The Phoenix-I Theory - A New Preonic Model for the Composition of All Known Matter and Energy

by John SkieSwanne

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Introduction

There are unsolved questions in physics, questions which leads us to consider the existence of structure beyond the Standard Model - in other words, preons.[1] But additionally, reductionism concludes, by its very definition, that there should be less types of preons than there are of quarks, leptons and bosons.

After years of investigations regarding particle decay, I present the Phoenix-I Theory, which, at least partially, unifies gauge bosons with leptons and quarks. The Theory involves only 2 types of preons. I came to call these logoson (symbol: "a") preons and primeon (symbol: "b") preons.

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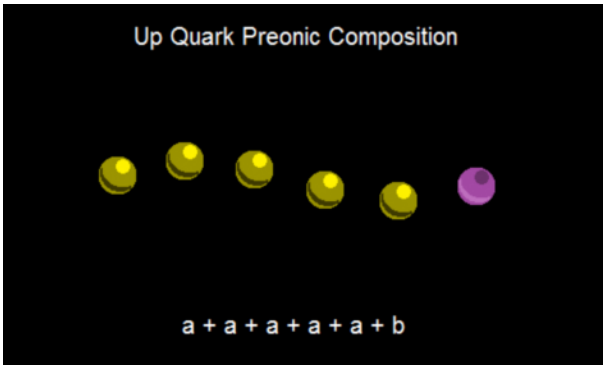
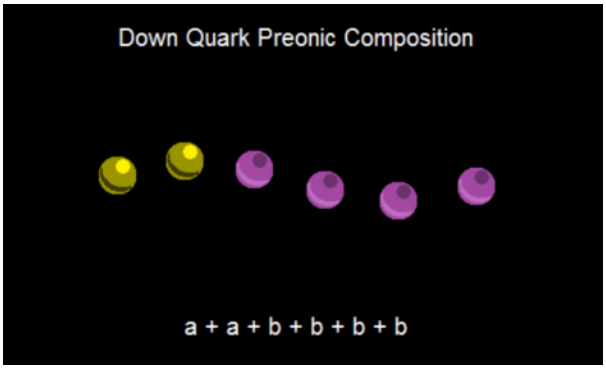
Abstract

This theory proposes that all currently known particles, including quanta, are made of smaller components, preons. More specifically, of 6 preons. All known particles may not have more, nor less, than 6 preons. Preons come in two flavours. Logosons have an electric charge of +1/6. Primeons have an electric charge of -1/6. Each particle of the Standard Model has an antiparticle whose sequence is the exact opposite - a bit like the negative of an image.

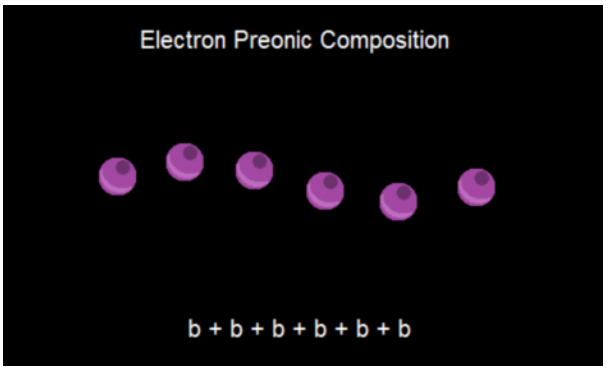
Up quarks are made of 5 logosons and 1 primeon. Up antiquarks are made of the exact opposite: 1 logoson and 5 primeons.



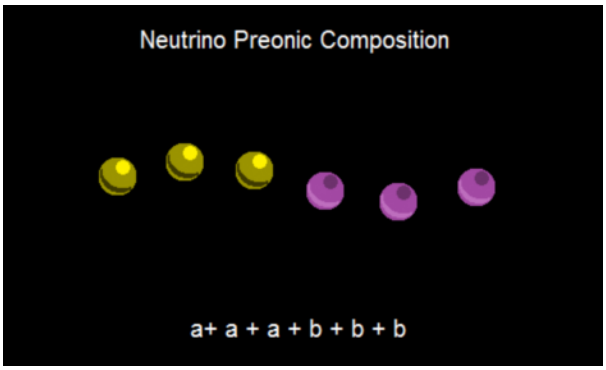
Down quarks are made of 2 logosons and 4 primeons. Their antiparticles are made of the exact opposite: 4 logosons and 2 primeons.



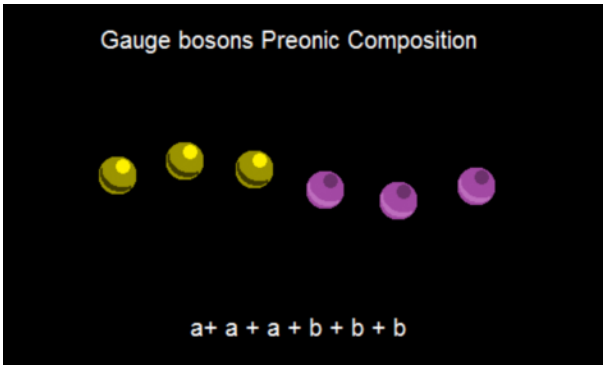
Electrons are made of primeons exclusively, giving them a charge of -6/6 (-1). Positrons are made of the exact opposite: 6 logosons, giving them a charge of +6/6 (+1).



Neutrinos are made of equal quantities of logosons and primeons.



And finally, gauge bosons are also made of equal quantities of logosons and primeons:



(The observed difference of spin between gauge bosons and neutrinos is covered by the Phoenix-II Theory)

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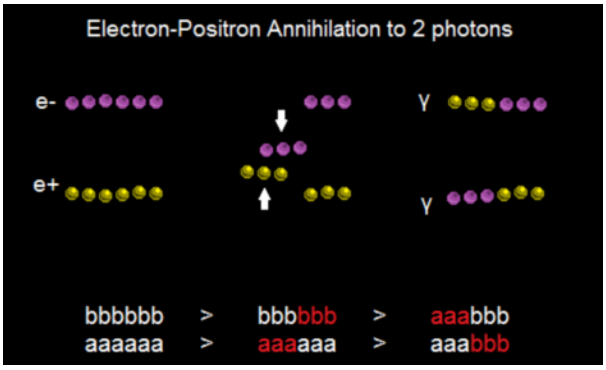
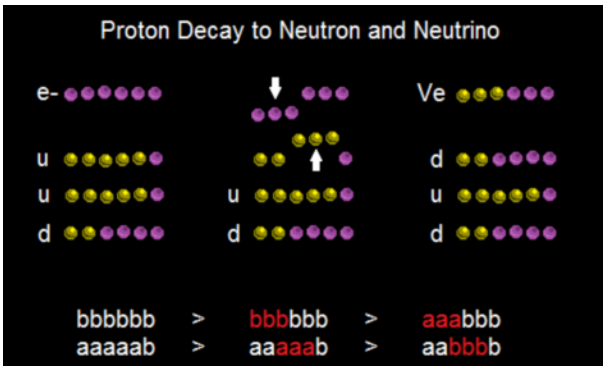
Bearing that in mind, explaining particles decay is now quite simpler and elegant.

Let us first explore electron/positron annihilation. According to the preonic model, this event actually occurs when the electron gives 3 primeons to the positron, and the positron gives 3 logosons to the electron. The

result is in agreement with experimentation, which is the conversion into two gauge bosons (here photons).[2]



Furthermore, let us explore the proton decay by K-capture - a rather exotic form of decay.[3] Again, it may be explained by nothing more than an exchange of preons. The capture of the electron causes the up quark in a proton to give 3 logosons to the electron, which gives in return 3 of its primeons. The result is the conversion of the up quark into a down quark, and the conversion of the electron into an electron neutrino:



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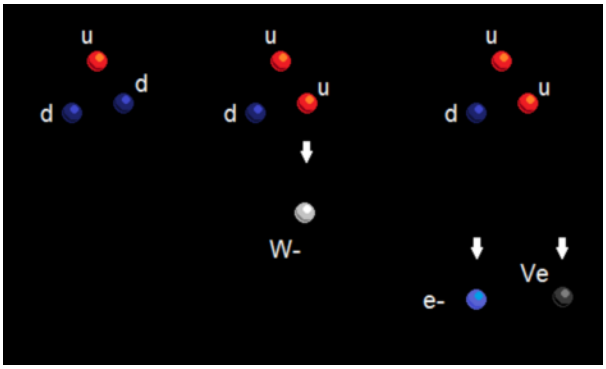
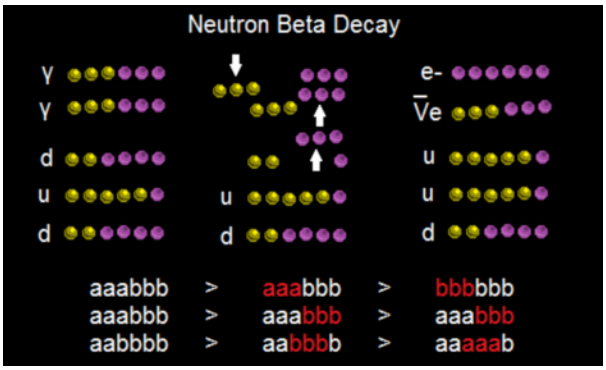
As can be demonstrated above, decay modes are in agreement with the model. Now when it comes to the neutron's natural decay, things get really interesting.

The standard explanation for the neutron's beta decay involves a virtual particle, known as the W- boson. According to this theory, the neutron is stable for 885.7 seconds. Then, the transforming down quark emits a W- boson as it changes to an up quark. Then, very shortly after (about 3x10-25 second), this W- boson splits into two new particles: an electron and an antineutrino. A diagram to demonstrate what is theorized to happen:

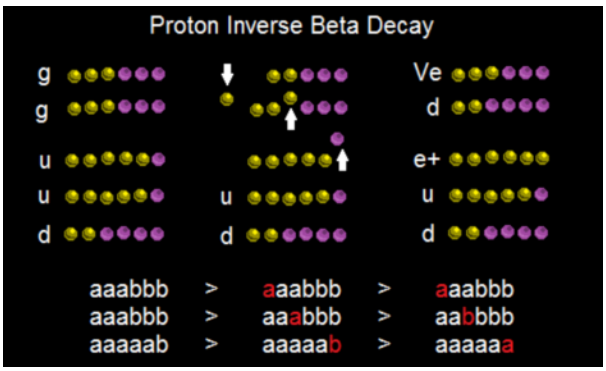


But the preonic model implies that no intermediate W- bosons are needed for the neutron to decay into a proton, an electron and an antineutrino. The weak interaction is, in a sense, conducted by the shuffling of preons itself. This and the presence of a background, neutral particles (here assumed to be photons, but gravitons, zero-point energy, or even neutrinos may be considered as likely candidates)[4] already accounts for these transformations:



Here we may witness a background, neutral particle (here assumed to be a quanta) giving 3 logosons to the down quark, which forces the other particle to yield 3 of its primeons to the first one, and finally the down quark gives 3 primeons to the second particle. Once this shuffling is done, the result is in agreement with observations: a down quark, an antineutrino and an electron.

This suspected interaction with environmental energy may be confirmed by the proton's decay. As it is widely known, protons live almost indefinitely, except in high-energy backgrounds. For instance, in some nucleons.[5] This is predicted by the Theory. In higher energy environments, such as where gluons are present, the energy itself may actually helps the proton to decay into a neutron, a positron and a neutrino (called inverse beta decay):



In such conditions, a gauge boson (here assumed to be a gluon, since nucleon's binding energy is provided by only one known force, the Strong interaction force) gives 1 logoson to the up quark. The other gives 1 logoson to the first gauge boson. The up quark, like any particles, can't have more or less than 6 preon, so it gives up its lone primeon to the second gauge boson. This quick shuffling solves the mystery.

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Conclusion

Although demonstrably accurate, the Phoenix-I Theory is based on pure observations, and has severely limited speculations to propose. Thus its statements are limited to the observed particle decays, and their electrical charges.

To account for the other properties of the Standard Model's dozens of particles, one has to venture in slightly more speculative propositions. To serve that purpose, the Phoenix-II Theory exists and is to be considered. It works as an extension of the Phoenix-I Theory, so to account for

-the three generations of fermions
-the spins of all matter and energy particles
-the antiparticles of all matter particles, and CT-symmetry
-the kaon oscillation mystery
-the anomalous magnetic moment of the muon
-the neutrino's oscillation into another flavour

And suggest mechanisms for

-the observed rest mass
-the EMC effect

This concludes the part I of my essay on the preonic composition of all matter and energy.

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References:

[1]http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_physics, 2010
"Are any of the particles in the standard model of particle physics actually composite particles too tightly bound to observe as such at current experimental energies? "

[2]http://en.wikipedia.org/wiki/Positron, 2010

[3]http://en.wikipedia.org/wiki/Beta_decay, 2010

[4]http://news.stanford.edu/news/2010/august/sun-082310.html
"decay rates appears to be affected by the rate of neutrinos emitted by the Sun"

[5]http://en.wikipedia.org/wiki/Neutron, 2010
"inside a nucleus, protons can also transform into a neutron via inverse beta decay. This transformation occurs by emission of a antielectron and a neutrino. "
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