Two different lifetimes for neutron as evidence for dark protons

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Abstract

The 4 sigma discrepancy in the measured values of neutron lifetime using two different detection methods provides support for hypothesis that protons can transform to dark protons. In the second method protons resulting in the beta decay of neutron are detected, and if a fraction of about 1 per cent of protons transforms to dark protons, the experimental discrepancy can be understood.

I found a popular article (see http://tinyurl.com/hqsaqok) about very interesting finding related to neutron lifetime [C1] (see http://tinyurl.com/h88n57j). Neutron lifetime turns out to be by about 8 seconds shorter when measured by looking what fraction of neutrons disappears via decays in a box than by measuring the number of protons produced in beta decays for a neutron beam travelling through a given volume. The lifetime of neutron is about 15 minutes so that relative lifetime difference is about $8/(15 \times 60) \simeq .8$ per cent. The statistical signficance is 4 sigma: 5 sigma is accepted as the significance for a finding acceptable as discovery.

How could one explain the finding? The difference between the methods is that the beam experiment measures only the disappearances of neutrons via beta decays producing protons whereas box measurement detects the outcome from all possible decay modes. The experiment suggests two alternative explanations.

1. Neutron has some other decay mode or modes, which are not detected in the box method since one measures the number of neutrons in initial and final state. For instance, in TGD framework one could think that the neutrons can transform to dark neutrons with some rate. But it is extremely unprobable that the rate could be just about 1 per cent of the decay rate. Why not 1 millionth? Beta decay should be involved with the process.

   Could some fraction of neutrons decay to dark proton, electron, and neutrino so that dark protons would not be detected in beam experiment? No, if one takes seriously the basic assumption of TGD that particles with different value of $h_{eff}/h = n$ do not appear in the same vertex. Neutron should first transform to dark proton but then also the disappearance could take place also without the beta decay of dark proton and the discrepancy would be larger.

2. The proton produced in the ordinary beta decay of proton can however transform to dark proton not detected in the beam experiment! This would automatically predict that the rate is some reasonable fraction of the beta decay rate. About 1 percent of the resulting protons would transform to dark protons. This makes sense and would give strong hold about the rate for ordinary-dark transition rate. The observation of decays of neutron to electron, and neutrino but not proton would provide a support for the hypothesis. Both neutrino and proton would represent missing mass!

Dark matter as hierarchy of phases of ordinary matter is now a basic prediction of adelic TGD and $h_{eff}/h = n$ has in terms of number theory and space-time topology [K6, K4]. What is so nice is that the transformation of protons to dark protons is indeed the basic mechanism of TGD inspired quantum biology [K5, K4]! For instance, it would occur in Pollack effect [I1] in with infrared irradiation of water bounded by gel phase generates so called exclusion zone (EZ), which is negatively charged, and creates what Pollack calls fourth phase of water. TGD explanation is that some fraction of protons transforms to dark protons at magnetic flux tubes outside the system. Negative charge of DNA and cell could be due to this mechanism. One also ends up to a model of genetic code with the analogs of DNA, RNA, tRNA and amino-acids represented as triplets of dark protons associated with magnetic flux tubes parallel to DNA strands [K2] [L2]. The model predicts correctly the numbers of DNAs coding a given amino-acid. Besides quantum biology, the model has applications to cold fusion [L1], and various phenomena referred to as "free energy phenomena" [K3, K1].

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