

## **Artificial Photosynthesis and Quantum Entanglement .(1)**

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At the **Quantum Bionet workshop** (2) we will explore quantum entanglement as a system that permits understanding some contemporary **challenges**, as for instance the working function of the chlorophyll molecules in light-harvesting photosynthesis in green plants.

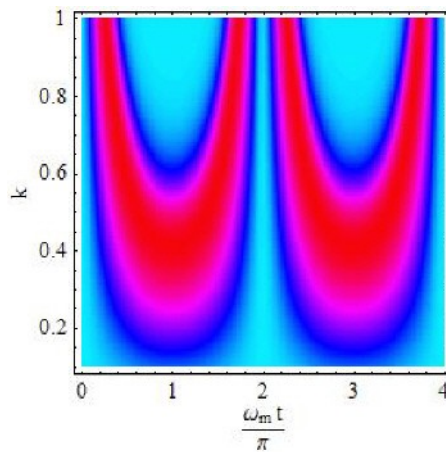


It is well known that through photosynthesis, green plants and cyanobacteria (also called blue-green-algae) are able to capture energy from sunlight and convert it into bio-chemical energy.

To day the entanglement studies are advanced in exploiting quantum mechanical effects during the plants transfer of energy from sunlight . In fact it is well established that green plants and certain bacteria are able to transfer the energy harvested from sunlight through pigment-protein complexes; the last are working as energy information antennas for improving simultaneity on exchange of information energy as it is made the chlorophyll complex that acts as reaction catalytic centre giving as a result, nearly 100-percent efficiency to energy conversion.

Entanglement (3) is a quantum interconnection based on the overposition of two or more objects like photons, electrons, or atoms that before, were separated in physical space. So that entanglement quantum effect can be seen as responsible for obtaining also, the photosynthetic phenomena in plants, particularly through the pigment molecules, or chromophores that works as **“Antenna Pigments”** .

One of the most recent scientific observation characterizes the **Entanglement** as a generalized critical quantum physical phenomenon, until now hidden in the photosynthetic effect as some recent experimental contributions demonstrate with a confirmed reproducibility (4) .



**Light and Mirror Entanglement** : <http://physicsworld.com/cws/article/news/24285>

As a matter of fact, when two quantum-sized particles, for example a pair of electrons, are “**entangled**,” any change to one will be instantly reflected in the other, in the field dimension of Information Energy .

Therefore the future of **Green Economy** can be based on a clean green solar power production organizing an artificial photosynthesis that mimics the process by which green plants convert sunlight into electrochemical energy.

So that at the **3° Quantimbionet Workshop** we will stimulate understanding contemporary challenges as the the development of advanced study of photosynthetic energy transfer, that consists in the understanding of the working function of **ANTENNA PIGMENTS**, in order to get the ability to fully comprehend how the energy-transfer system in artificial photosynthesis can work for improving future **Green Economy** .

#### **BIBLIO ON LINE**

- (1)- P.Manzelli: <http://www.wbabin.net/science/manzelli8.pdf>
- (2)- Workshop : [http://www.edscuola.it/archivio/lre/3rd\\_Quantumbionet\\_Workshop.pdf](http://www.edscuola.it/archivio/lre/3rd_Quantumbionet_Workshop.pdf)
- (3) – Visible entanglement : <http://www.edscuola.it/archivio/lre/sole.pdf>
- (4) <http://newscenter.lbl.gov/feature-stories/2010/05/10/untangling-quantum-entanglement/> ;  
[http://www.hplusmagazine.com/editors-blog/every-tree-quantum-mechanic](http://www.hplusmagazine.com/editors-blog/every-tree-quantum-mechanic;) ;  
[http://apps1.eere.energy.gov/news/news\\_detail.cfm/news\\_id=16025](http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=16025)

#### **PS. INVITATION to help to Undersyanding contemporary challenges.**

Change the world will become possible only by changing the mechanicistic ideas that are the intellectual cause of so high a devastation of the natural world during the industrial epoch.

Developments on cognitive change and implementation of no mechanistic ideas, are necessary in order to promote the conceptual framework for renewal of a **Green Economy** will be discussed during the workshop that will be held in the ancient A. Volta classroom at the University of Pavia on 24 SETT/10.

**You are invited to attend**.See : [http://www.edscuola.it/archivio/lre/3rd\\_Quantumbionet\\_Workshop.pdf](http://www.edscuola.it/archivio/lre/3rd_Quantumbionet_Workshop.pdf)  
 see also the explanatory memorandum in: <http://www.wbabin.net/science/manzelli85.pdf>



**GREEN -ECONOMY**