spot on the Earth, it happens a sudden change in the acceleration of gravity, usually a few hundredths….we have an earthquake! , and "earthquake lights" happen: Because there is a sudden variation in the ratio on which those two vectors of opposite charges combine or neutralize to be gravity, as changing the leads on a motor to change it its direction of turn. In such cases an arc can happen: the earthquake lights we see.

Thus, we have demonstrated that only relatively neutral ("buffered") matter exhibits more conspicuously that almost neutral force called Gravity, and it is relatively more subjected to it, while more ionized (charged) matter it is relatively more subjected to the local EM field.

Conclusion.-

We can generalize:

1. When the two polar forces oppose, at sin 0°=0, and Cos 180°= -1 ,

   the resultant field is 100% an EMISSION FIELD.

2. When the two polar forces oppose at an angle of 45°, the resultant field is a MAGNETIC FIELD, composed of two equal and opposing vectors: One, the attraction field, Gravity, going from the periphery to the center, and being equal to:

   $$G_1 = \text{Sin } y = +0.70711$$

   And, the second one, the repulsion field, Emission Field (EM), going from the center to the periphery:

   $$M = \text{Cos } y = -0.7011$$

3. When the two polar forces oppose at any other angle different to 0° we will always find a compound field of three forces: One positive, One negative and One neutral.

4. Thus the constants which appear as a factor in all laws of physics, are not constant but variables, more precisely ONE variable, which corresponds to the addition of the Sin and the Cosine values of the angle between the two polar forces of the ONLY ONE EXISTENT FIELD.

5. When energy is applied "symmetrically", that is when Sin=Cosine, the resulting "dimension" will be equal to a perfectly spherical wave.

6. Thus, EVERY AND ANY RATIO IS A RATIO BETWEEN TWO CHARGES

$$F/F_1 = \text{Sin } y + \text{Cos } y$$

7. Then the Max Planck equation can be generalized also:

$$E = h\nu$$

Where:

$$h = \text{Sin } y + \text{Cos } y$$

And being $\nu = C/l$

Where: $l = D = 2R$ (two radii)

Then: $E = (\text{Sin } y + \text{Cos } y)(C/D)$

So D is the link with three dimensions if anyone feels more comfortable with it. (*)

Or: $E = (\text{Sin } y + \text{Cos } y)(C/l)$

Where C is the supposed velocity of propagation (its maximum being the velocity of light, really a RATIO in beetween bigger and smaller waves, as seen by the observer and considered "distance"/"space", by him).

And $E = (\text{Sin } y + \text{Cos } y)\,\nu$

(*)In order to understand that the universe is Energy, we must abandon the wrong conception of dividing reality in "different states of matter", in special waves vs. "mass": The obvious nature of the electron synthetizes both general qualities.

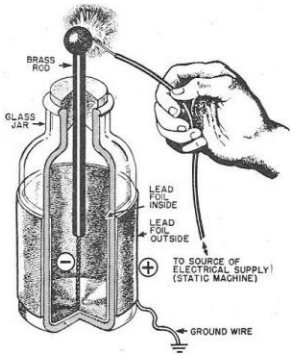
If there would be an observer having a "size"(dimension) of thousand of light years, watching the earth, such an observer could consider the earth as being a very small particle, perhaps an electron, and behaving as such, with its characteristic wave movement.

"C" is the velocity of light, rather and more exactly, the subjectively observed "velocity" of propagation of the energy wave, as seen by an observer located in a given "dimension"/size/ frequency, which is resisted and modified by the "medium", the other fields it encounters. Some have thought that "medium" is what they call a mysterious "Aether", however that "Aether" it is the external force opposing the development of a wave, as in the known phenomenon of diffraction of light passing through water in a glass:

The "médium" here is water, of course denser tan air, and we see the difference between the two "médiums"and the two different resistances to the propagation of light (energy). That "field" in this case is a field we call "water".

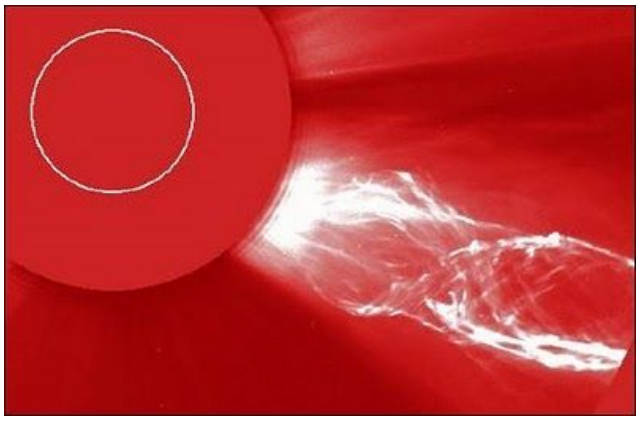
So, "liquids", "solids", "mass" are also fields wich affect the propagation of energy waves. In chemistry solids are usually and correctly called "solid solutions", where it is recognized they have pH and thus charge.

Let us say we have a force, a charge before manifestation, before propagation, and we give it the value of ONE (1), say a charged rubbed rod and we then approach it to an empty which we could assign the value of no charge = 0 (a Leyden bottle condenser), "1" will go to fill the void "0", it will discharge in it:



Now we have a "discharge", we have a current!, going from "1"to fill "0".

It is "static electricity"being discharged we all could say, but let´s stop our custom of calling energy by different names and watch that it does not go straight ahead as it is opposed by the medium "out there", in this case the atmosphere, the air or In the case of a Solar CME:



That outer EM field is the interplanetary EM environment , that resistance to it is the same as the one called in electricity "electric resistance".
That "opposing medium", that external field, that "aether", it is composed of planets, neutrons, neutrinos, whatever names we can give them (just to confuse ourselves) which are fields of energy themselves.

Then we can see physical "reality" occurs in the interval between 1 to 0 :

Sin	Cos
0.000	1.000
0.259	0.966
0.500	0.866
0.707	0.707
0.866	0.500
0.966	0.259
1.000	0.000
0.966	-0.259
0.866	-0.500
0.707	-0.707
0.500	-0.866
0.259	-0.966
0.000	-1.000
-0.259	-0.966
-0.500	-0.866
-0.707	-0.707
-0.866	-0.500
-0.966	-0.259
-1.000	0.000
-0.966	0.259
-0.866	0.500
-0.707	0.707
-0.500	0.866
-0.259	0.966
0.000	1.000

The following graph summarizes what we have told before:

Unified Field Equation: E= (Sin y + Cos y)(C/λ)

E= (Sin y + Cos y)(V/D)

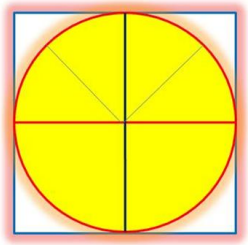
				pH									pH		
arc cos(Rad)	Degrees			(D6/J3)+7									J6/J3	arc sin(Rad)	Degrees
1.31	75.00	Cos 75°=	0.2588	8.81							Sin 75°=	0.96593	6.76	1.31	75.00
		$C^{\#}_0/D^{\flat}_0$	17.32	1990							$C^{\#}_0/D^{\flat}_0$	17.32	1990		
		RE::D_0	18.35	1870							RE::D_0	18.35	1870		
1.05	60.00	Cos 60°=	0.5000	10.50							Sin 60°=	0.86602	6.06	1.05	60.00
		$D^{\#}_0/E^{\flat}_0$	19.45	1770							$D^{\#}_0/E^{\flat}_0$	19.45	1770		
		MI::E_0	20.6	1670							MI::E_0	20.6	1670		
0.79	45.00	Cos 45°=	0.7071	11.95	------					----	Sin 45°=	0.70711	4.95	0.79	45.00
		FA::F_0	21.83	1580							FA::F_0	21.83	1580		
		$F^{\#}_0/G^{\flat}_0$	23.12	1490							$F^{\#}_0/G^{\flat}_0$	23.12	1490		
1.05	60.00	Cos 30°=	0.5000	10.50							Sin 30°=	0.50000	3.50	0.52	30.00
		SOL::G_0	24.5	1400							SOL::G_0	24.5	1400		
		$G^{\#}_0/A^{\flat}_0$	25.96	1320							$G^{\#}_0/A^{\flat}_0$	25.96	1320		
0.26	15.00	Cos 15°=	0.9659	13.76							Sin 15°=	0.25882	1.81	0.26	15.00
		LA=A0	27.5	1250							LA=A0	27.5	1250		
		$A^{\#}_0/B^{\flat}_0$	29.14	1180							$A^{\#}_0/B^{\flat}_0$	29.14	1180		
0.00	0.00	Cos 0° =	1.0000	14.00							Sin 0°=	0.00000	0.00	0.00	0.00
		SI=B_0	30.87	1110							SI=B_0	30.87	1110		
		DO=C_1	32.7	1050							DO=C_1	32.7	1050		

Sin 90°= 1.00000 7.00000

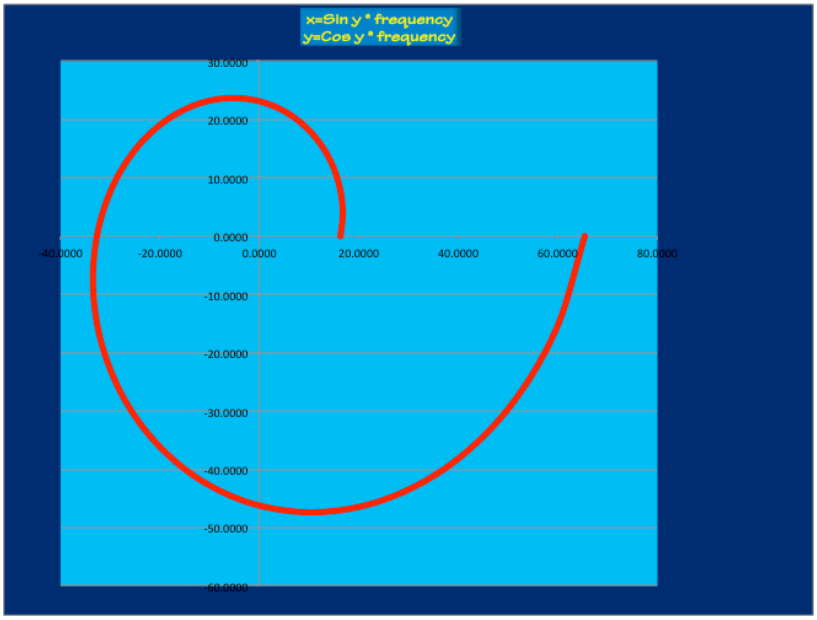
Cos 90°= 0.00000

pH= 7.00000 1/7= 0.142857

Note	Frequency (Hz)	Wavelength (cm)
DO::C_0	16.35	2100



"Gravity"/10	EM Field	Note	Frequency	X	Y
Sin	Cos				
0.0000	1.0000	DO C_0	16.3500	16.3500	0.0000
0.2588	0.9659	$C^{\#}_0/D^{\flat}_0$	17.3200	16.7298	4.4827
0.5000	0.8660	RE D_0	18.3500	15.8916	9.1750
0.7071	0.7071	$D^{\#}_0/E^{\flat}_0$	19.4500	13.7532	13.7532
0.8660	0.5000	MI E_0	20.6000	10.3000	17.8401
0.9659	0.2588	FA F_0	21.8300	5.6500	21.0862
1.0000	0.0000	$F^{\#}_0/G^{\flat}_0$	23.1200	0.0000	23.1200
0.9659	-0.2588	SOL G_0	24.5000	-6.3411	23.6652
0.8660	-0.5000	$G^{\#}_0/A^{\flat}_0$	25.9600	-12.9800	22.4820
0.7071	-0.7071	LA A_0	27.5000	-19.4454	19.4454
0.5000	-0.8660	$A^{\#}_0/B^{\flat}_0$	29.1400	-25.2360	14.5700
0.2588	-0.9659	SI B_0	30.8700	-29.8181	7.9897
0.0000	-1.0000	DO C_1	32.7000	-32.7000	0.0000
-0.2588	-0.9659	$C^{\#}_0/D^{\flat}_0$	34.6500	-33.4693	-8.9681
-0.5000	-0.8660	RE D_0	36.7100	-31.7918	-18.3550
-0.7071	-0.7071	$D^{\#}_0/E^{\flat}_0$	38.8900	-27.4994	-27.4994
-0.8660	-0.5000	MI E_0	41.2000	-20.6000	-35.6802
-0.9659	-0.2588	FA F_0	43.6500	-11.2975	-42.1627
-1.0000	0.0000	$F^{\#}_0/G^{\flat}_0$	46.2500	0.0000	-46.2500
-0.9659	0.2588	SOL G_0	49.0000	12.6821	-47.3304
-0.8660	0.5000	$G^{\#}_0/A^{\flat}_0$	51.9100	25.9550	-44.9554
-0.7071	0.7071	LA A_0	55.0000	38.8909	-38.8909
-0.5000	0.8660	$A^{\#}_0/B^{\flat}_0$	58.2700	50.4633	-29.1350
-0.2588	0.9659	SI B_0	61.7400	59.6363	-15.9795
0.0000	1.0000	DO C_1	65.4100	65.4100	0.0000

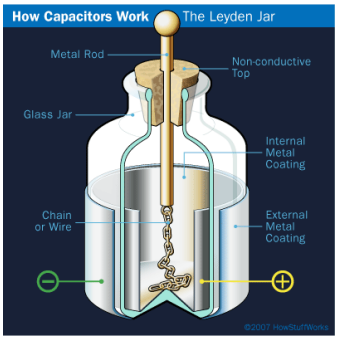


In it we have included Sin and Cosine values, pH going from 0 to 7 and from 7 to 14 and octave frequencies, following the same order, thus encompassing all reality.

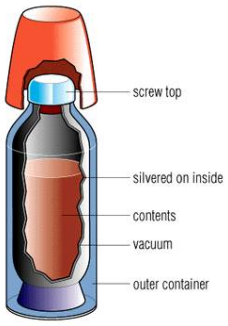
Spreadsheet at: http://www.giurfa.com/unified_field.xlsx

As everything follows the same laws, let us give an example of it:

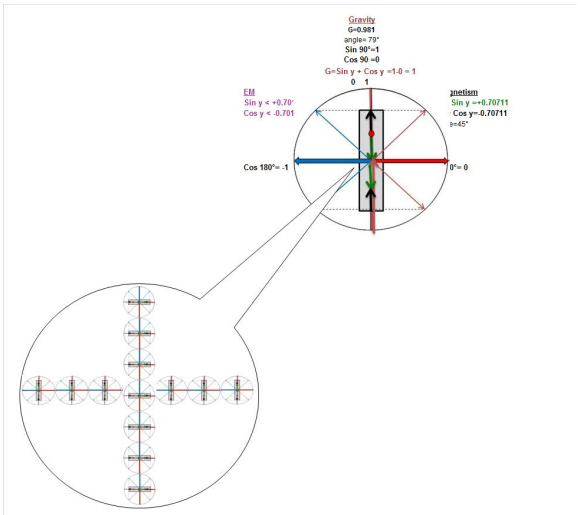
1. An electric condenser: A Leyden bottle



2. A light ("infrared") condenser: A thermic flask



Last but not least, charges are in its turn also waves:



(*) NOTE:

Summarizing:

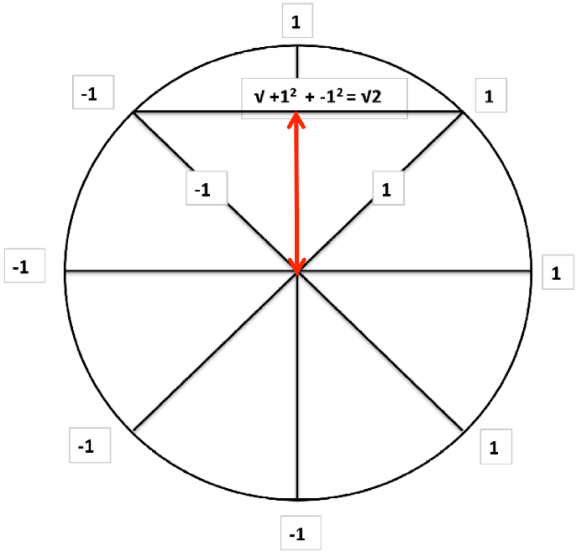
Everything in the universe moves and manifests according to the laws of the opposites, which at the start are = 1 and 0, and then evolve attracting and repelling among them, following the sine and the cosine; each movement developing on frequencies as the law of the octave, where, in the intervals (gaps) there is an exchange of energy/force, be it as emission or absorption, input and output, feeding and excreting. At these points on inflection it manifests the law of three: active, passive and resultant.

Morals: Let us forget, erase, the name "Gravity" from our psyche, IT DOES NOT EXIST!!

And "Time", also, does not exist, "Tempo" (frequency) does instead.

Note.-Please take into consideration that the two dimensional circle above it is but a transversal cut of a train of waves, moving along an axis, the center of the circle, a current of four waves: East-West and North-South, and all its possible analogies, biological, non biological, etc. It is really "A Golden Compass".

Though all the above can be understood, more or less, within the frame of the current paradigm, something remains irrational, and this is the existence of ZERO itself, so we can arrange our two dimensional graph this way:



Where it is easier to observe all phenomena; then:

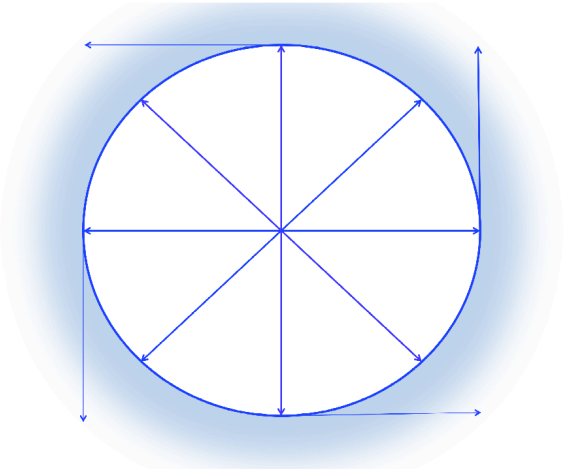
- Such a concept of "nothingness", as it contradicts reason, does not exist, then the ZERO integer does not exist.
- Polarity happens through the relative opposition of forces.

- As we see polarity is relative to the sense of spin, to the relative position of forces: To the "right" or to "left", "up" or "down".
- There is a constant and permanent relation: That of "electricity" and "magnetism", 90º apart.
- In ANY triangle of forces one of the angles must necessarily and always be equal to 90º
- It follows that only the "legs" can change its "strength"(length), and the ratio between the "legs" causes spin and apparent "polarity".

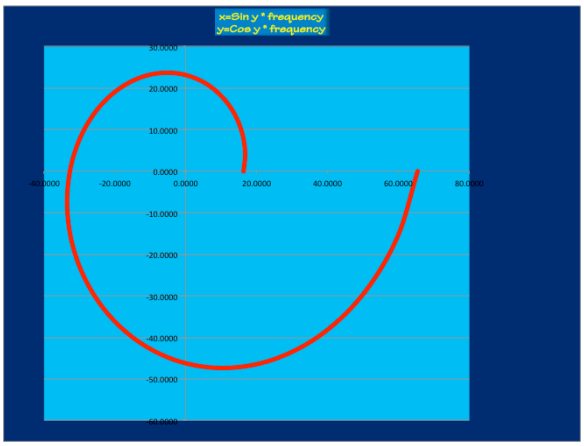
HOW THE UNIVERSE (THE COSMOS) IS AND HOW IT WORKS:

We already have enough data or input to clarify for ourselves how the universe is and how it works.

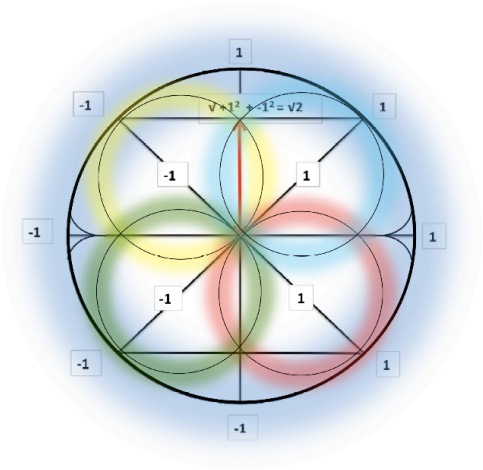
- The whole universe is a POINT and it is contained in every point.
- We have also found that these two polar forces, as "nothingness" does not exist by definition, then, these can be defined as the two extremes of a unit: + 1 and -1
- If we take a closer look at the point, if we zoom in, we will find, repeated, the same structure:



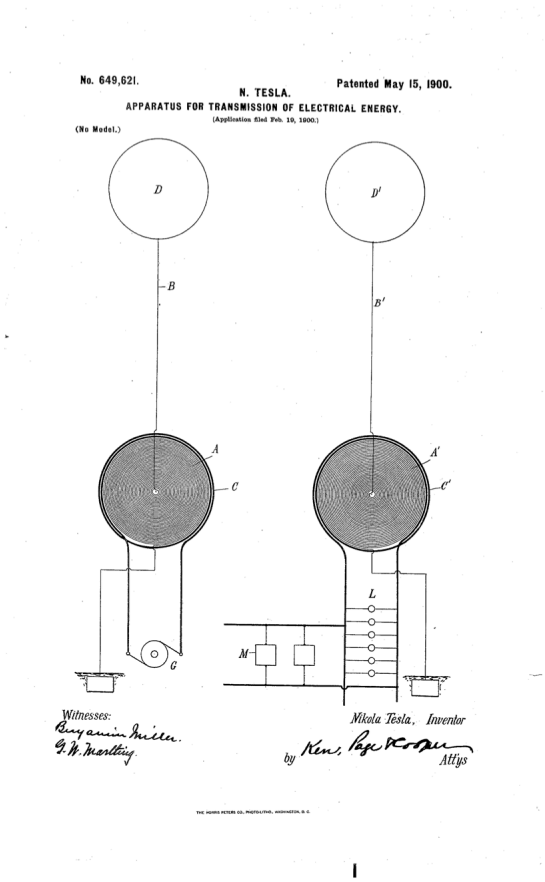
A mono-dimensional spiral:



- We know, already, that this "point-spiral" has been originated by the opposition of two forces: + 1 and -1



- This FACT has been experimentally proved already:



No. 649,621. Patented May 15, 1900.

N. TESLA.

APPARATUS FOR TRANSMISSION OF ELECTRICAL ENERGY.

(Application filed Feb. 19, 1900.)

(No Model.)

D D' B B' A A' C C' L M G

Witnesses: Benjamin Miller. G. W. Maxwell

Nikola Tesla, Inventor

by Kerr, Page & Cooper Attys

THE HORNS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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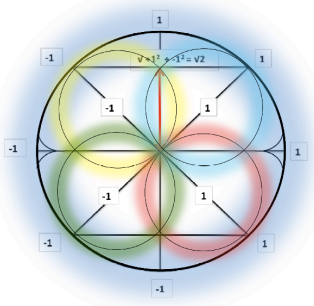
The graph, above, shows the arrangement for the construction of an apparatus for the "Art of transmitting electrical energy through the natural mediums" as shown in the US Patent Nr.142352, given to Nikola Tesla in April 17, 1906, and which depicts 02 two dimensional (flat) spirals, each one carrying an opposite force, which evidently produce a both sided "emission field", as two semi-spheres:



- This phenomenon can be also proved mechanically by any one just by kicking on the central point of a "gong":

- Then, it follows that every point of the universe contains the totality in itself.
- When, as in a "gong" or in the Tesla spiral, or as in our first example, while dropping a stone in water this "point" is disturbed, it starts, "evolves" an "emission field".
- It also follows that when such field increases its wave frequency it can ultimately become a "point", again, relative to the observer.
- The evolution and involution of waves happens following the laws shown above and are scalar in nature, just becoming quantifiable when compared subjectively by the observer.
- These basic and universal laws are those, as taught by tradition, of the three forces, composed in a triangle and, when this triangle moves, those of the musical scale.
- "Particles" and waves: A transversal wave or train of waves happens when there is a phase angle, being positive or negative. A linear wave happens when there is no phase angle. A "negative" train wave it is perceived and named as an "electron", a "positive" train wave it is perceived and named as a "proton". A linear wave it is perceived and named as a "neutron".

The Max Planck´s equation:

$$E = h\nu$$

$$h = \sin y + \cos y$$

$$\nu = c/l$$

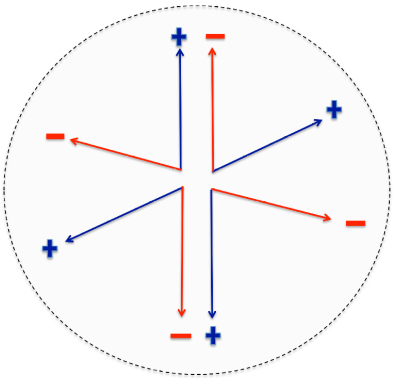
Becomes the equation of the Unified Field:

$$E = (\sin y + \cos y).\ \nu$$

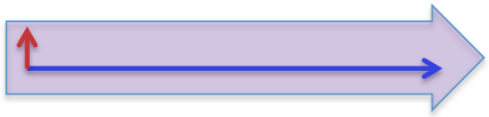
Note:

From the viewpoint of Metaphysics we could ask ourselves: Why is it so that polarity exists and with it the "right hand law" in between what we call "magnetism" and "electricity"?

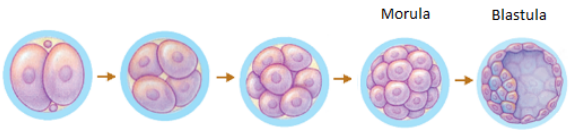
If we were the "absolute", the point and, at the same time, a sphere comprising "totality", the "one", the only reasonable possible way of "manifesting" would be obviously "manifesting" the "two", however, it should be done in a balanced and equally distributed way, in EQUALLY DISTRIBUTED MANNER, I.E. 90º angle in between both.



And, by necessity, each one of those vectors, should be composed of two vectors, which, following the "right hand law" and the "pythagorean triangle", where one of the components approaches "0" (zero), zooming it in:



Reason tells us, also, that, such a "manifestation" should proceed everywhere and in everytime, and this is confirmed in biology when both "vectors" add, producing a gravidic phenomena, be it what we use to call "force/power" or a zygote:



Being, likewise, the inverse phenomenon, the anti-gravitational, negentropic phenomenon, acquiring more energy; i.e. the case of water that, when heated, changes from a liquid to a gaseous state, from being di-hydrogen oxide to hydrogen hydroxide=HOH=steam=gas=spirit ("ghast"/"ghost"). (*)

(*) see

http://www.giurfa.com/field.pdf

http://www.giurfa.com/bien_good.pdf