

Bio Quantum Photosynthesis

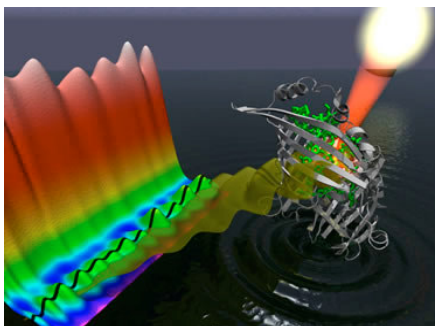
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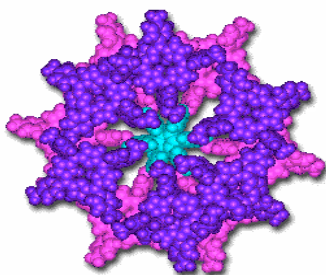
(Image courtesy of Greg Engel,
Lawrence Berkeley National Laboratory,
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Almost all of the energy used for living functions is ultimately derived from photosynthesis.(1). Transfer of solar energy takes place quite instantaneously in a way that only a little energy is wasted as heat. Photosynthesis is characterized by light reactions during the day to get the splitting of H₂O molecules through the excitation to higher electron quantum states of chlorophyll followed by the release of oxygen. Besides, the stimulation of light of enzymes permits the activation of the complemented splitting of CO₂ so that a series of biochemical reactions occurs to form C-C covalent bonds of carbohydrates. Therefore, the photosynthesis is responsible both for renewing the oxygen in the atmosphere and for much of the earth's growth of biomass. The above is well known,(2) but in spite of this, we are not able to completely understand the very high efficiency of coherent conversion of the sunlight into chemical energy.(3) As a matter of fact, if science fully understood the ability of natural photosynthesis to simultaneously transfer different kinds of energy without producing useless waste as heat, we might be able to create artificial versions of photosynthesis that would help us to effectively utilize the sun as a fundamental source of clean, sustainable, fundamental energy. Therefore, to better know the efficient coherence of photosynthesis, it would be useful to use the bio-quantum physics theory, based on "Photon Entanglement"; this is because the transformation of quantum entangled photons pairs in signals, allows that the light transfer in biochemical energy can be much more efficient than the quantum mechanical view is able to explain. (4) ,(5)

To gain qualitative understanding of the role "bio-quantum physics" plays in the excitation transfer in light-harvesting complexes, it is necessary to understand the role that "photon entanglement" has in causing a coherent at-distance transfer of simultaneous information energy states. Bio-quantum energetics, is different than the classical description of the photosynthetic energy transfer process. In fact, the description in traditional science is one in which excitation energy moves step-by-step by an electron transfer process from pigment molecules to reaction centres in a way that most of light must be converted into thermal energy. In a different manner, the "photon entanglement" permits a quantum teleportation (6) of pure information energy by means of a quantum jump to the fundamental zero-point energy level.

The circumstances of a new order of correlation of entangled photons in a cavity-selective system leads to a more complete understanding of how the jumping of the solar energy from a localised state to a delocalised one, permits simultaneous signal transfer. Therefore “Entangled Quantum Optics”, changes the way of understanding how chlorophyll molecules absorb and emit light energy. In fact, the central structure of chlorophyll works as a energy-cavity able to accelerate the entangled photon pairs coherent creation. Hence the emission of fundamental Information energy signals have the effect of transferring simultaneously, a delocalised superposition of symmetric and asymmetric units of information between donors and reaction centres. A great distribution of chlorophyll and other pigments permits transmission of pure Information energy pulses of quantum communication among *spatially distant* nodes of the quantum network of reaction centres. Therefore, “Entanglement Photon Pairs” production modifies the way of understanding how light transformation happens, without that, the entangled coherent effect rapidly degenerates in heat waste. Information energy transfer permits that a restricted cavity of solar energy produces a metastable entanglement of multi-photon-pairs. Each of them simultaneously transmits by a quantum breakdown to the fundamental level of information energy, bidimensional Q.bits in space and time, without producing any interference effects. Hence photosynthetic production of entanglement photon pairs plays an essential role in bio-quantum energetics.

Porphyrin molecule structure



Chlorophyll and several other pigments such as beta-carotene, involved in light energy harvesting of the photosynthetic apparatus, are organized in clusters in the specific thin membrane named, “thylakoid”. Each of these differently-colored pigments can absorb slightly different frequencies of light and pass its energy to the central cavity (named the porphyrin ring) of chlorophyll molecule to do photosynthesis. Porphyrin rings (7) consist of several fused rings in a microtube where each ring is composed of carbon and nitrogen with a magnesium ion in the center. This composition works as a cavity of ultra dense storage of photons in a way that the pile architecture of porphyrin rings acts as catalytic light traps of entangled transformation to Bio-quantum conversion of information energy. Porphyrin nanotubes were recently well applied to the technology of sunlight hydrogen production through the photo-catalytic splitting of water.(8) Photoactive nanotubes of porphyrin rings and of other phthalocyanine molecules can be seen as a core complex of molecular antennae to transfer superconducting flux of Q.bits of information energy.

In conclusion, it is important to underline that all forms of energy are stored in different ways of codification. It is true that energy can be changed from one form to another, finding a possible path of codification changes. As a matter of fact, all forms of energy are a quantity associated with the information state of a quantum system. Therefore, renewable energy sources including [solar](#) energy, can be turned into various forms of free energy and /or condensed energy stored as bio-matter, changing the quantum information states. In truth, there is only an effective possibility to transfer the codification of free-energy in energy stored like matter, because this conversion path, passes through the decodification of solar energy into fundamental information energy by means of the lower order of energy correlation of entangled system and its conversion into quantum signals (Q.Bits) through changing the space-time coordination states.

Biblio on line

(1) *Photosynthesis*

<http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookPS.html#Light%20Reactions;>

<http://biology.clc.uc.edu/Courses/bio104/photosyn.htm>

(2) *Didactic of Photosynthesis*

[:http://earthguide.ucsd.edu/earthguide/diagrams/photosynthesis/photosynthesis.html](http://earthguide.ucsd.edu/earthguide/diagrams/photosynthesis/photosynthesis.html)

(3) *Research News*: <http://www.lbl.gov/Science-Articles/Archive/PBD-quantum-secrets.html>

<http://www.lbl.gov/Science-Articles/Archive/sabl/2007/Jul/quantumSecrets.html>

(4) *Notes on Entanglement* :<http://www.geocities.com/egocreanetperu/quantumscience.htm>

http://guide.dada.net/educazione_alimentare_/interventi/2007/07/303029.shtml

(5) *The Science of Quality* : <http://www.edscuola.it/LRE.html>, <http://www.wbabin.net> ;

<http://www.egocreanet.it>

(6) *Quantum Teleportation* :<http://www.onl.gov/~webworks/cpr/pres/107480.pdf>

(7) *Porphyrin Ring* :<http://www.vcbio.science.ru.nl/en/fesem/applets/porphyrin/>

(8) *Lighting up* : http://www.reactivereports.com/44/44_4.html



Rainbow of coloured life

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