

## **BIO-INSPIRED NANOTECH. EUROPEAN COST ACTION 2010.**

Notes and suggestion by Paolo Manzelli  
[pmanzelli@gmail.com](mailto:pmanzelli@gmail.com)

Dear Colleagues I would like to suggest to develop a section on **Quantum Entanglement and Biological information Exchange** on the basis of the following considerations.

As a matter of fact, the basic question of Bio-inspired technology is focused on understanding a physical model of self-molecular assembly in order to create complex systems of Bio-inspired Tech. at the nano scale. To understand the underlining criteria of self assembly, I think that science need to overcome the traditional mechanical approach of physics and needs to develop a completely new approach focused on the physical meaning of information exchange in Biology.

Genes hold information as genomic sequence, directing linear protein synthesis. But for instance, what is the information holded in Chaperone proteins, to guide newly linear synthesized polypeptides into their various functional three dimensional shapes. Therefore, because the folding process cannot be a direct consequence of the transfer of DNA-Gene sequencing, there are no chances to predict the self-assembly in proteins folding, if we are not able to go in deeper on the question of what is a generalized information exchange in biology.

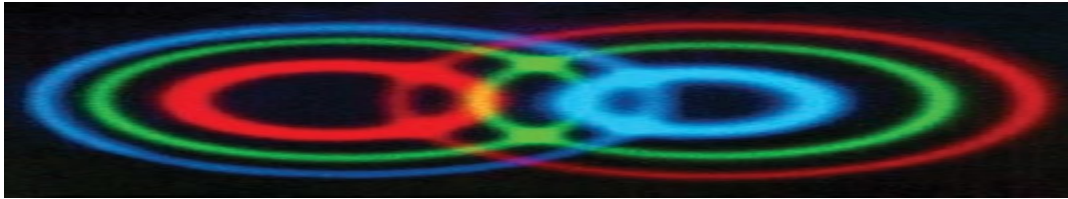
In fact, considering the self assembly in protein folding that is independent of the genetic code, we need to admit the existence of a new kind of information exchange as a new driver of the functional folding of proteins. Knowing that for a polypeptide chain of 1000 amino acids there are an enormous amount of possible different un-useful conformations, in spite of this we know that the functional conformation is very precisely built up by chaperones. Therefore it is impossible to think that the protein folding can be made through a casual event bases on a trial and error biological process.

Besides, in the field of nanotech it is important to consider that due to the properties of nanotubes or other pieces of nanomaterials that may constitute of just several atoms or molecules, traditional communication mechanism are inapplicable at nanonetworks size-dimensions. In fact many recent research also revealed that nanoscale devices can communicate through quantum phenomena related to the quantum entanglement effect.

Hence, following those consideration in brief, I believe that the European COST Action on Bio-Inspired Nano-technology, would to reserve a section of study oriented to build up models of understanding the auto-organization process at the nanoscale level, driven on the Quantum Entanglement non-local simultaneity of information field, that is an extended property of non-classical information processing in biology, as in recent years has been fully verified by numerous experiments interpreted by innovative theory. Finally I hope that some colleagues would like to agree to this study on **QUANTUMENTANGLEMENT & NO LOCAL INFORMATION EXCHANGE** as a section of the **BIO-INSPIRED NANOTECH. EUROPEAN COST ACTION 2010**.

Paolo Manzelli 04/APRIL/10 FIRENZE .

--Biblio on Line : <http://drivel.ca/writing/bio-nanotech.pdf>;  
[http://www.descrittiva.it/calip/dna/Quantum\\_Bio-Physics.pdf](http://www.descrittiva.it/calip/dna/Quantum_Bio-Physics.pdf)  
[http://www.edscuola.it/archivio/lre/entangling\\_information\\_theory.htm](http://www.edscuola.it/archivio/lre/entangling_information_theory.htm)  
[http://www.physics.drexel.edu/~bob/Term\\_Reports/Zhou\\_Di.pdf](http://www.physics.drexel.edu/~bob/Term_Reports/Zhou_Di.pdf)



***“QUANTUM ENTANGLEMENT = quantum particles overlap “***