

“ENTANGLEMENT THEORY”:

from q.Particles to q.Bits and from q.Bits to q.Particles



<http://deanradin.blogspot.com/2006/05/entangled-artists.html>

Conceptual contradictions of Quantum mechanics and some revision and new cognitive proposals of Bio-Q.Physics.

There is some good reason to suppose that the quantum mechanic theory need to be revised to restoring an integrated reality between subatomic world of Q.Particles and a reasonable interpretation of the macro-world of our daily perception.

The above is the fundamental endeavour of Bio-Quantum Physics that aims to open a conceptual restoring of Bio.Quantum Reality. This approach can be started from the knowledge of various internal problems of contemporary physics. For instance we know that the standard formulation of quantum mechanics is logically incompatible with special relativity. As a matter of fact, a wave of energy is not localized in space and time, so that two different waves can be occupied the same time with an identical position in the space, while a classical particle status it is described exactly by means of three local coordinates at each moment of time, and no other particle can be superposed in the same space time dimensions. Thinking to this classical topology of space and time various contradictions comes out and so that we impact in various paradoxes of contemporary physics. Those conceptual problems primarily are a consequence of the fact that any instantaneous action at a distance is prohibited because nothing can travel faster than the speed of light to connect two different localised dimensions of the space-time.

Furthermore according to the usual interpretation of quantum mechanics, the fundamental building blocks of energy and matter are neither wave nor particle, but some complemented combination of wave and particle in a way that whenever can be measured the position of a particle in a precise time, it appears as a material object with a precise position of space. But outside of the moment of the particular measurement, the evolution of the particle is described by the laws of wave mechanics. Therefore Quantum Mechanics seems to contradict the idea of an uniform reality of Euclidean space time; in fact, prior to the measurement, a particle is a probabilistic wave with an unknown position because the particle assumes the form of an un-localised wave, spread over space and time. In spite of this traditional conception of Quantum Mechanics, the “dual slits experiment” demonstrates that a single wave-particle can recombine wave and particle after passing through two slits. (2). So that it is necessary to assume that both wave and particle are complementary reality, i.e. the wave it is not only a probabilistic function existing out of the effective energy domain, as was accepted by the previous affirmed theory of Q.Mechanics.

To resolve this problem it is a good reasoning to consider that the energy conservation principle is not completely

described by means of the complex interactions between free-energy (E) and condensed energy the last in forms of matter (M), this because the existence of “vacuum energy” (I), e.g. the energy obtained through the collaps to the ground state of the system, that do not contain previous physical forms of energy and matter. Therefore a new kind of energy exists near to the “zero point energy” with experimental evidence. As a consequence, this new form of energy (I = Information Energy), need to be taken in consideration as an additional quantity to get the real total energy conservation. Hence generalizing the “Energy Conservation Principle” the sum of all transformations (w.w.w) of energy components must equal zero. So that if we add all the different codifications of energy in relation to all possible combinations of space-time co-ordinates in syntheses, we obtain:

$$\langle w.w.w. [(E) + (M) + (I)] = 0 \rangle$$

From this equation we get three equations as follow representing the total energy broken in three complementary strategy of evolution of a “complemental inhomogeneous universe”:

$$A) \langle +w.(I) = - w.(E) - w.(M) \rangle ; B) \langle +w.(E) = - w.(I) - w.(M) \rangle ; C) \langle +w.(M) = - w.(I) - w.(E) \rangle$$

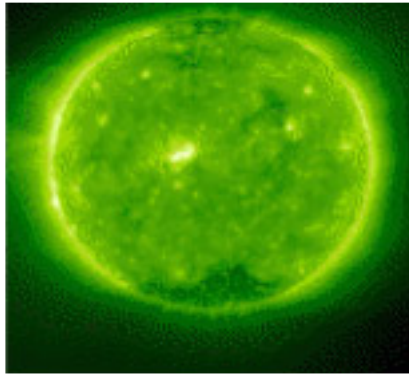
A) -The growth of Information Energy enriches the maximum in correspondence with minimum of the other components of energy. This result is designated the “PRINCIPLE of FERTILE EVOLUTION”, because is a valid strategy of evolution for the living environments in the Universe.



Living EARTH

http://www.nasm.si.edu/research/ceps/etp/earth/earth_spheres.html

B) – The amazing growth of Free energy spectrum is produced by the stellar structures, as the sun , in spite of the decrease of the Energy codified as Matter and Information energy.



A new look to the sun :

<http://www.solarviews.com/cap/sun/eitfexii.htm>

C) – The growth of matter are prepared by super massive black holes (9) in their inner regions with super intense gravity in relation to the evaporation of other forms of Energy.

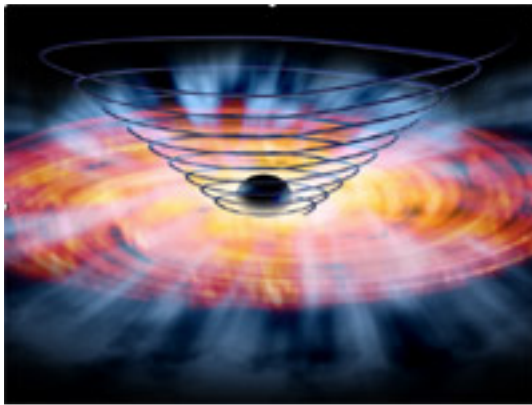


Illustration of a Black Hole:

<http://chandra.harvard.edu/resources/illustrations/blackholes.html>

One solution to signify this apparently mysterious new form of Information Energy (I) can be found understanding the space time paradigm shift generated by the Quantum Entanglement. As noted earlier in the previous articles of the series “The Science of Quality” , “Q.Entanglement” is a concept initiated to be considered in the context of quantum information (3). More in general “Q.Entanglement” plays a key role in many of the most interesting at distance applications, including quantum teleportation. Besides in recent years there has been an extraordinary effort to better understand the properties of “Q.Entanglement” as a fundamental conceptual resource of contemporary physics and hence a renewed emphasis is re-evaluated by Bio-Q. Physics in order to develop a more complete theory of “Q.Entanglement”, not only limited to quantum computation . “Q.Entanglement” will also be interesting from the standpoint of evolving space-time dynamics in a way that , the classical paradigm that combines space and time into a single construct called the “space-time continuum”, can be deply modified. In fact in the case of quantum mechanics and relativity, both those theories do not

give concrete ideas to affirm that the space-time relationships cannot be uniform all over the Universe, both in macro and micro dimensions at different levels of energy.

In particular tacking in consideration the additional new form of Information Energy (I) into the Generalised Conservation Energy Principle , it is now possible to argue that the temporal events of dynamic transformation cannot only to be associated to a four vektor of space-time, where only one component is dimensioned a timing sequences of istants. Space-time in the classical physics is interpreted with space being three-dimensional and time it is playing the role of the fourth dimension. In relativistic contexts, however, time cannot be separated from the three dimensions of space, in fact time depends on an object's velocity relative to the constant speed of light. In his way special relativity, by combining space and time into a single four vectors diagram, get significantly simplified a large amount of theory in physics , as well as described in a more uniform way the workings of the universe at both the supergalactic and subatomic levels .In any case in the contemporary physics, timing dimension remains in a single coordinate where the duration is the difference of an linear sequency of intervals. This traditional timing scale represent only one of the possibility of the space time permutations of the matrix-structure of the relativistic four-vector. The other compositions of the four-vector, need to be considered, because some different temporal order of events are compatible with the different environment that are working as complemented evolutionary strategies of the universe as described by the formulas: A),B),C.

The cognitive frame of Permutations among space - time coordinates.

Traditionally space-time as system of reference of energy-mater interactions, is referred to a local system. In fact the system of local reference, according with the Euclidean perception of the world , it is composed from three coordinates of space and one of time , where the space coordinates are orthogonal in classic mechanics, while they are relative to one considered curved space in the special relativity. Surely such conformation of the space-time do not be imaginable as a structure of universal reference. As an example in “black holes” a direction of movement of the energy and matter in the implosion of a star, turns out as to be monodimensional in the space. Besides the dimension space seems to become one dimensional in various cases that can be described by a worm-hole structure (5) as well as in the quantistic hypothesis of the tunnelling effect. (6).

Therefore remembering that space and time appearing as separate entities in classical physics are not more separate in the the relativity context , the dimensional changes of space need to effect an extraordinary modifications in the time and viceversa. (7) On this basis we can propose that the effect permutation of space in time and viceversa, can be quantized, giving place to three fundamental different geometries of space-time, each of them in correspondence with the before seen complementary strategy of evolution of the “generalized principle of energy conservation”. The permutation of the matrix of the four vector, happens in all cases of we need to assume a monodimensional space where are travelling of energy and matter, in those cases the other vectors become changed in three time-affine dimensions. This for instance is the case of black holes (8) in the cosmological macro-systems, where the loop of three time lines (past, present and future) converges expanding and accelerating the entral orbit, by means of twisting the curvature of space till a critical point of the horizon, where space-time exchange their characteristics, inside any extremely collapsed star that become a “black hole” (9). Viceversa the “black hole timing vortex” permits to evaporate the other forms of energy as well as forecasted in equation C), and the “black hole” trasforms its self collapsing into a “white hole”, as a prelude of new stars generation, in order to restore as the effect of an internal mirror the normal structure o the space.time.

At first this anti-symmetric space-time composition, where the three space coordinates are substituted by three time coordinate in a “black hole”, seems to be very strange for the hystorical construction of our common sense, that it is traditionally accustomed to believe to an classical scenario where space and time are two abolute independent and different quantities. Today this antique mental scenario of an uniform space temporal dimension of events, seems incompatible with the effective possibility to understand sperimentable phenomena of the coordinate diagram-transformation, in order to understand also the effective (i.e. not only probabilistic event) of “quantum tunnelling effect” in the micro cosmos. In fact q. particles (photons, phonons and also atoms ...) that can penetrate, jumping at distance a forbidden region by means off an hill of energy , passing in a tunnel from two separate local position of space, without any interference with any intermediate point. Nowadays “Entanglement theory”, based on the transformation of entangled q.particles in q.bits near to the zero point at the ground level of Q.Energy , permits to transfrom “q.particles in q.bits” and viceversa. So that “Q.Entanglement” can works as an universal intremediate exchange of space time dimensions, in order to connect the

two previously anti-symmetric geometries of the space-time through a base of two-dimension bot in space and time. At this proposal it is important to remember that from the studies of Quantum entanglement and quantum Teleportation, the basic unit of quantum information is a “q.bit”; the last it is a so-called “super dense coding of q.states”, because they exist as a linear combination of four virtual states. However, a “q.bit”, folloing the traditional Q.Mechanics, maintain such a superposition state only, as long as no measurements of the state are taken; once a measurement is taken, the state of the “q.bit” goes back to being either 0 or 1 (On-Off positions). This Q.Mechanics approach simply do not put into account that the coupling of two entangled “q.particles”, need to lower the energy of the q.particle pairs, near to the ground energy fluctuation, where the dimension of the space-time assumes a new configuration in relation to the virtual particles of “Information Energy” (I). The last, as written in the pevious articles,(10), it is dimensioned by eans of two space coordinates and two time coodinate. So that the matrix of the four-vector coordinates through entanglement action, can assume a flat geometry of space and also two dimensional definition of time. This is the space-time context of the “Virtual Particles of Information Energy”, through became possible to communicate simultaneously at distance between two line of time coodinate in both macro and micro tunnelling regions. This scientific approach give an explanation to the possibility that entangled particles can be separated far apart from each other, and yet still maintain the characteristics of the state of the group, in a way that a better definition of entanglement methods can be useful as a resource for solving information-processing problems in new ways, based on “Quantum Teleportation”; the last till nowadays has been verified in a number of experiments including one involving a fiber optic cable over a 10 kilometer distance between the two entangled particles. In conclusion, starting from those consideration and results, the above mentioned original research proposal on the “Science of Quality”, giving a new view to a large ammount of self-organised multiple critical phenomenon in an “inhomogeneous space-time dimensions”, can get a great impact on understanding and giving predictions about the competitive universal distribution of living and not-living zones , that on the basis of Information Energy, are always in simultanean communication. As a matter of facts “life” is a strategy validated by the section A) of the total energy evolution, while living existence is forbidden in the natural complemental evolutionary strategies of B) and C). Besides the dynamics of changes in space-time matrix, can gives new insight to fundamental questions about the nature of space-time into an Universal cooperative network, based on

three fundamental forms of energy (I),(E),(M) related to permutation of referring coordinates of their interactive events.

In this conceptual context the “Entangled Theory” permits to understand the critical-switch ,near to the ground state of Information Energy, happening between two encoding and de-coding structures, e.g. from the one traditionally based three space-affine coordinates plus a mono-timensionsal time-line to the mirror of such structure, with three time-affine coordinates and a monodimensional space line; the last in fact it is more adequate, for example, to understand the “black- white holes cosmological transformation” and other physical phenomena interpreted by Bio-Quantum Physics, in order to get a strong implications in a great range of contemporary culture and art, following the aim of a better understanding of the “Evolution of Life in the Universe”.



ENTANGLED -ART IMAGINATION OF THREE PHASES OF INHOMOGENEOUS UNIVERSE

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