

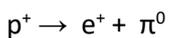
An alternative model for the inner structure of a proton (and an explanation of the nature of matter)

By Harald Iglseder, Vienna, February 2019

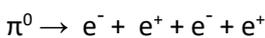
Abstract: In this article I want to describe a model for the inner structure of a proton, that is an alternative to the quark-model and yet consistent with it. Furthermore, this model explains the nature of matter in a very simple way and gives an answer to the question, why the amount of matter and antimatter is not the same within the universe.

Introduction:

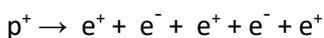
Although a proton decay is hypothetical and has never been observed, it can lead us to an understanding of the inner structure of a proton:



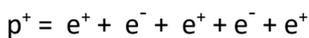
Assuming a double Dalitz decay the neutral pion decays to



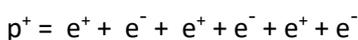
Together this two decays lead to the following result:



Why don't we take that serious and assume this as the inner structure of a proton



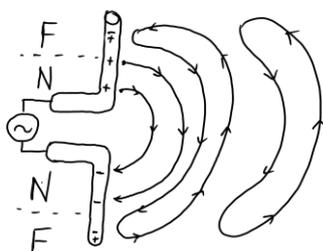
and accordingly, this as the inner structure of a neutron:



In a free form electrons and positrons would extinguish each other and leave nothing but energy in the form of photons. But maybe there is a mechanism within hadrons (i.e. protons and neutrons), that prevents the fusion of matter and antimatter and keeps them stable within the hadrons.

Below I want to show a model that could provide and explain such a mechanism and also explain the role of the Quarks within that model.

Before we continue let us have a short look at the electric field of a dipole antenna: the electric field is divided up into two areas, the area of the "near field" and the area of the "far field". In the area of the near field, the field lines of the electric field start at a positive charge and end at a negative charge. In the area of the far field, the field lines close and travel as electromagnetic waves through the space.

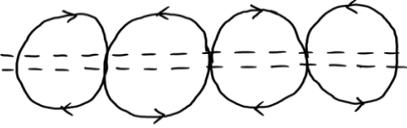
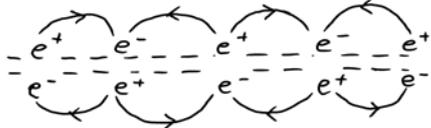
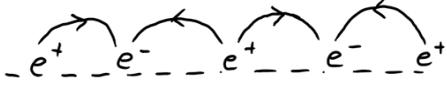


N...Near Field, F...Far Field

This means, that matter (with an electric charge) is represented by open field lines, while (electromagnetic) energy is represented by closed field lines.

A model for the inner structure of a proton:

Let us assume, that there has been a universe before the Universe - a "Pre-Universe". Like in our universe there are quantum-fluctuations within the Pre-Universe. Somewhen those quantum-fluctuations (spread over a gigantic area) gain a critical mass, which is big enough to form a black hole of the size of a universe.

<p style="text-align: center;">Universe</p> <p style="text-align: center;">-----</p> <p style="text-align: center;">Antiverse</p>	<p>The forming of the black hole will split up the Pre-Universe into two parts: one part, that is inside the black hole, and another part, that is outside the black hole. Let us call the part, that is inside "Universe" and the part, that is outside the "Antiverse". According to some theories, time is reversed on the inside of black-holes. Therefore the black-hole appears as a "white-hole" and the collapse as an explosion called the "Big-Bang".</p>
<p style="text-align: center;">Universe</p>  <p style="text-align: center;">Antiverse</p>	<p>The quantum-fluctuations in the Pre-Universe had been accompanied by an electromagnetic field. In the moment, the black-hole is formed, some of the field-lines are split up into two halves: one half, that is inside the black-hole, and one half, that is outside the black-hole.</p>
<p style="text-align: center;">Universe</p>  <p style="text-align: center;">Antiverse</p>	<p>The result is, that at some points within the Universe, the field-lines of the electric field seem to leave the Universe (and to enter the Antiverse), and at other points they seem to enter the Universe (coming from the Antiverse). The points, where the field-lines leave, appear as electrons e^-, the points, where they enter, as positrons e^+. Protons are now formed by three positrons e^+ and two electrons e^-. Neutrons are formed by three positrons e^+ and three electrons e^-. Matter and antimatter do not extinguish each other within those structures, as the sub-particles stay glued to their anti-partner in the Antiverse (by the field lines that permeate through the event horizon of the Universe).</p>
<p style="text-align: center;">Universe</p>  <p>Charge:</p> $\underbrace{+1 \quad -\frac{1}{3}}_{\text{Up-Quark}} \quad \underbrace{-\frac{2}{3} \quad +1 \quad -\frac{2}{3}}_{\text{Down-Quark}} \quad \underbrace{-\frac{1}{3} \quad +1}_{\text{Up-Quark}}$	<p>Within this explanation for the structure of a Proton also the nature of Quarks can be explained.</p>

The given model can explain, why the amount of matter and antimatter does not appear symmetric in our universe. It can also explain, why the value of the charge of electrons and protons is exactly the same and it can explain, why the number of protons and electrons seems to be exactly the same within the universe.

Furthermore, it closes all field lines of the electromagnetic field and makes the Maxwell Theory appear more beautiful. Also, it explains the nature of matter and it's relation with energy in a rather elegant way.

For sure, a lot of new questions appear with the given model and stay unanswered for now, like how to combine the strong and the weak interaction with this model. Also, the role of many elementary particles, like the Higgs-boson, stays unanswered within this model for now.

There is one more fact that needs to be mentioned and may help to find answers for the open questions: at the event horizon of a black hole, the coordinate system of spacetime rotates and the roles of space and time shift. This could help to explain, why the field lines of an electromagnetic wave move with the speed of light while the field lines of electrons and positrons (that according to the given model cross the event horizon) seem to be frozen in space.

The model could be checked for plausibility like that: if a new black hole arises somewhere within the observable part of the universe, the described generation of matter or antimatter should also take place and the law of the conservation of matter should be violated. That could have a noticeable influence on the dynamics of the universe.