

“From an Invisible Marvellous of Life to Atomic Energy and Entangled Particles“

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Abstract:

This paper supposed new idea of life, from microscopic molecules or atoms in sentences of Ancient Greeks – Démocritos from Abdéra (460 – 370 B.C.) and Leukippos from Milétos (500 – 440 B.C.), The Atomists, These philosophers suggested new conception of energy of the World, so called LOGOS ATOMOS, means INDIVISIBLE MATTER OF ENERGY, RESPECTIVELY NATURE POWERS AND ELEMENTS, WATER ELEMENTS, AIR ELEMENTS, FIRE ELEMENTS AND EARTH ELEMENTS.

The Concept saws on problemma of small entities of life and nowadays actually Coronavirus Sars-Cov-19-2, which were at the first cases detected in food fairs in China, provincy Wuchan (In December 2019) and on eastern coast of U.S.A. (New York and Conurbation Bos-Wash), nearly at the same time was virus Sars-2-Cov-19 detected in Italy and Spain (Southern Europe), is evident that this virus is an artificial made in microbiologist laboratories, probably have roots already in 70-80-ties, when was developed an Experimental Biological Project REBIRTH (In Aral Sea, Soviet Union) in Russian language возрождèние. From the 70-ties this Aral Lake Area was chosen like the Experimental polygon until 2010, when was a massive irrigation project realized, the area was used like a pocus polygon for testing of biological weapons (like for example for biological warfare and bio-terrorism (Tularemy, Brucellosis (Brucella melitensis, Brucellosis suis v. leporis), ornithosis and anthrax). Echinokokosis, Trichinelosis, Q-fever, this microbiological zoonosis are transmitted from domestic animals to Human communities. These biological weapons are cheap and effective than for example nuclear weapons.

Keywords: The Greek Atomists, “SLOWWALKERS“, Microbiology laboratories, Biological weapons, Dancing of molecules, entangled life, Volvox Aureus, mRNA, DNA, U,C,G,T/A,C,G,T principle of complementarity, genetic scissors, editation of genom, Atomic Energy, Slowly neutrons, fission reaction, NUCLEAR FUSION, ENTANGLED PHOTON.

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1. Introduction

In these days are very important new deals of no-war scientific projects, namely Project Ice Cube (AMANDA) in the subantarctic ice crust lake Vostok, where are simulated conditions on Jovi's Moons like Europa, Callisto, Ganymedes, and so like planetoid Ceres and small planet Pluto, where are according the new research supposed underwater life, namely like "MICROTURTLES" (TARDIGRADA lat.) from Latin Tardus (slowly) and Gradus (walker), so "SLOWWALKERS". Name of them was introduced in year 1777 by Italian biologist Lazzaro Spallanzani, these entities of life are significant for ANABIOSIS. The attention is dedicated to the most agile entities Spirochaete plicatilis Ehrenberg. In many species of Spirochaetes was recognized dangerous precursors of diseases. Ixodes Ricinus are transients of American, Indian, Southchinese changing chills.

In an investigation of Human stoma was founded Spirochaete buccalis and Spirochaeta dentium. For a long time was on Spirochaete seen like on Bacterias or like Protista, according the motivity and non-ability of photosynthesis are ordered between Animalia (Protozoa, Eucaryota).

These "small animals" in microscope description are called like "DANCING OF MOLECULES" – SEE, WE IMMORTAL ONE CELLULAR ENTITIES WITH EACH DIVISION (MITOSIS OR MEIOSIS) WE "REBORN". This paper in the beginning part suggests new branch of Science, "The biocells entangling" respectively a Quantum–Mechanics of Microbiology.

"We splashed squirt of microbes on water little drops on glass, put on them (fold the cover, slide plate) under the microscope." Suddenly to each eye see the stars, shining silver belt of The MILKY WAY, OUR GALAXY.

Between All of them and the distant stars are also small merge into a Nebulae Andromedae are whole islands of worlds, Spiral Nebulae or Galaxy from Myriads of Suns. Nine hundred thousand light years is far! Despite is Galaxy of Andromedae the nearest Island of Worlds and in the bigger telescopes are discovered many others, which are more distant.

The main part of paper is focused on Reproduction cells Biology, and quantum biology and genetics then is focused text on Atomic Energy, chain reaction, fission reactions and entangled particles, like the branches of Modern Physics.

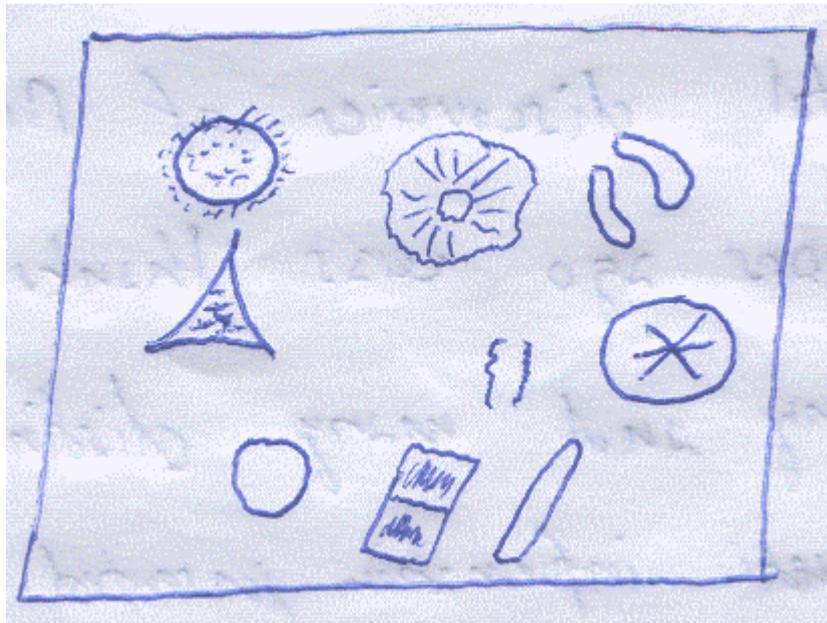


Fig. 1. Shapes of Protists, "Sea Diatomae, Bacillariophyceae".

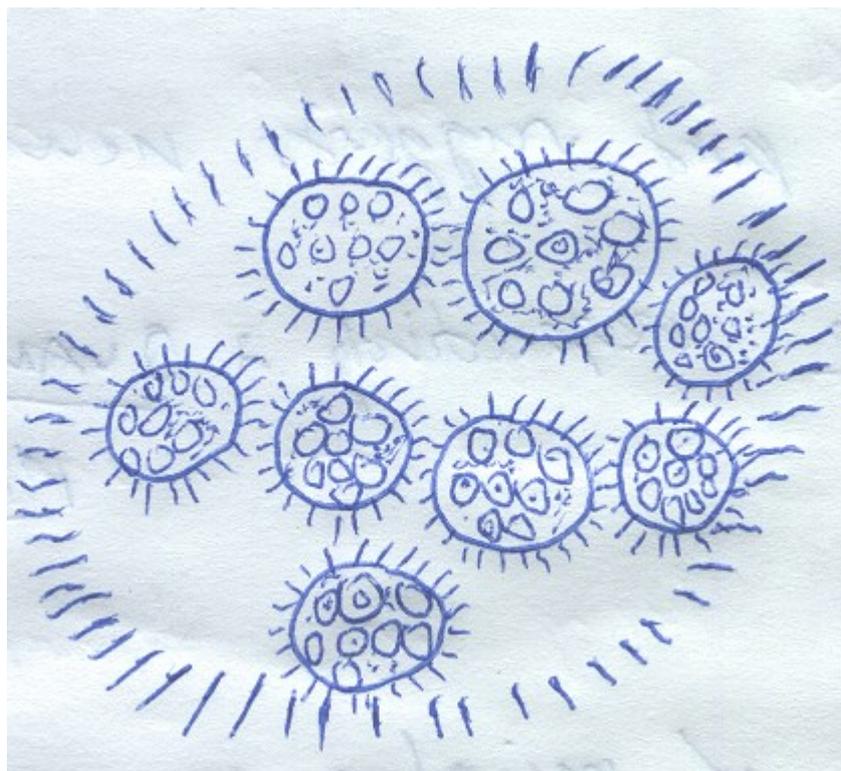


Fig. 2. Three generation in one being. Green Volvox include 8 daughter balls and 64 grandsons (Volvox aureus). Zoom 140x. Real diameter early $\frac{2}{3}$ mm. Author Sketch According Invisible miracles of Life, R. Nachtwey (1945).

2. Like a Human Plays in God

One afternoon in the year 1984 coming Just Brakenhoff, a student of Molecular Biology at Amsterdam University to his supervisor Rob Benn and said him, that on his autoradiogram found something strange.

Sequence of information (messenger) RNA (mRNA) of one mitochondrial gene of trypanosoma, bad known precursor of sleeping sickness, malaria and tuberculosis (TROPICAL DISEASES) claim millions of victims every year. Edited Information of mRNA was different from known sequence of DNA. No one from them didn't think, that suddenly came on one of fundamental discoveries of Molecular Biology of 80-ties. Accurately a 23 years ago was thanks to a work of M. W. Nirenberg, S. Ochoy, H. G. Khorany and many distinctive Biologists revealed a secret of transcription of a genetic information, inserted in DNA with help by way of 4 letters of nucleotides G (GUANIN), C (CYTOSIN), A (ADENIN), T (THYMIN) OR U (URACIL), UCAG/U in RNA=T in DNA).

This phenomenon became known like the "COMPLEMENTARY PRINCIPLE". In plant mitochondrias and chloroplasts comes to substitute to exchange C for U (sometimes U for C) in mRNA probably by a mechanism deamination of C (amination of U). With a some virions is inserted to a sequence one or more bases G immediately during the transcription (so called sluttering).

Other editation of RNA than insertion of nucleotide is conversion of one base for one other. This mechanism was recognized for example in mitochondrias and chloroplastide of wheat, where comes during the creation of protein CoxIII to change of cytosin by uracil. There is a significantly changed whole kodon on a concretely place in protein creation is ordered other aminoacid. Enzymatic apparatus neither exact localization not yet known until today.

- Comment no. 1:
- i. Amination / deamination: enrichment / impoverisation of molecule of aminogroup (NH₂).
 - ii. Kodon: sometimes called even like triplet. It's going about trinity of nucleotids (basis), which create kodon for one aminoacid in protein (in 1941, when Beadle and Tatum became with theory "one gene – one protein"). Proteosynthetic apparatus of cells read / edit kodons and attribute according them concretely aminoacids to synthesized protein.
 - iii. Transcript: molecule of RNA, which was made by transcription / reedition from DNA.
 - iv. John Craig Venter (*14.10.1946 (74 Aged), Salt Lake City, UTAH, U.S.A.) is American biotechnologist, biochemist, geneticist, and businessman. He is known like one of the first man, which successfully resequenced / reedited a Human genom, also he's known like a first biologist, who created a cell with synthetic / artificial genom. He founded a firm Celera Genomics and Organisation J. Craig Venter Institute. Magazine Time him edited in year 2007 and 2008 between 100 the most powerful people of the Whole World.

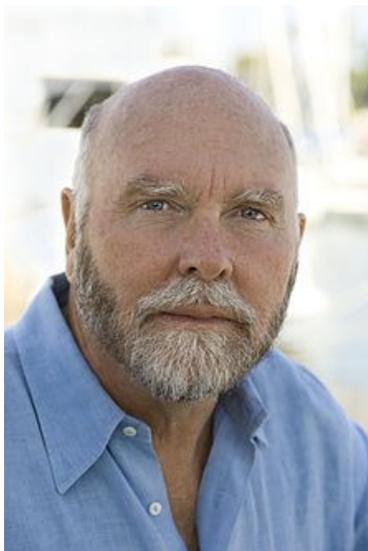


Fig. 3. Craig Venter (Wikimedia Commons).

3. Atomic Energy

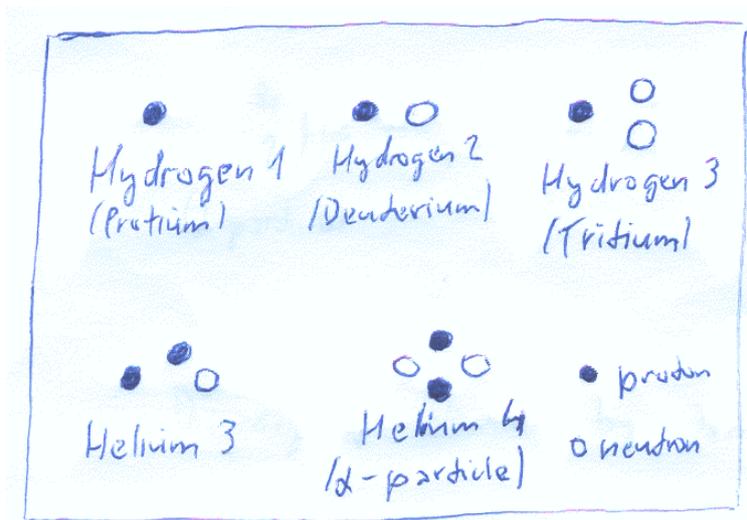


Fig. 4. Structure of Atomic nuclei.

3.1 Slowly Neutron

In 1933 discovered Dr. Enrico Fermi in Rome, that if are atoms bombarding by neutrons, can atomic nuclei to volume up neutron, which appropriate, thus atom happens isotope of original element, which is heavier, because accepted one neutron. This discovery of interception of neutron, how says about him, was one of the most important from many others notable discoveries and technical advances of Science in 30ties years in 20th Century.

But suddenly Fermi make the discovery, which was further more important. He recognized, that interception of neutrons became more and more faster, if pack of rays of neutrons at the first is slacked by water or parafine, or some other matter, riched on hydrogen.

$$a + X \rightarrow Y + b; Er \text{ (Energy of Reaction in MeV)} \quad (\text{Eq. 1})$$

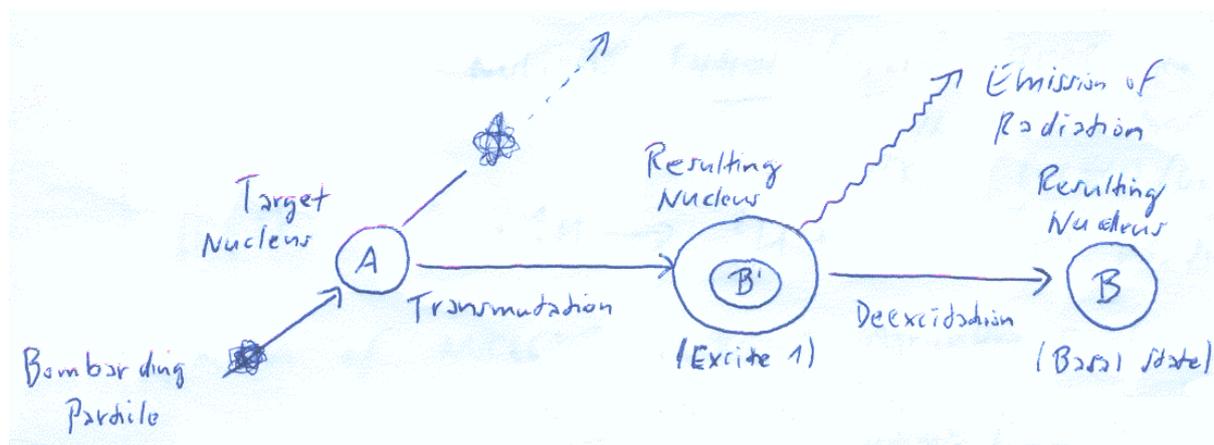
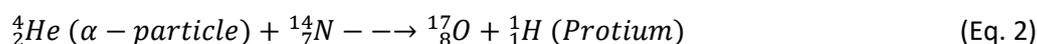
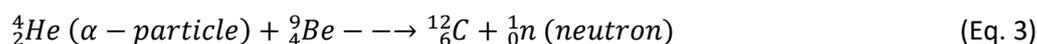


Fig. 5. Common scheme of nuclear reaction.

First artificial nuclear reaction stimulated by Ernest Rutherford (in 1919):



Discovery of Neutron by James Chadwick (1932):



URANIUM FISSION



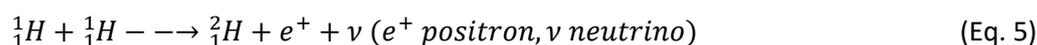
3.2 Uranothorite (Wisaksonite) (U,Th)SiO₄

Zircon U,Th(ZrSiO₄) → Zircon Th/U ratio decreases with whole rock zircon saturation temperatures.

Zircon Th/U ratio increases with Ti – in Zircon temperatures.

Fission track is method of geological / mineralogical dating, can be used in apatite, micas, sphene and zircons. Can also be used in rocks such as volcanic ash, obsidian, basalt, granites, tuffs and carbonitites. Ranges from 10³ to 10⁸ years (typically 0,1 Ma to 2000 Ma).

NUCLEAR FUSION (THERMONUCLEAR REACTION ON STARS AND IN TOKAMAKS AND STELLARATORS (ITER, JET CULHAM (GB), COMPASS, WENDELSTEIN (D), COMPASS (CZ), KSTART (KOREA), JT60 (JAPAN), URAGAN (Charkov, UKRAINE)))



Application of NUCLEAR REACTIONS: Agriculture, geochronological dating, medicine, industry a research, energetic industry, Atomic Plants, Atomic Submarines).

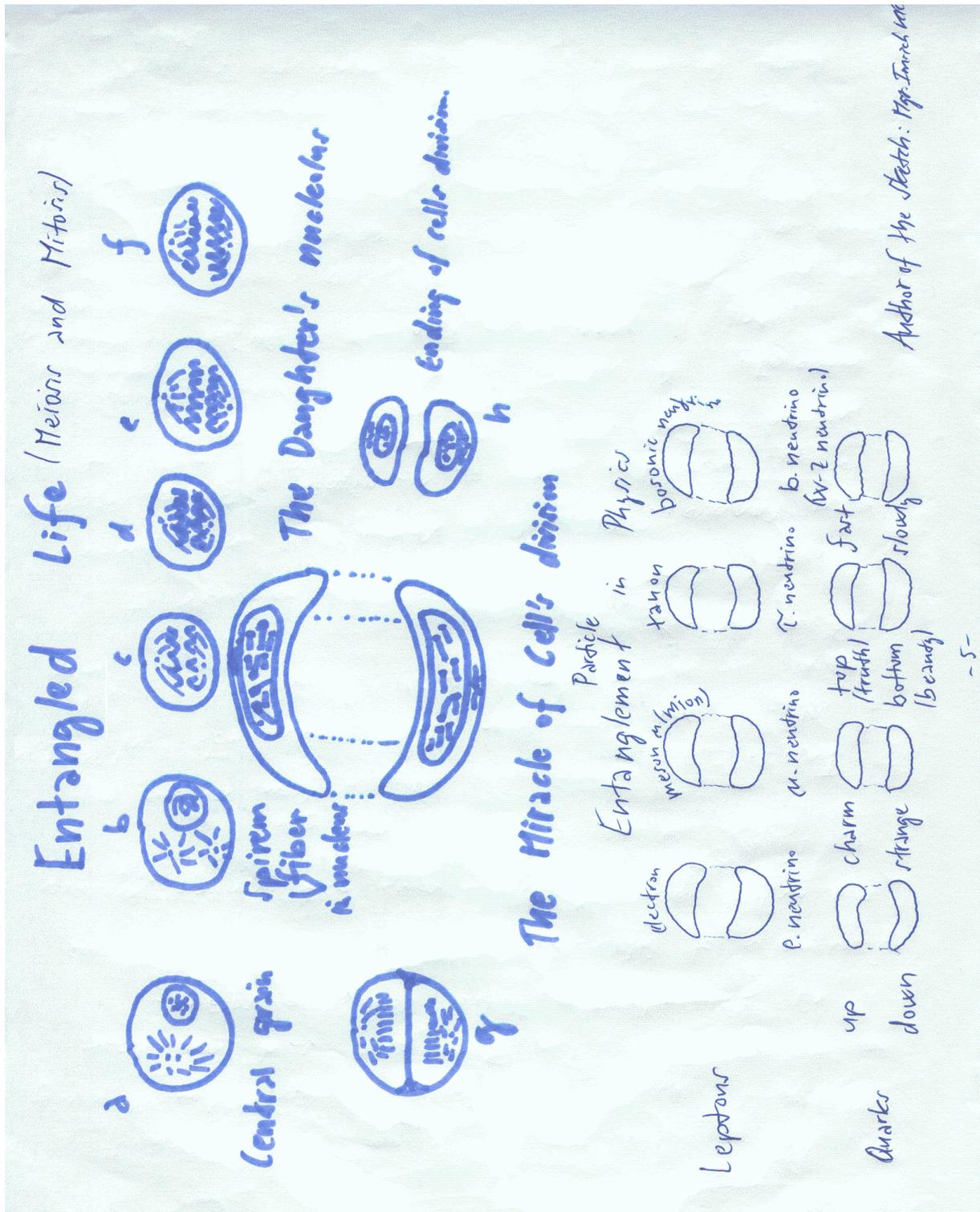


Fig. 6. Picture resp. Scheme of Entangled Life.

4. Entangled particles of light (photons)

Statistical characterization of quantum correlation has been guided for half a century by

Bell's inequalities. In 1935, in a provocative paper, Einstein, Podolsky and Rosen suggested a hypothetical experiment capable of testing some apparently paradoxical prediction of quantum theory, the EPR paradox.

Einstein believed quantum mechanical descriptions of physical systems to be correct only if supplemented with statistical distributions involving certain hidden-variables but von Neumann presented a mathematical proof that any hidden-variable theory must be in conflict with quantum mechanics.

Bell argued that the proofs, although mathematically correct, rested upon physically unrealistic assumptions and showed that regardless of choice of hidden-parameter framework expectation values with obey certain inequalities.

The EPR paradox philosophically interesting and has led also to a paradigmatic concept: "entanglement" (Schrödinger: "Vershränkung") with roots in the wave particle duality, today finding spreading applicability as briefly reviewed here.

Comment no. 2: Bell inequalities and Entanglement / local hidden variable theories. Bell's theorem proves that quantum physics is incompatible with local hidden-variable theories. It was introduced by physicist John Stewart Bell in 1964 paper titled "On the Einstein Podolsky Rosen Paradox". Referring to a 1935 thought experiment that Albert Einstein, Boris Podolsky and Nathan Rosen used to argue that quantum physics is an "incomplete" theory. By 1935, it was already recognized that the predictions of qf are probabilistic.

E.,P.,R. presented a quantum theory scenario that, in their view, indicated the quantum particle, like electrons and photons, must carry physical properties or attributes not included in quantum theory, and the uncertainties in quantum theory's predictions were due to ignorance of these properties, later termed "hidden variables". Their scenario involves a pair of widely separated physical objects, prepared in such a way that the quantum state of the pair is entangled (operating on Hilbert space with wave functions).

A more complicated case is given (in bra – ket notation) by the singlet state, which exemplifies quantum entanglement:

$$|\Psi\rangle = \frac{1}{\sqrt{2}}(|\uparrow\downarrow\rangle - |\downarrow\uparrow\rangle), \quad (\text{Eq. 6})$$

which involves superposition of joint spin states for two particles with spin $\frac{1}{2}$.

In 1950 Wu and Shalnov based on suggestion by Wheeler, demonstrated that the angular correlation of annihilation radiation from positron–electron pairs quantitatively fulfills the asymmetry pairs predicted by quantum pair theory. Also, potential future molecular sources for entangled photon related to selective two-photon absorption or emission from quantum (GaAs) quantum dots will be discussed.

It should be noted that besides entanglement of photons, which is the focus of this paper, nowadays (recent) development of research has demonstrated a wide varieties of new applications of entangled states of atoms, spins, super-conducting qubits, nanoparticles, etc.

Total wave function for the pair will remain intact:

$$\Psi(r_1, r_2) = 2^{-1/2}(\Phi_1(\alpha)\Phi_2(\beta) - \Phi_1(\beta)\Phi_2(\alpha)), \quad (\text{Eq. 7})$$

with Φ_1 and Φ_2 the wave functions for isolated particles and α and β denoting their opposite spins. On such system was found with amyloid protein aggregates where tyrosine dimers were a source of symmetric excitons here the alternating parity may instead be a help to exclude single-photon transitions like in thiophene, but favour two-photon transitions (high-sensitivity analytical-chemical application entangled light).



Fig. 7. John Stewart Bell, founder of Quantum Entanglement (Wikipedia).

5. Conclusion

This actual paper highlights observations interesting to pursue in future applications of entangled photons from single atoms and molecules. Against questions raised regarding applicability of Bell's inequalities (Bell's tests) and two-photon correlation results – application – quantum teleportation and quantum superdense coding, quantum secret sharing cryptography (Protocol E 91 and BB 84, discussion by Ekert Arthur). Applications of entangled and dark photon pairs and fermions like electron and positron have great significance in Research of protophobic X boson at Atomki Debrecen, where studying the atoms and molecules transitions of Beryllium-8, Lithium-7, and Helium-4.

Atomic Energy and CRISPER Cas-9 (molecular genetic scissors) winners of Nobel Prize in Chemistry 2020 (Emmanuelle Charpentier and Jennifer Doudna) for EDITATION OF GENOM, influenced of this development of Microbiology or Genetics is seemly from 90-ties, namely by work of biotechnologist and geneticist Craig Venter, who the first resequenced and reedited a Human genom (Celera Genomics and Organizaton J. C. Venture Institute).

The Know-how of Geneticists, Biologists, Biochemists and Microbiologists will be hopefully used to improve the Human Genom from genetic disorders like Huntington Disease, Schizophrenia, Manic

Depression, Alzheimer and Parkinson's Disease and finally defeated the origin virulent Diseases like Cancer, HIV/AIDS, and actually SARS-2-COVID-19, and contributed to improve a fitness of MANKIND and stopped BIO TERRORISTS, AND THEIR BIOHAZARD WEAPONS in the open doors of The New Age, Age of Love, Aquarian Era which will persist for next 2000 years.

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