Condensation of an atomic collapsar-monopolyum catalyzing reactions of cold nuclear transmutation. Heuristic hypothetical-deductive model of the theory of quantum gravity.

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Abstract. As a result of the reactions of cold nuclear transmutation, more energy is released than is expended. To explain the phenomenon, a heuristic algorithm for the chain reaction of string condensation is proposed. The resulting atomic collapsar catalyzes the reactions of cold nuclear transmutation due to the magnetic monopole effect.

Keywords: heuristic algorithm, chain reaction, quantum vortices, superconductivity, solitons, supersymmetry, extreme state of matter, quantum cosmology.

Introduction

On March 23, 1989, the scientific community was reported on the discovered phenomenon of cold nuclear transmutation (Martin Fleischman, Stanley Pons). The setup on which the experiment was performed included an electrolyzer with a palladium cathode, a platinum anode, and a current source (battery). The essence of the experiment consisted in the electrolysis of heavy water with additions of heavy lithium hydroxide (LiOD). In the course of the reaction, the cathode was destroyed. Gamma radiation (0.1-3 meV) of nuclear nature and X-rays (1.0-2.5 keV) were also observed, and the main product was tritium, which turned out to be 10^8 times more than neutrons. It was noted that the reaction channel with the neutron yield is strongly suppressed [1, 2]. On photographic films and nuclear photographic plates, traces of "strange radiation" of a magnetic nature were

recorded [3]. In some experiments, the effects of levitation were observed [4]. In the present work, we discuss a possible process based on the hypothesis of Academician Fortov V.E. about the probable course of reactions in a superdense medium [5]. The reasoning is based on the mechanism of quantum fluctuations with the formation of plankeons in extreme conditions of nuclear matter. For this, a heuristic algorithm for the chain reaction of obtaining a catalyst for cold nuclear transmutation is proposed in the context of the terminology of quantum gravity.

Initial conditions.

Juvenile surfaces, that is, places of a fresh fracture in the crystal lattice, which leads to its elastic vibrations with the appearance of spin-phonon interaction, are among the supposed active zones for the onset of nuclear transmutation reactions. Cracks in the palladium cathode must necessarily occur. Indeed, when this metal is saturated with hydrogen or deuterium, palladium hydrides are formed, and their crystal lattice is very different from the lattice of the parent metal. Inevitably, strong stresses arise, the metal structure is strongly deformed, and in the end, the growth of hydride plates leads to the formation of microcracks with a characteristic size of ~ 1 μm. As a result of cracking of the cathode, high-energy electrons are emitted from freshly formed surfaces of microcracks in vacuum, reaching a value of ~ 100 keV. This effect is due to the separation of unlike charges during the formation of juvenile surfaces, which lead to the appearance of strong electric fields (with a strength of up to 10^7 V/cm). In the process of electron emission, hard X-rays with a wavelength of the order of 10^{-1}-10^{-2} nm are generated [6]. Thus, the atoms of the crystal lattice find themselves in the area of action of external disturbing factors: the applied potential difference and the resulting electric field, scattering of electrons and X-rays, as well as phonon interaction.

Formation of a composite vortex.

As a result of cracking of the cathode, the arising phonon interferences lead to strong fluctuations with the discharge of a burst of energy on one of the palladium atoms [7], and shell density fluctuations are observed in the process of electron emission and their scattering on the electron shell. The energy of fluctuations is

spent on exciting the rotational motion of a deformed palladium nucleus in which, as a result of coherent correlation of nucleons, vortex rings are formed from superconducting pairs of protons containing a flux quantum fluxon: pF_Sp [8], which leave the nucleus due to the bleaching of the potential barrier [9]. As a result of electrolysis, a double electrical layer of a capacitor (dielectric) is formed on the surface of the cathode with a tension between the layers within 10^6 V/cm and a high electrical capacity of ~ 10^{-5} f/cm^2 [10]. In the resulting trap of a long Josephson junction (LJJ), due to Andreev reflection, a superconducting vortex ring is formed, consisting of two electrons containing a magnetic flux quantum: $e^-F_Ne^-$ [11]. When the proton and electron vortices interact, a composite vortex is formed with a common vortex center [12] in the form of dark hydrogen [13]: $pF_Sp+e^-F_Ne^-$

Formation of neutron-degenerate matter in the form of Abrikosov's vortex

As a result of the attraction of magnetic vortices, electrons are scattered by protons: $2(p+e^-)$—>$2(n+V_e)$; $V_eF_S=V^S$; $V_eF_N=V^N$ The resulting magnetically excited sterile Dirac neutrinos circulate around a non-superconducting cylindrical domain of neutrons, forming a neuron-degenerate matter-neutronium in the form of an Abrikosov vortex [14, 15]: V^SV^N+nn

The dynamic mechanism of chiral symmetry breaking and the formation of a quark bag.

Due to mutual attraction, the antisoliton cylindrical domain is located in the hole of the soliton magnetic ring. The process of transition of an antisoliton to a soliton, and a soliton to an antisoliton [16], which occurs during the interaction, entails, with a decrease in the diameter of the ring and an increase in the diameter of nucleons, an increase in pressure and breaking of chiral symmetry [17]. This leads to the precipitation of a gluon condensate in the form of pseudoscalar parapositronium (dark positronium): (V^SPsV^N+nn), which entails effective interaction with the Goldstone boson and leads to the synthesis of a singlet majoron (axion): $2V_e$—>$M^0{}_0$ [18]. From the liberated Dirac bion and positronium, two dions are formed: $(^+eF_S+^-eF_N)$, catalyzing the decay of nucleons into quarks [19]: 2n—>2(ddu), which leads to the restoration of axial symmetry during the

formation of a quark bag.

Tachyon condensation with the formation of Majorana neutrinos.

In the quark bag, the Higgs tachyon boson is synthesized from the electron-positron pair: $^{+}e^{-}e$ —> H^0,which forms a magnetic dipole T, with the Dirac bion of Hooft Polyakov (GUT monopoles) [20]: $H^0+F_SF_N$—>SN. The emerging tidal forces due to the magnetic Callan - Rubakov effect [21] catalyze the extreme phase transition of the rupture of quark matter into rishons with the formation of a double massive Majorana right-handed quasineutrino [22]: : 2(V˜V˜T˜+V˜V˜T˜+TTV)—>2(V˜V˜V˜)=>2˜v_e^m.

It should be borne in mind that the resulting scalar Higgs field, being near the local maximum of the potential, is tachyonic and unstable with an imaginary part in the form of a negative square of mass. However, when the tachyon field reaches the minimum potential, its quanta are no longer tachyons, but ordinary Higgs bosons with a positive square of mass [23]. In our case, the system transitioned to an extreme massless state due to the fact that the resulting tachyon Higgs boson with negative mass neutralized the ordinary Higgs boson with a positive mass contained in nucleons.

Formation of a dynamic wormhole with a strong magnetic field.

In the system, when the baryon and lepton numbers are violated, the R-parity is preserved, which entails the lifting of degeneracy when supersymmetry is violated and the paired production of stable lightest supersymmetric quasiparticles. This leads to the decay of a double Majorana right-handed quasineutrino with the formation of the second axion, the Higgs boson with positive mass, and two Goldstinos (Goldstone fermion, doublet majoron, supersymmetric partner of neutrinos) [24]. From two singlet majorons and one Higgs boson with a positive mass, paired Higgs-Goldstone gravitons with spin equal to two are synthesized: $M^0{}_0$2˜v_e^m—>$M^0{}_0M^0{}_0H^0$+2$M^0{}_{1/2}$—>2(G$M^0{}_{1/2}$). As a result of the interaction of two c-neutrinos with a magnetic dipole, an antisoliton sterile coupled pair of magnetically excited c-neutrinos is formed: $M^0{}_{1/2}M^0{}_{1/2}$SN=>$V_S{}^SV_S{}^N$ Being inside the graviton tube of a two-dimensional soliton [25, 26], vortex filaments are

formed from paired vortex magnetically excited c-neutrinos that hold an open massless dynamic wormhole with a strong magnetic field due to the soliton-antisoliton interaction, forming a vortex cord [27]: $V^{S}_{S}V^{N}_{S}$+GG

Formation of a stringed atomic collapsar -monopolyum.

As a result of the gravitational compression of the radial magnetic field, the wormhole collapses and degenerates [28]. Due to the tachyon instability [29], the wormhole transitions from a state with a strong magnetic field to a state with a weak magnetic field due to the formation of paired gravitinos with an imaginary mass having a spin of 3/2 according to the scheme [30]: $M^{0}_{1/2}M^{0}_{1/2}$SN<—> $ggF_{S}F_{N}$ Due to the occurred dual Seiberg transition, an annular singularity is formed from two filamentary gravitin strings [31], which is located under the sphere of the inner event horizon formed by paired graviton rings. The formed singular core from a pair of gravitational supermultiplets, in turn, is itself under the sphere of the outer event horizon formed by the orbital fluxon pair of the formed atomic collapsar-monopolyum: 2(gGF) [32,33]. In this case, the ring singularity keeps the system from collapse due to the forces of fermionic repulsion. The resulting atomic collapsar catalyzes the reactions of cold nuclear transmutation due to the magnetic monopole effect [34, 35]. When calculating the dimensions, the external four-dimensional space-time should be added to the seven-dimensional collapse, as a result of which the eleven-dimensional space is obtained.

Balance of the reaction in the formation of an atomic collapsar.

The complete balance of the chain reaction shows a violation of the lepton and baryon numbers by two during the formation of a quantum of dark matter [36,37]. It should be noted that two protons take part in each fusion act, and therefore there is a scheme of nuclear transmutation of the parent palladium atom with a step every two: $_{46}Pd\rightarrow_{44}Ru\rightarrow_{42}Mo\rightarrow_{40}Zr$. An increase in the impurities of molybdenum and zirconium by a factor of 1200-2500 was observed experimentally [38]

Conclusions

The proposed heuristic hypothetical-deductive model of the theory of quantum

gravity in the form of a chain reaction of catalyst synthesis for cold nuclear transmutation is in good agreement with the complementary theories of the string and loop parts of quantum gravity. The evolution of the gravitational collapse, which occurs as a result of the quantum fluctuations of the physical vacuum, leads to the condensation of oscillating plankeons. The resulting string atomic collapsar coincides with scientifically grounded arguments for the existence of a similar medium in the Cosmos, which can be attributed to the defining criterion in string cosmology. For the detection of dark matter, one can be guided by scientific work [39]. In addition, the surrounding magnetic field of the Earth indicates the presence of dark matter. Continuing research into the proposed heuristic model of string condensation will allow a deeper understanding of the nature of the phenomenon and create a complete scientific theory of everything based on the effect of quantum fluctuations of the physical vacuum with the formation of oscillating plankeons with the participation of which our Universe is formed. In addition, this line of research will make it possible to create a fundamentally new energy and technical means that allow one to move in the environment of atomic collapsars similar to the observed flying disks of unearthly origin, which are being created in developed countries of the world [40]. It can be assumed that it is possible to create stable conditions for the existence of a traversable wormhole phase with a polarizer around the aircraft [41]. When moving in such an environment around the spacecraft, a glow of dark matter will be observed, which is observed during operation of polarizers and from UFOs [42]. According to scientific studies, nature has provided for the use of the quantum mechanism of nuclear transmutation also in biosystems [43].

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