

**SCIENCE OF QUALITY Serie n°- 5**

Evolution Principle  
in  
"Bio-Quantum Physics"



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-Evolution is traditionally a question of biology and "evolution of the species via natural selection" is the approach conceived by Charles Darwin.(1809-1882). (1)

-After, C. S. Peirce (1839-1914) proposed a triadic definition of evolution that can be written as follow (2) :

"Evolution is synonymous with Property ( A ) emerging from Precursor ( B ) through an theoretical Apparatus C"  
Statement (1).

- Now I try to generalize the concept of EVOLUTION in Bio-Quantum Physics, by means of the Science of Quality innovative research , in which EGOCREANET research team would like to entangle Quantum Physics and Advanced Biology starting from some general considerations. Lucretius (Titus Lucretius Carus -Living in Rome about 98-55 A.C)) speaking about the creative evolution of Epicurean seeds of atoms in the poem "DE RERUM NATURAE": said that the colours the sounds the odour and the flavour are not included in the things but only in the senses of the observer. Removing the such senses all the quality vanish in the null one. This materialistic conception is living in the classical Physics, through accepting the arbitrary division between subject and the object of the observation. Another way of thinking about Evolution process emerge from Bio-Quantum Physics, this because in this trans-disciplinary field of science , the observation need to be interpreted as a relativistic perception coming from the biological nature of senses. "Senses" in fact are co-evolutionary devices connecting Free- Energy and Matter to transmit information between external world and brain functioning (or similar central processing units) by means of the exchange of "Information energy" (I) . The last (I) energy can be interpreted as the Quantum Basic Level from which initial evolutionary process generates both Free energy, (E) and matter, (M) or condensed energy. (4)

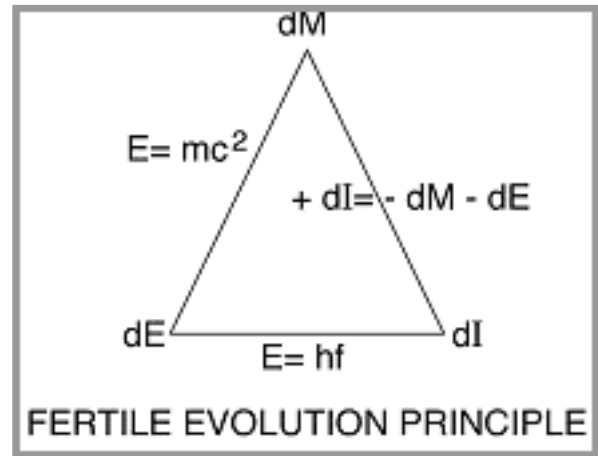
Thus accepting that in any developmental origin, every event can be thought as a form of codified energy as well, EGOCREANET Research in "Bio.Q.Phys." re-defineS three fundamental forms of energy, in place of the simple duality of energy and matter. Within the following rationale the principal forms of Energy are:

- 1) - Free Energy codified by vibration ( E ) ,
- 2) - codified Energy in form of Matter (M) and
- 3) - Information –energy ( I ) , that it is related to the fundamental Information/transformation activities of sensory procedures.

Therefore as a consequence of the fundamental postulate of science, "Energy cannot created or destroyed", we can write that the fluctuant variation (v.) of the sum of the different Energy-codifications of the total energy, needs to be equal to zero: i.e.  $\langle v. (E) + v. (M) + v. (I) \rangle = 0 >$ .

Following this way of reasoning, it is possible to derive a significant solution of the above equation, named the "Fertile Evolution Principle":

$$\langle + v. (I) = - v. (E) - v. (M) \rangle.$$



Note: (E), can be substituted by  $\langle E = h f \rangle$  with,  $f =$  frequency , and (M) can be take out from:  $\langle E = Mc^2 \rangle$ .

The above formula give a generalised meaning to the evolution in complex systems because it shows how ever-increasing Information (+ v. (I)) is balanced by the decrease in flows of energy (-v. (E)) and/or of matter (-v. (M)). This Principle of Fertile Evolution "PFE", can be applied to any dynamics of transformation, because it can be considered a general pathway for any evolutionary changes from not living, to living complexity in nature. In fact this principle addresses the direction or the quantum organization of the energy quantum levels interactions in every transformation among Energy-Matter.

It is clear that the "PFE" evolutionary generalized Principle, follows the same criteria of minimum energy performance that occurs in the traditional physics, but in this new triadic approach of the  $\langle E, M, I \rangle$  paradigm, if the "minimum of energy" is reached also the "maximum of Information activity" is achieved at the same time. Therefore the Principle of Fertile Evolution says that Evolutionary Development is becoming possible at all the times when it corresponds to an increase of Information Energy (I) in respect to the decrease of Free-Energy (E) dissipation and/or Matter Condensed Energy consumption (M).

Following the above reasoning, Statement (1) derived by the relating. Bio.Q. Physics and Semantic of Science, permits to EGOCREANET to represented the statement 1 in a new way as shown as follows :

|<A> = Precursor/Origin = Information Energy (I)

|EVO LUTION = the integration between

|<B > = Properties – Derived by Bio-Q. Phys and

|<C> = Theory-Apparatus = “Principle of Fertile Evolution”

<ABC> – can be considered as a triadic definition of bio-semiotics of evolution.

As a matter of facts here (A) is related to Firstness, (B) to Secondness, and (C) to Thirdness in the triadic Semantics correlation initiated by C. S. Peirce.

This paper is particularly referred to in the other paper of mine, titled : “What Means Life”. ( 5)



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Biblio on line :

- (1) – Charles Darwing talk : [http://en.wikipedia.org/?title=Talk:Charles\\_Darwin](http://en.wikipedia.org/?title=Talk:Charles_Darwin)
- (2) - C.S. Peirce Semiotics : <http://plato.stanford.edu/entries/peirce-semiotics/>
- (3) - Lucretius Physics : <http://www.jstor.org/view/00318205/di974863/97p00564/0>
- (4) The Science of Quality : [www.egocreanet.it](http://www.egocreanet.it), [www.edscuola.it/LRE.html](http://www.edscuola.it/LRE.html)
- (5) – “What means life” - in : : <http://www.edscuola.it/LRE.html>.