

Bio.Quantum.PHOTOSYNTHESIS

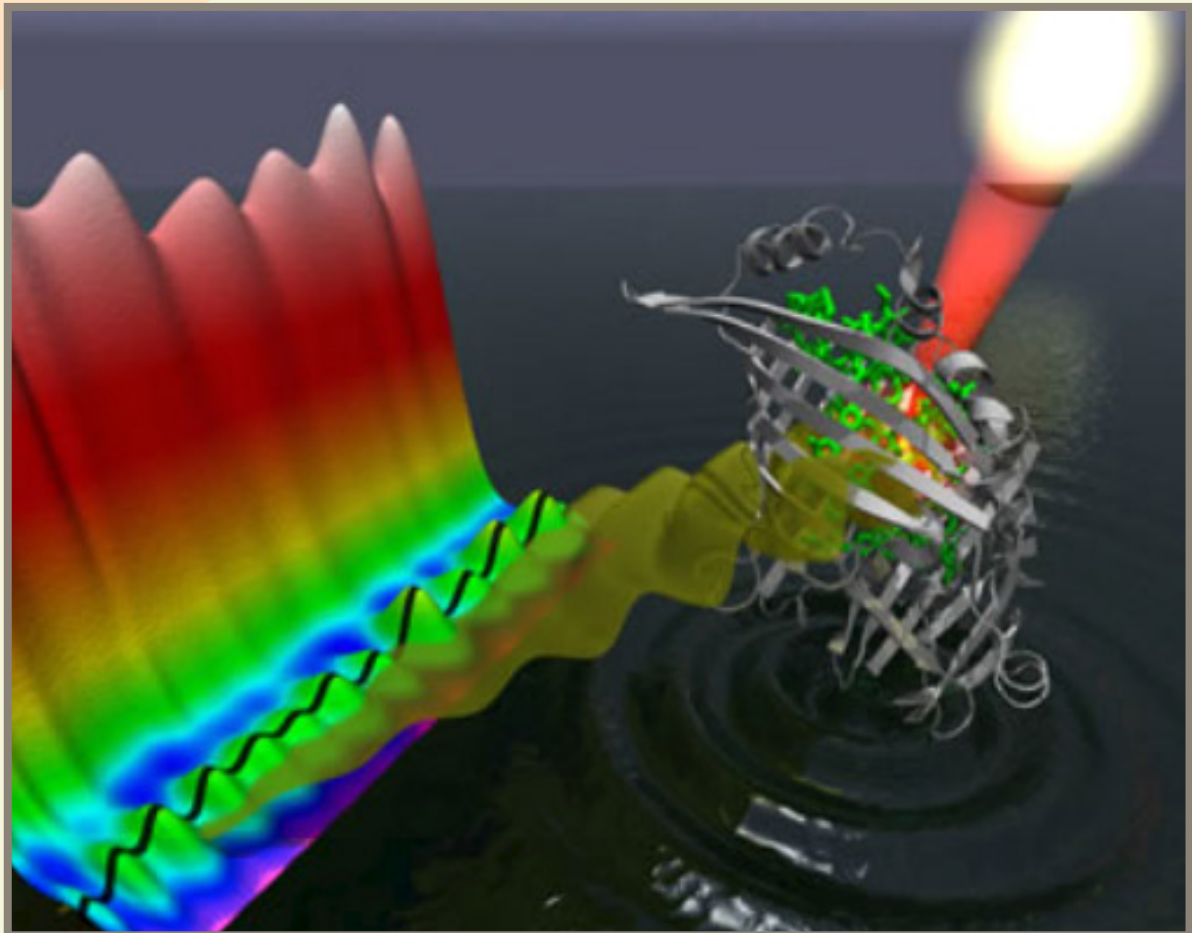


Image courtesy of Greg Engel, Lawrence Berkeley National Laboratory, Physical Biosciences Division

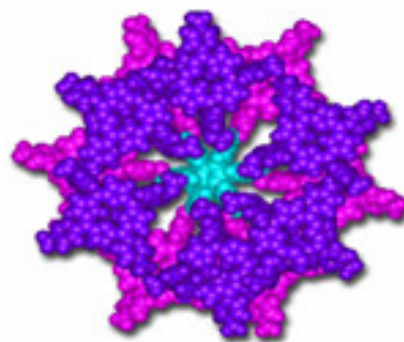
"Science of Quality" writings, represent an conceptual science innovation premise for improving a collaborative international research project enhanced by the Open Network for New Science

Almost all of energy used for living functions is ultimately derived from photosynthesis.(1)

Transfer of solar energy takes place quite instantaneously in a way that only 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 occurs a series of biochemical reactions to form C-C covalent bonds of carbohydrates. Therefore the photosynthesis is responsible both for renewing the Oxygen in the atmosphere and for much the earth's growth of biomass. The above is well known ,(2) but in spite of this, we are do not able to completely understand the very high efficiency of coherent conversion of the sunlight in chemical energy. (3) As a matter of facts, if science fully understand the ability of natural photosynthesis to transfer simultaneously different kinds of energy without producing not useful waste as heat, we might be able to create artificial versions of photosynthesis that would help us to effectively utilize sun energy as a clean, sustainable, fundamental source of energy. Therefore to know better the the efficient coherence of photosynthesis would be useful the bio-quantum physics theory, based on "Photons Entanglement"; this because the transformation of quantum entangled photons pairs in signals, permits 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 of "bio-quantum physics" plays in the excitation transfer in light-harvesting complexes, it is necessary to understand the role "photons entanglement" in causing a coherent at distance transfer of simultaneously Information Energy states. Bio-quantum energetics, thinks differently from the classical description of the photosynthetic energy transfer process. In fact the traditional science description is one in which excitation energy moves step-by-step by electron transfer process from pigment molecules to reaction centres in a way most of light must be converted in thermal energy. Differently the "photon's 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 lead a more complete understanding how the jumping of the solar energy from a localised state to a delocalised one, that permits simultaneous signal transfer. Therefore the "Entangled Quantum Optics", changes the way of understanding how chlorophyll molecules adsorbs and emits the 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 an 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 to transmit a pure Information energy pulses of quantum communication among spatially distant nodes of the quantum network of reaction centres. Henceforth "Entanglement Photon Pairs" production modify the way of understanding how the light transformation happen, without that the entangled coherent effect is rapidly degenerate in heat waste. Information energy transfer permits that restricted cavity of harvesting solar energy produces a metastable entanglement of multi-photon-pairs, each of them transmits simultaneously, by a quantum break down 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 a slightly different frequencies of light and pass its energy to the central cavity (named porphyrin ring) of chlorophyll molecule to do photosynthesis. Porphyrin rings (7) consists of several fused rings in a microtube where each ring is composed by 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 a catalytic light traps of entangled transformation to Bio-quantum conversion of information energy. Porphyrin nanotubes recently are well applied in the technology of sunlight hydrogen production through

the photo-catalytic splitting of water.(8) Photoactive nanotubes of porphyrins 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 and it is true that energy can be changed from one form to another finding a possible path of codification changes. As a matter of facts 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 true there is only an effective possibility to transfer the codification of free-energy in energy stored like matter, because this conversion path, pass through the decodification of solar energy in fundamental information energy, by means of the lower order of energy correlation of entangled system and its conversion in quantum signals (Q.Bits) through changing the space-time coordination states.



Rainbow of coloured life

<http://educazionealimentare.blog.dada.net/post/532966/Rainbow+of+coloured+life+>

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