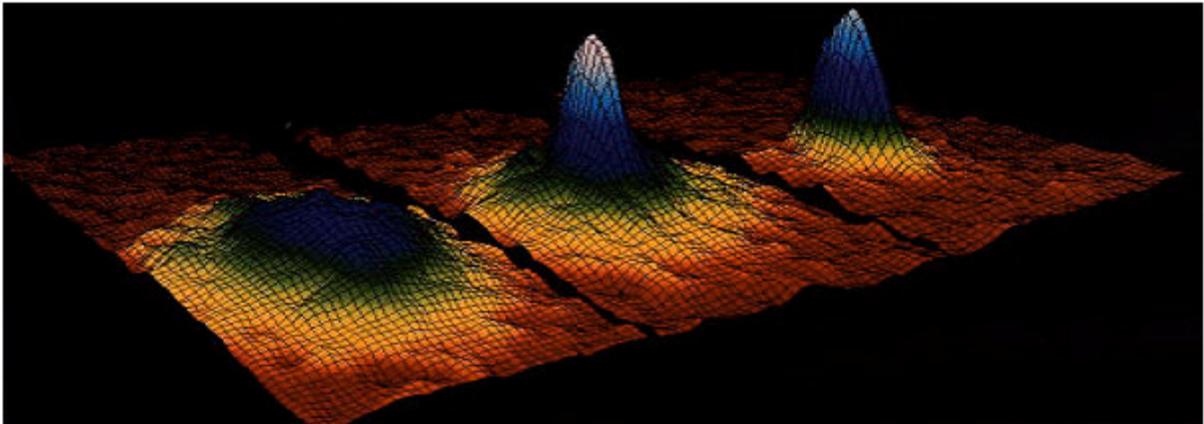


## Beyond Entanglement: Splitting of the Dual Nature of Quantum Wave Particles.

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To focus on the problem of what happens “**beyond the entanglement**” of quantum wave particles, I would recall what we know from the so-called Bose-Einstein Condensation.(1). As a matter of fact, as atoms get colder, they start to behave more like waves and less like particles, so that ultra cold-confinement of identical atoms results in the wave of each atom starting to overlap the wave of its neighbouring atom. Therefore, the atom-pairs lose their previous quantum identity, changing the previous informational status so that sometimes this action produces a superconducting effect.

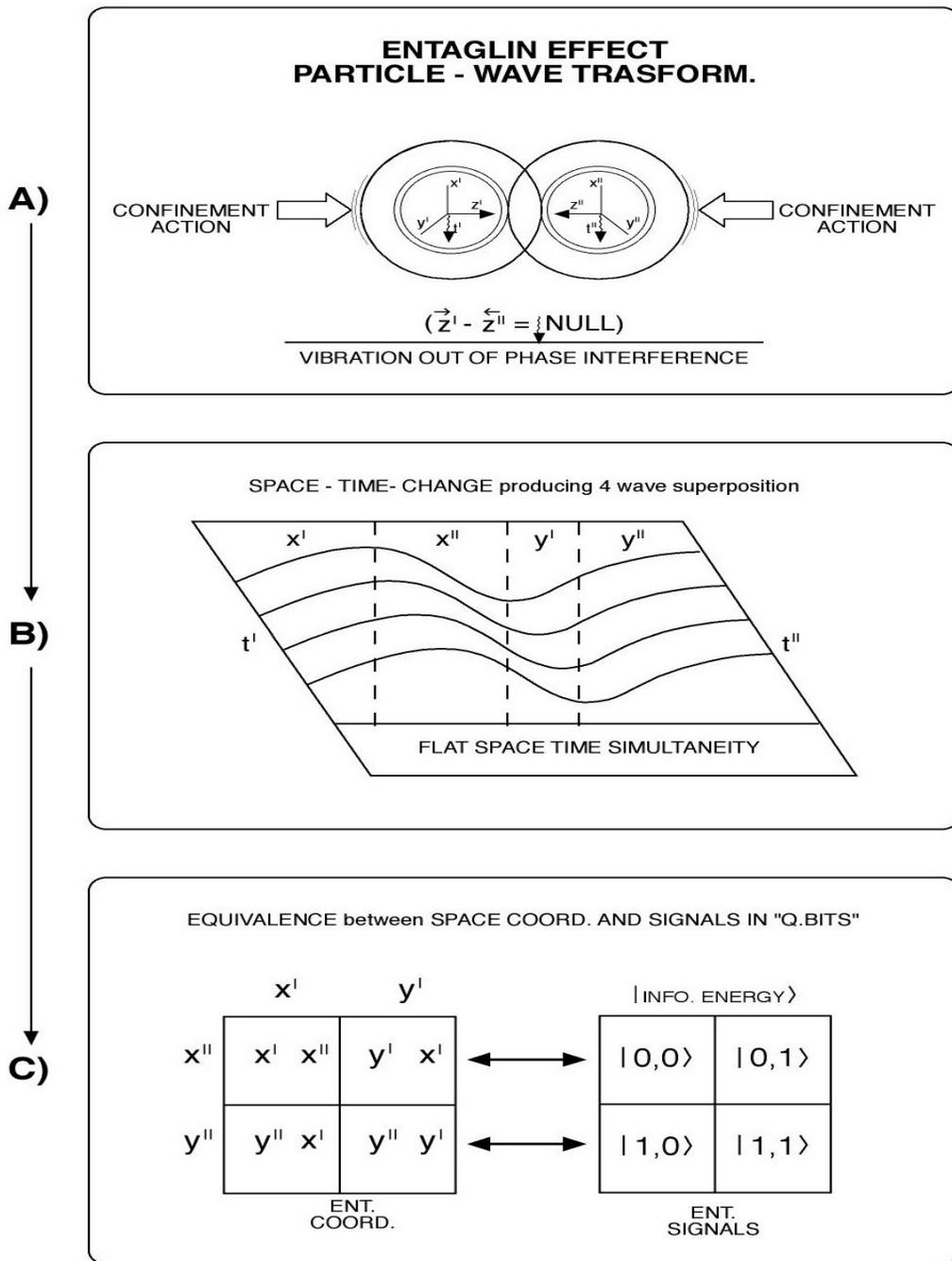
Besides atom-traps, (as for instance, Magnetic Optical Trap (MOT)) operations can generate atom-pair metastability. With this mode of confinement, it may be possible to utilize as a catalysis, the entanglement between atoms-pairs and other Q. particles, as well as, phonons, or photons, in a way that will accelerate the joining of atoms in a common synchronization of resonant frequency chains, in order to find superconductivity at a higher temperature.



**The Bose-Einstein condensate distribution** J. Res. Natl. Inst. Stand. Technol. **101**, 419 (1996)]

In a similar way, photons-pairs can be more easily trapped to get a “photon's entanglement”, that is a consequence of a meta-stable superposition of associated waves. This effect happens when the associated waves are in phase in a way to realise a mixed state of space-time, where two entangled photons exist together. A further impingement of the confinement action over two photons, provokes an destructive interference of the waves that corresponds to a dimensional compression of one of the three space coordinates. Therefore, after a “**critical point**” (that keeps a correspondence to the theoretical limit in the “*uncertainty*” regarding the precision of pairs of simultaneous related measurements), the complementarity of wave-particle drops down, collapsing into the transformation of quantum-wave/particles and having a superposition of four “*Pure Waves*” ( or “*Virtual Photons*” ), that are determining a quantum change of the fundamental units of space-time vector geometry. (2) Those packets of pure plane-waves, maintain the energy of the entangled pairs of photons, but the energy of this packet of pure waves of “*information energy*”, belong to a transformation of space time that change the set of coordinates from the traditional Euclidean dimension to another one, that re-designs the four vector from three coordinates of space and only

one for time (xyz,t) into a different configuration of “*information energy*”, within a symmetric structure described by a bit of flat space (x,y) and a bit of two dimensions of time's lines (t1,t2).(3) During the two lines of time, the energy extensively has the same invariant value, so that the information status remains simultaneously unchanged e.g. it is not needed to transfer “*information energy*” between two points of flat space .This kind of effect justifies the teleportation that is a key resource in quantum information science and in some aspect, it is influencing the nature of life. (4)



Finally, on the basis of a substantial equivalence between all forms of energy (including informational states of the four plane-waves, can be described as living in an “non-localised” zone of zero point energy, and can be represented by two forms of quantum computational methods; from one side, as segments of the quantized [X,Y] matrix (Ent. Coord), and from the other side, in terms of a signal’s factorization in Q. Bits ( Ent. Signals). (6)

The EGOCREANET research team is very conscious of proposing a conceptual change in

science communication. This is because the above description of the **splitting of the dual nature of quantum wave particles** does not permit us to follow a logic based on an auto-values equation resolution, like those normally utilised in Q.Mechanics of Schroedinger or Dirac. This is because the equations give a solution that conforms to the conditions that exists as an axiom of a fixed space-time structure.

Therefore, aiming to obtain a new “*heuristically aesthetic method*” in science & art, no more joined only to a sophisticated mathematical extension of the traditional Q. Mechanics concepts, EGOCREANET-Open Network for Science and Art (ONNSA) believes that “*aesthetics*” can provide a new generalization of reality for the evolution our mind in contemporary society. The above goal can become possible through overcoming the dichotomy between “*science and art*”, in order to overcome the difficulty in generating a “**mental change**”, through creating a modern movement with the goal of “**ENTANGLING SCIENCE with ART for a better quality of life**”.

This endeavour will be based on a critical approach towards the mechanic-culture born in the context of the industrial society. Its purpose will be the development of a profound contribution towards innovation for creating better conceptual opportunities to improve the future Knowledge Driven Mundial Society. (6)



<http://www.egocreanet.it/contributi/provelogo/provaloghi.htm>

### **Biblio On Line :**

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