

Rotating magnetic systems and dark matter

1. Quantum biology inspires the hypothesis $h_{eff} = n \times h$ of Planck constants labeling of levels of dark matter hierarchy. The quantal effects of ELF em fields on vertebrate brain serve as a motivation.
 - (a) h_{eff} is assigned with Kähler magnetic flux tubes carrying dark matter as phases of ordinary matter, which are macroscopically quantum coherent for large values of h_{eff} .
 - (b) The model of quantum biology leads to the hypothesis that EEG serving as communications tool between biological and magnetic body consists of dark photons which decay to ordinary photons in visible and UV range. This implies that the value of h_{eff} is rather large, or order 10^{14} .
 - (c) The model for the communications between magnetic body and biological body leads to the hypothesis that the value of h_{eff} depends on ion being proportional to its mass number A , and thus has different value for each particle. This guarantees that the energy $E = h_{eff} \times f$ associated with the cyclotron frequency $E_c = ZeB/2\pi m$ is independent of the mass of the charged particle.
2. Nottale's finding that planetary orbits seem to correspond to Bohr orbits in gravitational potential with gigantic value of gravitational Planck constant.
 - (a) By Equivalence Principle h_{gr} has the general form $h_{gr} = GMm/v_0$, where M and m are the interacting masses and v_0 is a parameter with dimensions of velocity. v_0 seems to correspond to a typical rotation velocity in the system formed by the masses. For three inner planets one has $v_0/c \simeq 2^{-11}$.
 - (b) The notion of h_{gr} generalizes to that for other interactions. For instance, in electromagnetic case the formation of strong em fields implying charge separation leads to systems in which $h_{em} = Z_1 Z_2 e^2 / v_0$ is large. Pollack's exclusion zone and its complement define this kind of systems and is identified as prebiotic life form.
 - (c) Since the natural expansion parameter of perturbative expansion is the $g^2/4\pi\hbar$, one can say that transition to dark matter phase make the situation perturbative. Mother Nature is theoretician friendly.
3. h_{em} might be large in the exclusions zones (EZ) appearing in the water bounded by gel. They were discovered by Pollack.
 - (a) EZ carries very large negative charge with positive charge outside the exclusion zone.
 - (b) TGD interpretation is in terms of $H_{3/2}O$ phase of water formed when every 4:th proton is transferred to magnetic body as dark particle with large value of h_{eff} . The proposal is that primitive life form is in question.
 - (c) The pair formed by EZ and its complement could have large value of $h_{eff} = h_{em} = Z^2 e^2 / v_0$.
 - (d) The velocity parameter v_0 should correspond to some natural rotation velocity. What comes in mind is that complement refers to Earth and v_0 is the rotation velocity at the surface of Earth. The prediction for h_{eff} would be of order $h_{em}/h = 4\pi\alpha Z^2 \times .645 \times 10^6 \simeq 5.9 \times 10^4 Z^2$.
 - (e) Cell membrane involves also large charge separation due to very strong electric field over the cell membrane. Also now dark phases with large h_{em} or h_{gr} could be formed.
4. I have proposed that metabolic machinery generates large h_{eff} phase somehow. $h_{eff} = h_{em}$ hypothesis allows to develop this conjecture in more detail.
 - (a) The rotating shaft of a molecular motor associated with ATP synthase is proposed to play a key role.
 - (b) What comes in mind is that the rotational velocity v_0 of the shaft appears in the formula for h_{em} . The electric field over the mitochondrial membrane generates charge separation and the product of charges of shaft and its complement should appear in the expression for h_{em} .

-
- (c) The value of v_0/c is expected to be of order 10^{-14} from the angular rotation rate of ADP synthase about few hundred revolutions per second. The order of magnitude for h_{em} could be same as for h_{gr} . associated with Earth-particle system.
5. Rotating magnetic systems are claimed to exhibit anomalous such as spontaneous acceleration and over unity energy production.
- (a) I have proposed that rotating magnetic systems give rise to dark matter at magnetic flux tubes associated with the system.
- (b) The parameter v_0 appearing in the general formula for h_{eff} assigned with either em or gravitational flux tubes is identifiable as the rotation velocity. One has $v_0/c \simeq 3 \times 10^{-8}$.
- (c) Since these systems are strongly charged, a natural guess is that h_{em} is in question.