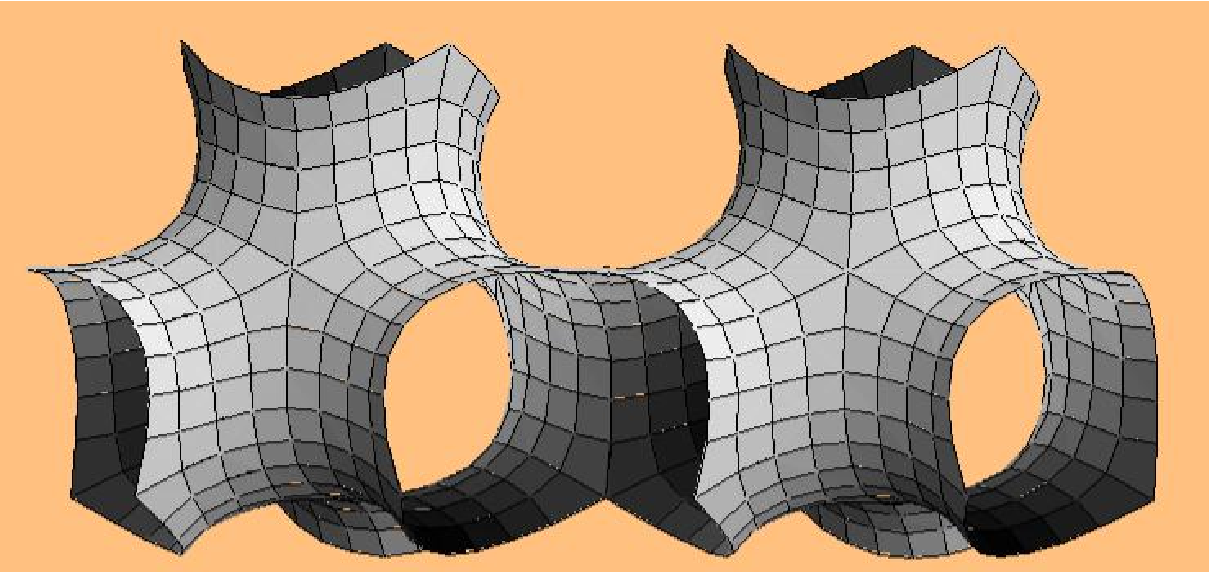
Space and Matter

'a conjecture'



Pieter Zwanenburg

www.spacebel.nl Email: zwanenburg@spacebel.nl

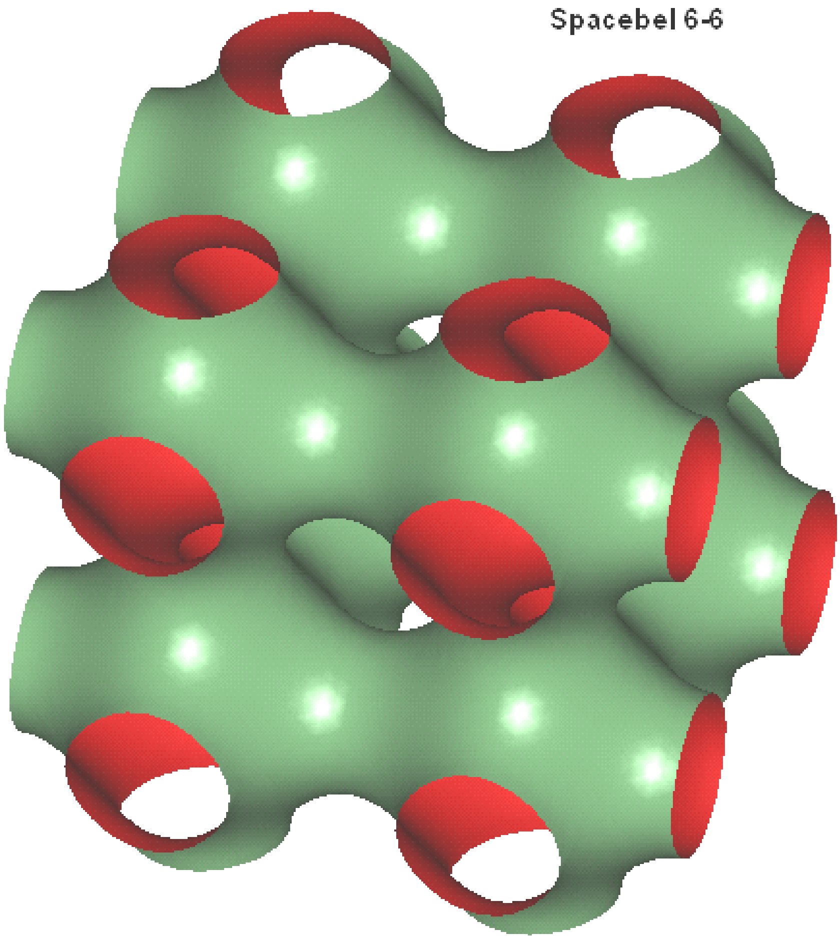
Introduction

In this article we show a new model in which matter is included in a natural way. It is a traditional mechanical model without uncertainty. In this model it is possible to know the speed and the position of particles on the smallest scale, which is not possible in the Quantum mechanics. The mass of a particle is a direct consequence of its shape.
The model exists of seven-dimensional space, six spatial dimensions and time. It extends of an infinite joined surface which arises as a border between two three-dimensional spaces. This border layer (three dimensional) has particular properties and is a constant negative curved surface.
For “time” this surface acts like a surface with Gauss curvature of $-1/R^2$. As a result it has to be possible to extract the laws of Maxwell from the General Relativity. (Kazula-Klein). This surface is expected to obey the laws of Maxwell.
The shape of the surface is not a free choice, in contrast with the many possibilities in the String theory.
The only intention of this article is, to show the possibilities of this model. It has no intention to be a scientific article. Maybe later on.

Contents:

Assumption

We start with one empty space S1, existing of three spatial dimensions.
In this totally empty universe, stars and planets cannot exist.
There must be at least something. We call this matter. We start with the simplest form of matter, a ball (no preference in any direction). The question which will come up is, what does this ball exist of. This ball does not exist of matter, because that is what we want to find. We avoid an answer by saying the ball is hollow. A bubble.
What is the material of the wall of the bubble? Again we avoid an answer by saying the wall is zero. This seems ridiculous, but nevertheless it is possible, providing that the wall is a border layer. In principle a border layer is, where the first one stops and the second one starts.
This means that the space within the bubble can not be the same as outside the bubble. If the space S1 is formed by three spatial dimensions, we assume likewise that the space within the bubble also exists of three spatial dimensions. We call this space S2. Space S2 can not have the same three dimensions, it must have a new set.
We also need "time" because this bubble is able to move.
Given the shape of the ball there must be a mechanism which causes this form. By assuming it is possible that our border layer has a kind of surface tension. If positive, the ball will become smaller, if negative larger. Is our ball stable, or will it become larger or smaller?
It does not look stable.
Is it possible to make it stable without a new assumption?
Yes, only in one way.
We will fill the infinite space with these bubbles, while the volume of all bubbles together is about the same as the residual space between the bubbles. Now, only space S1 is connected and all the bubbles S2 are separated. We correct this difference by linking all bubbles together (for instance, six connections each). Try to consider that the shape of the surrounding space will be the same. It looks like an Escher picture, only in three dimensions. See picture spacebel 6-6.



Main assumption.

Our space exists of a seven-dimensional space, subdivided in two sets of three spatial dimensions, while the three dimensions of each set want to express themselves infinitely. These two spaces are separated by a border layer and want to find the best balance. There is time dimension also which describes the mutual movements.
The color of the surface only indicates in which space we are. If one space wants to be larger, the other space must be smaller. They hold each other in balance, because they both have the same properties and also exactly the same shape. I will call this periodically formed surface provisionally SPACEBEL. The word SPACE with the Dutch word BEL (is bubble).
A manifold with six connections, a spacebel6.
What counts is only the shape of the border surface.
When we are present in one space we can never go to the other space, but we will notice that our space ends because we can't go further. We feel this restriction as a force. This border surface is in real only a force surface.

What kind of balance arises?

a. A special surface tension ensures balance.
b. The volume of both spaces will be equal.
c. The surface wants to be as flat as possible.
d. A combination of a, b, and c.

Provisional assumption: The surface wants to be as flat as possible.

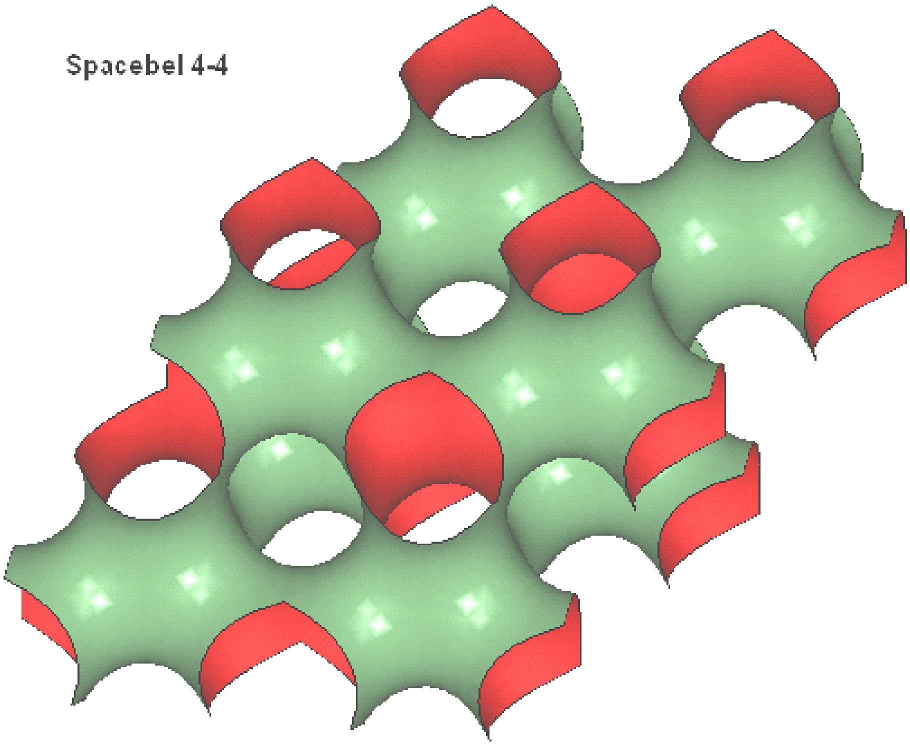
This assumption has to do with stability. If only surface tension is operated, such as a soap membrane, this surface is not stable and one space can disappear entirely. Thus, in this model surface tension only is not allowed. We use bending forces only, as in the String theory. Probably, pulling forces play a very small role in our model.

The String theory.

The String theory reaches to the conclusion that one can describe particles in a 10-dimensional space or in a 26-dimensional space.
As far as I know the String theory, there are open or closed strings. Three spatial dimensions, one time dimension, and the remaining dimensions have to be curved in a special way. The way of curving is not predicted by this theory, it is free to choose. This is an advantage as well as a disadvantage. The advantage seems to be that by the many possibilities of String theory one can end up in the Standard theory. The disadvantage is, that the theory becomes less beautiful. We don't want to have any choice.
In this model the ideal curvature is a must, not a choice.

Consequences

In principle we want to prove everything, but we will restrict ourselves to stable particles. If this model survives, we can always do more.
Instable particles are combinations of stable particles, later on we will know how they look.
The border layer wants to be as flat as possible. This assumption ensures a nice continued layer between both spaces. The surface is the flattest when it is not bent. In case there are less connections it will be less bent. The structure according to the spacebel6-6 can be improved certainly. The smallest number of connections of a spacebel is three, but we can't make a structure in all directions. Four is possible, and luckily we have also to do with a very regular structure.



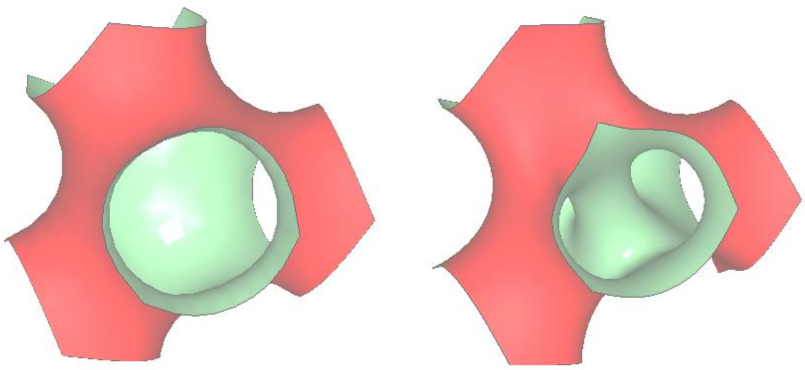
Spacebel4-4 exists of four connections in both spaces. Both spaces have exactly the same shape, a manifold4 form. See picture spacebel4-4. A very symmetrical combination of two spaces. This is important for making matter possible, as we will see later. The shape of this surface has an infinite saddle form. The curvature depends on the place itself. This surface looks slightly like a soap surface, but when two soap bubbles meet each other, a surface between those is likely, in contrast to our surface where this isn't possible, because the two meeting spaces are always the same.

The border layer strives to a new balance at each disturbance. But how fast?
Here the question of inertia rises. If this surface has thickness zero, there is no inertia, it is finally nothing. Each disturbance will be corrected immediately with infinite speed. This cannot be right, because of the maximum speed, the speed of light.
The solution is locked up in the curvature of the surface. The wish of flatness can be considered as potential energy. All pieces of the surface want to be as flat as possible with a certain force but this can't be fulfilled. We take this as potential energy. Because energy is mass, every piece will have some mass, depending on its curvature. In this model it is clear that the speed of light has a finite value, proportional with the local energy of the surface. There is a variation in the speed of light on small scale, but on large scale it will be constant.

Dynamic calculations seem to be difficult, but turn out easier than expected, such as we will see at the part => Why a photon remains together.
All these effects have to be proved when we simulate the behavior of the surface by using a software program. We “only need” the behavior of a small piece. The whole surface will be built up of these pieces.

Matter

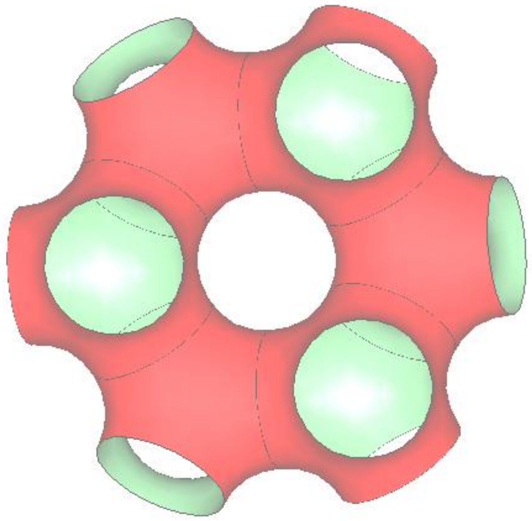
This spacebel4-4 surface corresponds with empty space. Why?
Empty space seems very crowded. Everything is filled up with the same surface with four connections. Also, space which envelopes the other has exactly the same shape.
But ………..... There is nothing which distinguishes itself from the other one.
For this reason we call the space empty.
This empty space has some properties, but these are similar everywhere.
As soon as something distinguishes itself we can point out new properties.
As long as we find nothing recognizable we may call this space empty. Empty of errors or dislocations or deviations. For matter we have to find something recognizable by looking to deviations. We will investigate this.
One of the spaces we call for clarity space (green) and the enveloping space we call antispace (red). In principle they are the same.



Deviation1 We start with an extra connection in one of the two spaces. Instead of two spacebel4 we now have two spacebel5 because between two spacebel4 there is an extra connection. What is the shape of the enveloping space around this extra connection? The easiest way to understand this is to start with an antispacebel4 and drill a hole in it. This is the extra connection in the normal space. See picture. When you look to this picture it is clear that the drilled antispacebel is built up as a collection of four new spacebel3 around this hole.
Each new connection wants to have the same shape as normal connections with the same curvature. These new connections want to be larger, but consequently every connection around has to move out which causes a certain stress in the surrounding space.
This extra connection is wanted nowhere, each spacebel tries to push it away to make its surface less curved, but because each spacebel pushes the fight is outstanding.
What else about this deviation1 ? This deviation has become movable. It costs some energy, but a deviation is free to move. It is like the way a dislocation moves through our well known crystallized matter.
However, it will feel like travelling on a very bad road, because the moving connection becomes longer or shorter continuously, or rotate a while, entirely depending on where it is on that particularly moment.

Deviation2. It is tempting to repeat this recipe. Two extra connections on one spacebel. We get one spacebel6 connected with two spacebel5. These two extra connections are certainly

not wanted, only there is an important difference now. Being not possible to remove the one extra connection, with two we can split them. The surroundings have the possibility to split up this deviation2 to minimize the strong local curvature in this way. Two extra connections near each other are probably not stable. It may be impossible to stay together because the complete surroundings ensure that it is energetically more advantageous to split them. This means that deviation2 in its current form corresponds with twice devation1. We have to prove this behavior later on! In anticipation of this proof we will look for another deviation.
This leads to one connection less. Two spacebel4 lack a mutual connection. These forms two spacebel3 facing each other. Here directly a difference arises in respect to the first deviation. Deviation1 is an extra connection, bounded on two sides, but these both spacebel3 look free from each other. Will deviation2 stay together? For an answer we look at the other space. One connection of the ordinary space has disappeared. This one connection has been built up of a number of surrounding connections. Every connection exists of six different surrounding antispace connections. See picture. These six surrounding



antispace connections which together form the connection in the middle, are now not longer separated (hole in the middle closes itself). The neighbor connections merge. When we count how many connections will be joined we count an antispacebel12. The question whether two spacebel3 will remain together is the same as the question, what will happen to such antispacebel12? Is it stable in its current shape? Or will it fall apart?
I think it is not a stable deviation, but without calculations it is difficult to say. We will leave deviation2 and try to find more simple deviations first.

Deviation3 We can make the most simple deviation by gripping one side of a connection (only in mind) and move this along a mutual connection to its neighbor. We will get one spacebel3 next to one spacebel5. This situation will not stay, because as soon as we release it, it will jump back of course. Every connection wants to be as short as possible. But what will happen in the following situation? Again we move one side of a connection to its neighbor and before it can jump back, we quickly move another connection of this neighbor to the next neighbor in line. We will get one spacebel3, one distorted spacebel4, and one spacebel5. We will repeat this process a while and as a result we get spacebel5 increasingly further away of spacebel3. For this spacebel5 connection it is more and more difficult to return to its original situation. The expectation is that the force to return will decrease also. By moving one side of a connection we have created two deviations. A single spacebel3 and a single spacebel5.
Spacebel3 might be an electron and spacebel5 might be a positron. These two attract each other and when coming together they will annihilate each other (entirely, according to the current theory). After vanishing there will remain two spacebel4, instead of spacebel3 and spacebel5, which is empty space.
Unfortunately this can’t be an electron and a positron. We can do exactly the same in the antispace by making an antispacebel3 and an antispacebel5. These look similar to

spacebel3 and spacebel5 of the ordinary space because of the symmetry. In this way we have made two types of electrons and two types of positrons. We know from the Standard theory that this is not the case. Let us forget this simple idea.
Deviation3 provides a spacebel3 and a spacebel5. It is clear that both deviations move easily.

How many deviations do we really need?
For stable matter we need three deviations only.
Stable particles are:
electron (very light particle with negative charge)
proton (heavy particle with positive charge)
antineutrino (neutral particle with nearly no mass)
This will do, because we can construct the neutron out of a combination of electron plus proton plus antineutrino. (We forget quarks, these don't give extra information. One will understand eventually what quarks are after this article.)
With these three stable particles we can make all known matter! All deviations we found so far are very simple and for that reason probably stable. We may expect that these deviations, or a combination of these, will lead to our stable particles.
We know from the Standard theory which requirements these particles have to meet, such as charge and mass. To come to the correct combination we can very well use the fact that an electron and a proton both have an antiparticle with exactly the same or reflected properties. Each particle which meets its antiparticle disappears totally, no matter remains, only energy (two photons) and empty space. (only neutrino's don't vanish with antineutrino's, according to the Standard theory.)
Viewing the combination of a spacebel3 + antispacebel5 with combination spacebel5 + antispacebel3 coming together, they will automatically produce two spacebel4 and two antispacebel4. As we learned, this is empty space. However, one of these combinations could be an electron, the other a positron.

Electric field of a particle

In this model the charge of a particle corresponds to the difference in volume between the spaces. As the surface strives for balance we may expect that both spaces want to have equal volumes. Too much extra volume of one space is prohibited by the other. One space will try to reduce the other or push it away. This is attraction or repulsing.
Viewing the combination spacebel3 + antispacebel5 we see a shortage of normal space by spacebel3 (one less) and also a shortage by a surplus of antispacebel5. If this combination would be an electron, it has twice a shortage of space. This can be considered as the charge of a particle.

Mass of a particle

The mass of a particle agrees with the total difference in curvature with respect to empty space, or even better, the difference with respect to the space without this particle. We have already seen that the curvature of each piece of the surface could be translated in a certain quantity of mass. If the surface curvature of a particle is more than normal, this will be the mass which belongs to such a deviation. The idea may come up that a particle with negative mass is possible. First let us consider a particle with positive mass. What does this imply?

A particle with positive mass has a higher curvature than the empty space. An example of such deviation is a spacebel5. The total sum of more bent surface (higher curvature) is now the total mass of the deviation. When a deviation has no more curvature than the empty space, this deviation has no mass. Suppose we take deviation2 (one connection less) and we bring in an extra connection, perpendicular on the removed one, and assume this new deviation can exist. We will see no charge by surplus volume and maybe almost equal total curvature as empty space. This can be a candidate for a neutrino (or antineutrino). It has to be a particle without charge and nearly no mass. We can make such a particle only by turning one connection of empty space. Remember, this is not possible when making an electron, because as a result a positron will be made too.
But how do we handle the negative mass of a particle?
It is very plausible that a stable particle has less mass than the empty space. As a result, it remains stable. This is called negative mass with respect to the empty space. In this model the empty space has the maximum energy. Where particles are, space has less energy, (except of course space filled with unstable particles, together they have more energy).

Gravitation

In this model gravitation is a result of the data that stable particles always have less curvature than empty space, and nearby more than far away.
Each particle will notice that space in the direction of an another particle becomes less bent which is the direction it wants to go. The difference in curvature stipulates the <u>mass of a particle</u> and <u>at the same time</u> the attraction caused by them!
A particle wants to go in the direction with the lowest curvature, where it can relax (becomes flatter). In an environment of much matter the spacebel measure (gauge) will be slightly larger than in empty space. Unfortunately we can't experience this, because the gauge of the space structure is our <u>only</u> reference. The gauge looks always the same <u>from our point of view</u>. Just like the constant speed of light.
While General Relativity speaks of the curvature of space by gravitation, this model speaks of the <u>difference</u> of the curvature compared with empty space. Near a large mass this curvature of space is less than far away. Only this <u>difference</u> is similar to the curvature of the Relativity theory. When space is flat in Einstein's theory, in this model there are still curvatures, but with a constant value and as a consequence also <u>entirely</u> empty.

Strong force

Strong force which plays a role in the atomic nucleus to remain stable and which is much stronger than all other forces, has a very short locality. When we combine a proton with a neutron this strong force will become visible. Strong force plays a role in combining deviations. When we combine deviations and these together have a smaller sum of curvatures, <u>this</u> will be the key to strong force. Strong force is the big boss of connections. It stipulates the best distance. This will become clear when we know exactly how the particles really look. Strong force becomes part of the surface tendency to be as flat as possible and is in fact the same as gravity. Only the force between charged particles is different, as we will see <u>after</u> the photons.

Weak force

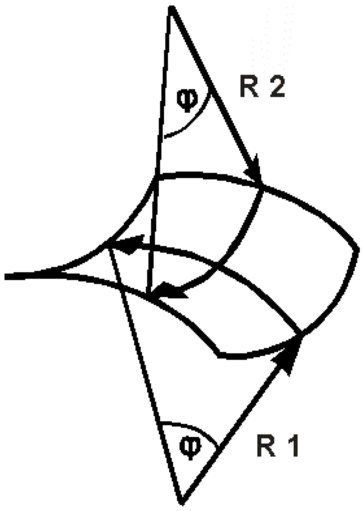
Weak force which describes radioactivity is not a fundamental force, but a mixture of strong force for attraction and electrical force for repulsing. The balance between these two forces defines weak force.

Photons

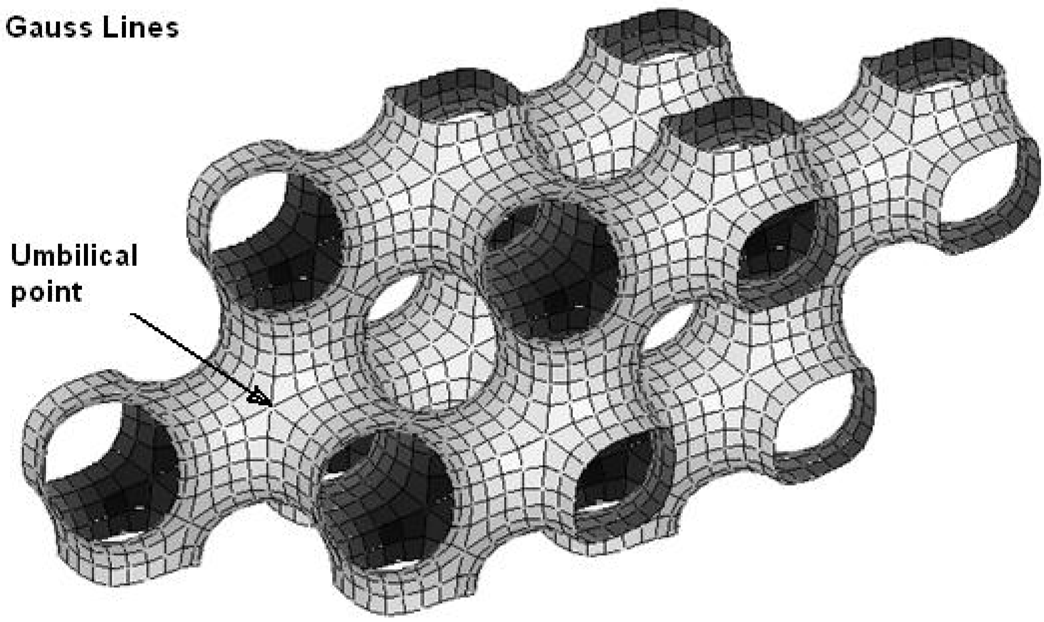
We mainly talk about particles, but photons also play a very important role. All interactions between electrons will be caused by photons, according to the Standard theory, where they are called force exchanging particles.
In this model photons are only surface waves. Let us investigate this. We know that a surface wave can only transport itself, with a speed which corresponds with the speed of light (on large scale).
Is each disturbance a photon? In principle yes, but a single disturbance will never occur. Let us study a moving electron. We will see that not only the central point of the particle is moving, but the surroundings will be affected by this movement too. In fact it is a very complex movement. We know that a boat in water causes the water to wave. Imagine an electron which is moving in its “water”. Here we see an important difference with respect to the boat. If the boat lies in quiet water, the water around the boat will be flat. With an electron this is different. The “water” around an electron is almost flat (far away) but the nearer we come the higher the “water” will raise, at the maximum in the center of the electron. In spite of the fact that this electron is not moving. In fact the electron is only a lump in the “water”. In this example we assume that an electron is only an extra connection (which is not really the case). An extra connection will contract the surface, as we can see simplified as a local lump of its “water”. When our electron is moving, a complete lump will be moving. This moving lump has far more influence upon the surface than a small boat. A moving electron looks like a very large boat. We know that an electron exists of at least two types of deviations which means that the lump is not circular but probably elongated, maybe crooked or with a cavity. There is always a direction in it (the spin of an electron).
The form of an electron will also influence the front of the surface wave, this will mean that the many starting points of the front either reinforce or weaken each other, which will end up in a common direction of the residual wave front. The remaining wave front can be considered as the photon, caused by a moving electron. Thanks to the special form of our border surface this wave front will stay together, as we will see later on. By this property a photon can be considered as a particle.
In the same way particles can be considered as waves, because if they move, they constantly spread a type of moving-waves around. So we can understand that one electron can interfere with itself in a double-slit experiment.

From this point our model will be different from the established theory. In the Quantum-mechanics we don’t speak of energy loss by moving waves, we only speak of loss-free probability waves. We have to use this difference to prove our model.

Why a photon remains together ?



We use the Willmore energy (1965) for membrane surfaces.
k1 = 1/R1 and k2 = 1/R2 (curvature k1 is 1/radius1)
H = (k1+k2) /2 (Mean curvature in 1/meter)
K = k1 x k2 (Gauss curvature in 1/meter^2)
The Willmore energy (W) is the integral (H^2 - K) over the area (This must be energy).
For a spacebel4-4 surface mostly the value H is zero everywhere and the value K is negative everywhere. When we take a very small piece we can forget the integral, the energy of such a piece is equal to - K times area. In our case always positive.
In case of a small surface wave value H gets slightly positive or negative, but value K hardly changes. Now we cut the surface in small parts with the same energy. That means that parts with less curvature will be larger than parts with more curvature. In this way the inertia of every part is always constant and equal. Our dynamic routines should become simpler. Notice that all parts with the same energy, have the same angle φ between their ends. See picture. All those parts are hanging between their neighbors and will react with the same acceleration by the same force. All those parts are coupled by forces which are equal.
When some part will be above the normal position this force will be transported in the same time across every piece. That means a constant angle velocity. One doesn't see the same velocity across the surface distance but only the same angle velocity. Looking only at time we may consider this surface as a negative curved surface with a constant curvature everywhere. This is very important.
In geometry such a surface is seen as the counterpart of a sphere with a Gauss curvature of $-1/R^2$. Remember the trick of Kazula-Klein where they make use of an extra dimension which was curved in a comparable way. They were able to prove that the laws of Maxwell were part of the General Relativity. In the same way we can expect that our surface will obey the laws of Maxwell. Every spacebel connection will look like a harmonic oscillator by this property.
We can also show this in a more pictorial way .
We assume the constant angle velocity. We start on the spot where several Gauss lines meet each other, an umbilical point. We will pick up this point and then release it. This is only possible if we do the same at the opposite side. For instance, there was a very small connection between these two opposite umbilical points and this vanished. Therefore we start with a very clear quantity of energy, the pulling force F and the distance h from the balance situation. We can also take into account the start direction of the two released points. We know the start momentums and the energy. Both are conserved. We only look to the two momentums P1 and P2. The sum is zero because they are the same and contrary. Looking at the picture of Gauss lines you will see six Gauss lines coming together in one umbilical point.



Three Gauss lines go forward and three go backward. It is clear that every surface wave going around one spacebel will meet itself. But in this situation it will also meet the surface wave from the opposite point. This leads to the fact that a surface wave can have only a fixed velocity to prevent that the two surface waves are not in phase. This is the behavior of a harmonic oscillator. We know that only the speed of light is allowed, all other speeds are impossible.

The orbit of electrons

In this model separately travelling particles always lose some energy by spreading a moving wave around. <u>It is an irrevocable consequence of this space structure</u>. Also an electron going around a proton will lose energy. One may expect the electron falling down on its proton because of the mutual attraction, but this will not happen. When an electron comes too near it will be ricocheted. We can understand this behavior by studying a free neutron, which is unstable. A free neutron falls apart within a few minutes into a proton plus electron plus antineutrino, because the mass of a free neutron is slightly more than the sum of the separate masses of an electron and proton and antineutrino together. The construction of such a combination costs energy and will not arise automatically. Hence we must push an electron at least to its proton. An electron will stop at a certain distance by his proton. It cannot approach and cannot leave (Bohm mechanics instead of Quantum mechanics). Here one will see the mechanism arising which ensures that an electron which is too far from its proton <u>must</u> fall back to its smallest possible distance within a <u>certain</u> time. During this falling back an unbroken flow of energy (photon) is transmitted. In this model it is an imperative need, whereas the Quantum mechanics speaks only of probability. That an electron hangs

quietly at a certain distance must be proved by simulations of this model. All possible distances to the core must be locked up in the property of this surface.
When an electron hangs on at a certain distance it had to be a consequence of two contradictory forces. It must be a very delicate balance, because an electron already hangs at a very large distance from its proton. Unfortunately this simulation is hard to realize on my simple laptop. We need too much spacebel for one simulation.

Disadvantages of the model

This model in its current form cannot explain why there is only normal matter and no antimatter in our universe. Because of the symmetry each deviation can be reflected in the other space. This can be the antimatter particle with reflected properties. As we have assumed that no difference has been expected between both spaces with regard to properties, there must be as much matter as antimatter. This is not the case, there is only matter in our universe as far as we know. Only if the properties of both spaces are not entirely equal this might be possible. At least there must be a small difference between the spaces. One difference might be that one of the spaces is finite. This space has to expand because shrinking is no option and stability doesn't expect to make any difference. But is this correct?
Another possibility is that both spaces are infinite <u>and</u> there is a very small pulling force on the surface which causes that one space is smaller than the other. This process will stop because the bending forces will prevent too many differences. Now there is a difference in the probability of making (or breaking) a connection. This depends on the distances between the surfaces. The smaller space has an advantage in making and a disadvantage in breaking a connection. In this way matter can win.

Measurable impact of this model

Each new model has to prove itself. The fastest way is to predict differences with the current theories. For this purpose we may use the energy loss of travelling particles. When an electron loses energy by irradiation of displacement energy, this will also be the case for a proton or a neutron. According to this model all matter has to be slowed down in space. It seems logical, because when an electron knows that another electron arrives by feeling his repulsing forces, this reporting had to cost at least <u>some</u> energy. Current theories predict no loss and messages between particles are allowed to be mathematically totally free of loss.

Our planet proceeds with a considerable speed through our space structure. We may(be) never know the absolute speed (Michelson-Morley), but we move definitely. In this model there is always a loss of speed for each planet. However, there is a difference between a separate particle and a group of particles. Each particle spreads around a displacement wave. When the speed is the same, the wave is the same. In a laboratory we can't see a displacement wave if that particle doesn't move. In principle we combine our own displacement wave with the wave of that particle, there is only a phase shift left. We all together move through this surface, but not exactly equivalent. This depends on our location. We are constantly moving a little with respect to each other. On the average we keep the same distance. As soon as a particle moves in respect to us we will see something of its displacement wave. Remind the double-slit experiment of one electron.

When all particles are in rest to each other, they all send the same displacement wave, the same frequency, the same direction. Due to this there is a lot of interference and a lot of destruction because there is only a phase shift. In this way a group will lose absolutely less energy to its surroundings than a single electron which is travelling through empty space. The larger the group the smaller the loss.

Evidently this loss is totally unimportant for our planet itself, <u>but this loss must be noticeable for small objects</u> moving in empty space. A small spacecraft to Pluto has to slow down more than expected.

And another impact could be that one might see something of the structure of space. We may not stipulate our speed through this invisible structure, but we may probably know we rotate.

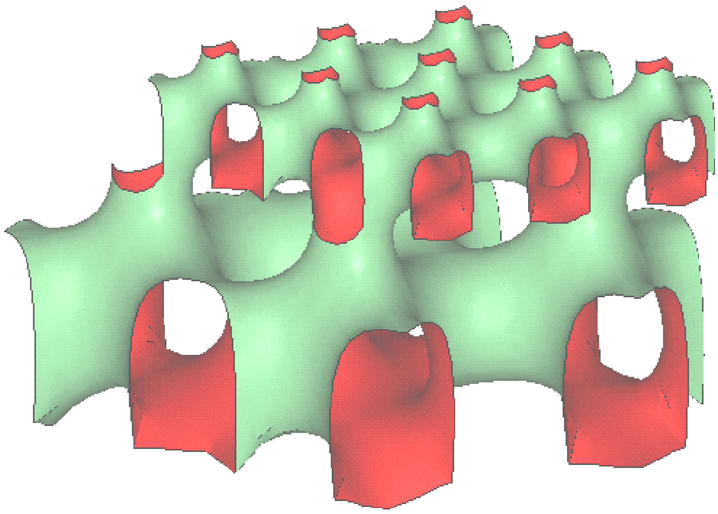
This space structure is standing by definition and has an orientation, six directions belonging to this. Between each direction 60 degrees. In the background radiation of the universe there must be something to measure. According to this model all free particles will slow down until they stop after some time, supposing that the surroundings are empty enough. The spin of such a particle will put itself to one of the six preference directions. This orientation has to be visible in one or more frequencies of the background radiation, because this standing particle absorbs the background radiation and will influence the background by resending this energy.

Advantages of this model

One of the advantages is that gravitation belongs to matter. A black hole (very large mass) will become clearer. According to General Relativity a black hole is a singularity (a point without dimensions), which apparently has some dimension, called horizon. It is not possible for light to depart from a black hole because very strong gravitation is dominating. Hence the name black hole.

In this model a black hole seems like a singularity, but one may find no horizon. Only there could be a border where ordinary matter, such as a proton and an electron, doesn't exist anymore.

In our model a black hole has to express the maximum differences in curvature, due to gravitation. Empty space has a certain average curvature. Maximum differences can only end in zero curvature. This will correspond to the heaviest black hole ever. But, zero curvature belongs to an infinite large spacebel. A black hole therefore has to be a very large spacebel, with a number of connections to the outside. These connections are also expected to be very large. It is not likely that a black hole is one large spacebel with thousands or more connections. This seems appropriate in the current theories, which declare one singularity and one horizon, but in our model such a large spacebel must have a very large charge. Not likely, because only contrary charged particles will be attracted (and not all particles), just as long as all charges have been neutralized. It is obvious that a black hole is a simple large spacebel with a limited number of large connections (probably four). These connections become more and more smaller depending on the distance of the centre of the black hole. In



this way there will be a strong progress in curvature. We assume that ordinary matter can't exist in such a strange environment. No charged particles anymore. To build up this black hole we need a lot of spacebel3, a kind of "black matter". We know that this special matter is not allowed to have charges, no difference in volume. This handicaps the number of possibilities for "black matter". Both spaces everywhere need to have the same volume. A structure, like the picture, is one of the possibilities. Both spaces are "equal". A mixture of spacebel3 and spacebel4. In this model a black hole is the lowest form of energy. When a black hole will be infinitely large, one space feels really empty, without a border layer.

Another advantage of this model is, that everything hangs on one description, namely the behavior of a small piece of surface, a quadrangle which represents the local surface. As soon as we can calculate this piece well enough, we will know all the laws of nature and we can find which deviations of the empty space correspond to our well-known matter. We can already predict that if we find it, we will also be able to calculate the mass of these particles as the consequence of their shape, and probably still more constants of nature.

Also the inaccuracy due to the Quantum mechanics disappears, only on purely theoretical data and not on experimental data, because it is possible to describe the position and the speed at even the smallest scale, which is impossible for the Quantum mechanics. The border surface can be considered as a description of the invisible variability's of these Quantum mechanics.
Everything is defined with respect to this surface including the speed of light. That is why we can forget the problems of the General Relativity in a theoretical way and it should be possible to solve everything in a classical mechanical way.
The Lorentz contraction has to come out and also Maxwell's laws are included because of a special property of this border surface, such as we have seen before.
The standard measure of this structure (gauge) is approximately the same as a proton. No calculations on Planck-scale. In this model the gravitation is quantum sized, missing one connection, less is not possible.
Maybe the String theory can retrieve their open and closed strings as the essential lines which define the shape of this surface. This surface will be completely described by closed lines "circles" or completely by open "straight" lines, which are considered as the open and closed strings. Like strings this surface is driven by curvature. The only difference is that they don't float separately, but are linked together, and they don't need to vibrate. Only vibrating strings are visible in the String Theory.

For me, the biggest advantage of this model is that many properties of nature become clear on imagination. Attraction of charges and gravitation are no longer an invisible influence at a distance. Besides, we will get an idea about electromagnetic waves. Also, interference with itself as single electron in a double slit experiment becomes understandable. One can known directly that matter will never go faster than the speed of light, because matter itself is a part of the border layer. Moreover, it shows how an electron combined with a positron disappears completely. All this without formulas.

<u>What do we need for proof</u>

We will try to prove this model by simulating the surface with its assumed behavior. Given the restricted capacity of an ordinary laptop, we will first concentrate on finding deviations of empty space which forms our stable particles and that a perturbation stay together. When this succeeds and the computer capacity allows it, an estimation of strong force will take place by combining these particles. Or we can simulate an electron and a positron and will see what happen. We certainly don't have enough computer capacity to calculate the balance between an electron and a proton, or for a precise calculation of the mass of particles.

Till now we have assumed the following properties:
1. Two different spaces with three dimensions each which share the same border.
2. The three-dimensional border surface wants to be as flat as possible.
3. The charge of a particle is the volume difference between the spaces.
4. The mass of a particle arises from the differences between the surrounding space with and without this particle.

Only two force fields are possible

When this surface will be able to predict all properties of the complete nature, only two variability's are possible. Each small piece of surface will be completely described by two fundamental curved lines. The Gauss lines, the smallest and largest curvature.
We have four types of fields. Strong force, weak force, electrical force and gravitation. There are only two force fields possible, if having only two variability's.
Which forces will survive?
A changed gravitation force and a changed electrical force.
At long distance gravitation corresponds to our well known formula. At smaller distances a correction term is added and on spacebel distance the gravitation is exactly the same as the well known strong force.
In a similar way the electrical force, which obeys the present formula at long distance, gets also a correction term for the balance of electrons around protons at shorter distance.
Both forces get more corrective terms in their formulas to describe the behavior at shorter distance better. Both become depended on direction as well as slightly granular (as the mutual distance reaches the spacebel distance). Also the description of the electric field becomes dependant on the type of particle. For instance, the formula of the electrical field between an electron and a positron is different from that of an electron and a proton (only visible at short distance). At composed nuclei the formula will become very complex. The reason of this behavior is the mutual influence of their shapes. Both will reform the other, therefore it is depending on distance and direction.

Let us try something.

We provisionally define two particles with the following deviations.

Electron = spacebel3+anti-spacebel5 (less space than anti-space, negatively charged)
Positron = anti-spacebel3+spacebel5 (less anti-space than space, positively charged)

With these deviations in a simulation we try out what will happen. In this way we will learn some while we know the result. The particles have to attract each other and both have to annihilate. In the first try we don't need a precise dynamic simulation because we only examine whether they attract each other. If not, we have to stop directly, because our model is incorrect.
However, in case it is working, we will make a more accurate simulation with more correct forces and dynamics.
By then we expect to see two photons after annihilating. We may also estimate the velocity to re-adjust our start position.

Let us try this simulation. (I am working on it.)

Pieter Zwanenburg (21-10-2008)

www.spacebel.nl E-mail: zwanenburg@spacebel.nl