On the origin of the universe.

There are 2 facts that one should be aware of:

a) An interaction expands with a finite rate, although very large, still finite: de speed of light c.
b) All observers moving relative to each other, always measure, independent of each other, the same value of c: about 300,000 km/sec.
The consequence of observation a is that for 2 observers moving relative to each other at a velocity v, an event (e.g. a collision) does not occur simultaneously: one measures $t=t_0$ and the other $t=t_1$, each in its own time reference/coordinate system.
This in turn causes the relativistic effects because the laws of conservation apply to a event that occurs in a specific reference system at a specific time $t= t_0$. But if several observers who are observing the same event at different times, there has to be a correction.
After all, conservation laws apply to an event at a specific time! These are the relativistic effects. If the value of c was infinite, then there were no relativistic effects.
For the observer on Earth E, time lag occurs for an event that took place in another reference frame Q, moving at speed v. An observer on reference frame Q, then measures for the same event a length contraction of a distance measured on Earth by observer E.
A well-known example is the muon decay in the higher air layers. An observer on Earth measures a longer half-life of the decay at velocity v, and an observer on the muon particle measures a shorter radius of the atmosphere, reason that more muon particles can reach the earth's surface than would be expected from the measured half-life in the laboratory on earth.
This only applies if the observers move relative to each other! If they don't move relative to each other, they are in the same reference frame and measure the event at the same time.
One could say that both observers have their measurement setup in the same place, if not then one can correct for the time it takes for a light signal to reach the measurement setup (After all, that time is constant because the measuring set-up does not move!).
The consequence of observation b is that apparently the light signal does not acquire the speed of the moving observer if this observer emits a light signal. That means the light signal has a different mechanism of propagation than the moving observer. The difference is found in the rest mass of the object:
1) A particle moving at the speed of light has no rest mass, cannot be accelerated and always moves at the constant speed of light c. It can be represented as a wave.
2) A particle with a rest mass can be accelerated and always moves with a velocity smaller than c! The particle cannot be represented as a wave but produces a wave as it starts to move relative to the observer. This due to its 3D dimension. But how does it look like?
Stable rest mass particles have a spin of ½ (relativistic), which corresponds to a hollow sphere. A solid sphere has no spin 1/2 ! We can therefore represent a rest mass particle as a hollow sphere.
That is actually quite logical, because when a small volume of vacuum energy dV is converted into a small hollow sphere of bare rest mass matter (neutrino's), then the spherical shell is the holder of the bare mass and inside there is really bare/empty space: all vacuum energy of the volume element dV is then converted to bare rest mass and the particle is stable. Later in this story it will become clear that (present day) the strong force of the hydrogen proton is mainly responsible for the conversion of vacuum energy to dark matter. Hydrogen is after all, the dominant atom in the universe.
Unstable rest mass particles could then be represented by a hollow sphere in which a residual vacuum energy is present from the original volume element dV. After all, there is going to be an expanding action from the vacuum energy. Unstable particles are then an intermediate step in the conversion of vacuum energy to matter.
Particles that have no charge are called dark matter and consist only of bare rest mass. We

know 6 of them, the 3 known neutrinos of the electron, muon and tau particle (all rotating to the left) and the associated anti-particles (all rotating to the right).
If nature then adds electric charge, then the spherical shell is the carrier for the electric charge and the mass increases (potential energy).
What's going on now? In order to come to a solution, I bring to mind the following:
An electron has a negative electric charge that is characterized by the electric field around it. This field expands, from the moment of creation of the electron, with the speed of light in the surrounding 'space'.
The electric field represents energy and spreads out, basically to infinity. This is the current accepted theory.
It is also known that an electron and its anti-particle (a positron) annihilate upon collision and split into 2 photons that move opposite each other. No energy is lost in this process:
the energy of the 2 photons is equal to the energy of the electron and the positron (kinetic energy and rest mass energy). This is an important observation, because the annihilation of both rest mass particles goes in a fraction of a second. In that time the electric field can never return to both rest mass particles to participate in the annihilation. So energy would be lost but that is not noticed!!
So something else is going on.
We are now familiar with vacuum energy and the beginning of the big bang can be imagined like the ‘explosion’ of a sphere full of vacuum energy. As soon as somewhere in that sphere the expansion rate falls below the speed of light, a start will be made with the conversion of vacuum energy to matter particles (both waves and rest mass particles). With a uniform sphere expansion, that will be also spherical. So, as soon as the expansion rate of a spherical shell falls below the speed of light, matter formation is possible.
This means that we are moving along with the expansion of the vacuum energy space. The whole evolution of the universe will therefore consist of the expansion (more than 50% vacuum energy) and contraction (more than 50% matter) of this vacuum energy sphere.
Only with the contraction to another big bang sphere, will all vacuum energy be converted into matter. (ultimately, only waves that move at the speed of light, where all rest mass particles are converted into waves. That conversion into waves takes place as soon as the energy of the rest mass particles have reached the Planck energy (in the ultimate contraction phase)). Then all the waves are locked up in the remaining sphere, after which another big bang occurs in the cycle: a gigantic big bang where waves are converted into vacuum energy again and a new expansion cycle begins.
The big bang sphere is then not in the form of a point mass or the size of an apple. One needs to think more of a radius of billions of light years, depending on the total amount of energy that is present, thus starting the big bang. I emphasis strongly that there is no quantum fluctuation and there is also no question of a cosmological constant.
There is simply a certain amount of vacuum energy in the universe and it expands. Since there is no exchange of energy at the edges of the vacuum energy sphere with the really 'empty' space, the entropy is also constant! In the expansion phase it is then about the distribution of the energy over the largest possible space and in the contraction phase it is then about the distribution of the energy levels over as many energy states as possible (velocity of the rest mass particles and energy of the waves).
This cyclical model can be excellently described using the Friedman equation: see the article about the big bang.
It should be noted that the origin of the coordinate system is placed in the center of the big bang sphere. This reference system provides the correct energy with which the Big Bang started.
Any other system (such as the Earth) moves relative to this center and will therefore measure a lower total energy.
See for example the residual speed that remains when measuring the 3K background radiation.
The only problem that remains is: where does all that energy come from? The universe will be infinite but the vacuum energy sphere has a finite size, starting with the original radius of the

big bang sphere (half the Schwarzschild radius, contraction speed reaches c) and a maximum radius at which the expansion changes into a contraction.
In an infinitely large universe, there could be several vacuum energy spheres.
They could then collide with each other! However, from our position on the Earth that is not yet measured. Mass concentrations would then occur that affect the perceived space around us not making it uniform. Until now we have measured a more or less uniform space around us, both in the distribution of the waves (3K background radiation) as in the distribution of rest mass matter.
Then we now proceed with a description of the force effect that depends on $1/r^2$.
How can this force ensure that an electron makes its orbit around a nucleus?
The factor $1/r^2$ can be traced back to a spherical surface that is equal to $4\pi r^2$.
This means that the force action is dependent on 1/A, where A is the surrounding spherical surface. It is clear that the further the spherical shell surface is from the origin, the smaller the force is.
Now that we know about the existence of a vacuum energy space, it is easier to describe what a charge on a rest mass particle actually does with that surrounding vacuum energy space.
The description of the EM field via the Maxwell equations is Lorentz invariant and gives a fine mathematical description.
Now I go for a physical interpretation, taking into account the annihilation of electron and positron resulting in the creation of 2 photons.
An electron-neutrino can be regarded as the rest mass particle of the electron, but without electrical charge. It can be either left-handed (matter) or right-handed (anti-matter). When nature adds electric charge to the neutrino, then one obtains the electron (negatively charged) or the positron (positive loaded). Both charged particles can be left-handed or right-handed. After all, nature can of course add both kinds of electric charges to both the left-handed electron neutrino as the right-handed electron neutrino (anti particle).

Note: Nature prefers an excess of negative charge for the electron over the positron: There are overwhelmingly more electrons than positrons.
In contrast, the universe is electrically neutral, which means that the excess of negative charges on the electrons are offset by positive charges on the proton.
Nature can be said to be non-symmetrical but electrically neutral.

Due to the addition of charge to the neutrino, potential energy is added to the neutrino and the mass increases (because of $m=E_{pot}/c^2$): the electron/positron is considerably heavier than the associated neutrino.
But what does the presence of electric charge on the spherical electron do with the state of the surrounding vacuum energy space?
It changes the state of the vacuum energy space around the electron. The vacuum energy space becomes 'electrically charged' , that is, the state changes from 'neutral' to negative (for an electron) or positive (for a positron). This change of vacuum energy space expands at the speed of light, caused by the charge present on the rest mass particle.
Thus, in a bonded state, for example the hydrogen atom, the changed vacuum energy space is responsible for the force interaction where the orbits of both electron and proton have an orbit of constant energy around the common center of gravity.
It should be noted that the hydrogen atom does not radiate energy in the ground state and so the orbit, is an orbit of constant energy!
Coming back to the annihilation of an electron with a positron (which is actually a mini big bang!), then the kinetic energy + rest mass energy of both particles is converted into 2 photons. There is no return of the electric field to the electron and positron. What does happen is, that after the annihilation of both rest mass particles the vacuum energy space returns (from itself) to the normal 'neutral' state: after all, the source has disappeared.

The electric field strength (and the related magnetic field strength, relativistic effect) is just a 'state' in which the vacuum energy space is in, and linked to it, an energy state (potential energy). Together with the kinetic energy ($E_{kin} = mc^2$, including rest mass) it creates the condition that the total energy of the particle relative to the center of mass is constant. This is then also the shape of the track/ orbit.

Short note in between: the vacuum energy space is actually what people used to think in the distant past as 'Ether'.

That charge influences the state of the vacuum energy space also explains why the electron/positron is not 'torn' apart by the electric charge. In the contemporary view after all, the mutual repulsion of the charge volume elements within the particle would disintegrate the electron/positron.
Now a treatise on the quantization of the energy states. This phenomenon is experimental observed and thus requires a physical explanation. Mathematically there is of course the model of the contemporary accepted theory of probability calculation. But… is this the right model? After all, there is the problem that general relativity (AR) is incompatible with the current quantum theory. The following model can achieve this unification and also explains the quantization.
The current theory of quantum mechanics doesn't really provide a physical explanation for what now actually is a 'de Brogli' wave. The most common is now a 'probability wave' by which physicists mean: the probability of finding a particle somewhere in space, depending on the interaction to which the particle is subject.

However, another interpretation is possible since the discovery of the vacuum energy space. This means that every wave generated in that vacuum energy space travels with the same speed. Historically, that speed has been called the speed of light, but a more correct name would be: the vacuum energy wave speed.
The speed of light is always used for the derivation of the Lorentz transformations. But one would also be able to use the speed of a gravitational wave or a gluon wave. After all, they all move with the speed of light. In all three waves mentioned, the phase velocity is equal to the group velocity. The The odd one out there is the 'de Brogli' wave. It has a group velocity v, which is always smaller than the speed of light and a phase velocity equal to c^2/v, where v is the velocity of the particle and c is the speed of light. This has the strange effect that if a particle is stationary, the phase velocity is infinite. This strange phenomenon is dismissed with the statement: welcome to the wonderful world of quantum mechanics.
No wonder that quantum mechanics is incompatible with general relativity.

If one would use a 'de Brogli' wave to derive the Lorentz transformations, this would not work because the phase velocity is not c, but c^2/v and therefore always larger than c!!!! Even with the group speed it doesn't work because the speed is v!

Anyway, here is the solution: every moving elementary rest mass particle in the vacuum energy space generates a wave in that space. This happens because that particle has a spatial size. The size of that particle is determined by the Schwarzschild radius of that elementary particle. In the case of an electron you get a size in the order of 10^{-60} meters, which is rightly a point mass! This is also measured experimentally.

Due to the spatial size of an elementary particle (on that scale the gravitational force is very strong due to the small radius and the form is a hollow sphere (I will come back to that)) a wave is generated that naturally moves with a phase velocity of c. The wave (and the rest mass particle) follows the path of a constant energy track in that vacuum energy space in both bound and unbound state. The track of constant energy is determined by the interactions to which the particle is subject.
For a molecule or atom, the most convenient coordinate system is, of course, the center of mass,

relative to that center, the energy is constant. So both the electron and the generated wave by the electron ('de Brogli' wave) follow the same track. The difference, of course, is the speed of the two. The electron moves with the speed v (does not have to be constant in that orbit, but can be, for instance, in a circle or straight line) and a 'de Brogli' wave moves with the speed of light c (is constant). Because a 'de Brogli' wave moves at the speed of light, it catches up with the electron again at the back of it in an orbit of a bound state and is reflected, after which it is reflected again at the front. A standing wave is created whose wavelength is an integer number of times the circumference of the orbit (hydrogen atom).
This is the basic idea of the quantization of the energy states of atoms and molecules.
This also means that a 'de Brogli' wave can also be used for the derivation of the Lorentz transformations and one obtains a uniform physics theory that applies throughout the universe.
In today's accepted physics, that is not the case. There are two incompatible theories common: quantum mechanics with a wave velocity for which a phase velocity of c^2/v applies, and de theory of relativity where a phase velocity of c is valid.

The Lorentz transformations derived using a phase velocity of c are experimentally proved to be correct. The fault therefore lies in the basic assumptions of contemporary quantum theory.
Below I will indicate what that error is and that is directly in the assumption on which the entire quantum theory is based:
The energy of a rest mass particle is equal to: $E=hf$
This is not right. If it were correct, then one would indeed get a phase velocity of c^2/v, but then one should not use a 'de Brogli' wave for the derivation of the Lorentz transformations! Resulting in 2 different physical theories that cannot be reconciled.
What is correct, is that one can say that the product of the momentum p of a particle and the speed of light c, is equal to hf, in formula: $pc = hf$

At high velocities of rest mass particles both theories converge because then indeed in good approximation, $E = pc = hf$

Below are the formulas for the energy of rest mass particles:
<u>GR theory</u>: $E^2 = (m_0.c^2)^2 + (pc)^2 = (mc^2)^2$

Here m_0 is the rest mass and the corresponding energy is m_oc^2. This energy is independent of the choice of coordinate system and is the same for every observer, regardless of whether they move towards each other or not!!
The 2_{nd} term pc , is the kinetic energy of a particle and is dependent on the relative motion of observers to each other. Observers moving relative to each other thus measure different energies for a moving particle.

<u>The quantum theory</u>: $E = hf$
This already looks strange because there is now only 1 term. The frequency f of the 'de Brogli wave' is depending on the observer's state of motion. The term hf therefore only represents the kinetic energy of a rest mass particle. The rest mass energy is nowhere to be seen!!! An serious mistake and it has been going on for almost a century!!!
The entire quantum mechanics is therefore built on this postulate. See the interlude below.

Interlude:
Quantum mechanics: $E = hf$
GR: $E = mc^2$
So: $E = hf = mc^2 = m_0.c^2/\sqrt{(1-v^2/c^2)} \Rightarrow m_0.c^2 = hf\sqrt{(1-v^2/c^2)}$,
for v = 0 this gives (particle standing still):

$m_0.c^2 = hf_0$; how to interpret this? What is that f_0 ? Modern quantum mechanics now says that this is the spin frequency. A rest mass particle thus owes its existence to the rotation of this rest mass particle. If there were no rotation, then the rest mass particle would not exist. Very strange because quantum mechanics also applies to large masses and a car, for instance, does not rotate, can stand still but move too. Another proof that current quantum mechanics is wrong.
After all, the GR also applies to large objects and has so far been found to be correct for large and small.
End interlude.

As a result of the above, it is therefore easy to correct the whole. What is correct: that one has to say that pc is equal to hf .
In formula: pc = hf , with a phase velocity of c = f.λ from this follows: p = h/λ and
$F = dp/dt = -h.\lambda^{-2}.d\lambda/dt$ (formula 1).
One then gets:
AR: $E^2 = (m_0.c^2)^2 + (pc)^2 = (mc^2)^2$, particle is stationary (v=0): $E = m_0.c^2$ (formula 2)
QM: $E^2 = (m_0.c^2)^2 + (hf)^2 = (mc^2)^2$, particle is stationary (f=0): $E = m_0.c^2$ (formula 3)

There is nothing wrong with these statements. Now, one can develop a quantum theory that looks different, just a deterministic theory with no probability theory. Strong evidence for this is the entanglement experiment. As soon as 2 particles interact and are entangled, their state is fixed! There is no question of a probability that a particle after the entanglement is in a different state, such as the spin of an electron: chance 50% up or chance 50% down. So that's not true as the experiment proves!!

I also note that the energy of a 'de Brogli' wave is equal to E = hf , as is the case for an EM wave.
A 'de Brogli' wave moves at the speed of light but follows the trajectory of constant energy of the rest mass particle in the vacuum energy space.
The force needed to bring a particle to a certain speed (or to a certain wavelength λ) is given by formula 1: $F=dp/dt =-h.\lambda^{-2}.d\lambda/dt$.
It takes a force to change the generated wavelength! So, the force needed is a result of the fact that the generated vacuum energy wave has an energy of h.f and to change that energy a force is required!
If the generated wavelength is constant, then no force is needed to maintain the constant motion f.i. superconductivity and electron orbit around nucleus.

I can now say that the orbit of an electron around a nucleus is then determined by the following equation: p.c = h.f or: p = h/λ. In which p and λ are both vectors.
It must be noted that also is valid that F = dp/dt, in which F is dependant, not only on the mass of the concerned particles (gravitational potential energy), but also on the potential energy that is present when charge is added to the neutrinos, creating charged particles.

How does an elementary rest mass particle look like, such as an electron? There are a few clues available, especially of a mathematical nature. The natural shape of f.i. a planet or star is the spherical shape. For this, in the case of a planet, sufficient mass (read gravitational force) is needed, so that the resulting gravitational force is strong enough to arrive at the spherical shape. Often this requires a gas and/or liquid phase.

The area (A) of a sphere is given by the formula $4\pi.r^2$.
The volume (V) of a sphere is given by the formula $_{4/3}\pi.r^3$.
If you combine both, you get the formula: $V= {}_{1/3.}\, r.A$

This applies to a spherical shape, where the constant factor 1/3 is an indicator. For other volume

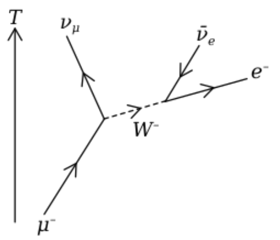
shapes you get different formulas for the volume as a function of the outer surface.
I note this in connection with elementary particles like the proton and neutron, where the quarks have an electric charge that is 1/3 or 2/3 of the electron's elementary unit charge q.
This may indicate the outer shell surface of the sphere, since the mass of a sphere is proportional to the volume. After all, the charge is distributed over the full surface of the spherical shell.
The mass of a sphere is then proportional to $_{1/3.}$ A and the radius.

Then another indication. The spin of the electron is ½ according to current quantum theory. This value can also be obtained if I calculate the relativistic angular momentum of a hollow sphere wherein the mass is then concentrated on the spherical shell surface. See the separate article about this on my website.

Then a final indication: on this website I have developed a big bang model in which there is a big bang of a vacuum energy sphere, after which gradually, as it expands, vacuum energy is converted into matter, after which a contraction phase of matter follows, resulting in another new big bang. The big bang is then in facto, the transition from matter to vacuum energy after the contraction speed of matter has reached the speed of light. This is a limit value for which there is a fixed radius (half of the Schwarzschild radius), which in turn depends on how much matter/vacuum energy was present during the process of the big bang (conversion of matter into vacuum energy).
If there is only matter, you can use the Friedman equation to calculate how the contraction proceeds under the influence of gravity. See the big bang model on this website. If one deducts the contraction equation for a homogeneous sphere of matter then there is a square root equation in it. There are 2 limit cases:
1) A contraction equation where the contraction rate is zero (or approaching zero), e.g. a neutron star, a black hole and all stable elementary particles! When the contraction speed has reached the value zero, then the radius is the Schwarzschild radius.

2) A contraction speed at which the contraction speed eventually reaches the speed of light, e.g. the start of the big bang or the annihilation of an electron-positron pair. When the contraction speed reaches the value of c, then the radius is half the Schwarzschild radius.

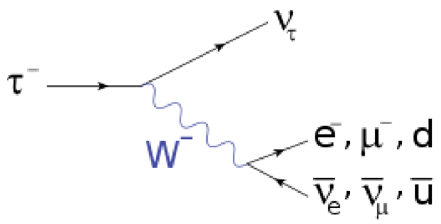
This means that unstable particles such as the muon and tau particles can collapse even further into eventually an electron. The electron is stable and cannot collapse further. Let's take a look at the muon decay (consists of the rest mass particle (neutrino) with the electric charge on it):



Here we see that the muon particle disintegrates during the contraction into the 'bare' rest mass particle, the muon neutrino, and the electric charge 'remains'. Electric charge needs a carrier and that particle is borrowed from the vacuum energy space (W^-). This W^- particle decays into the electron and anti-electron neutrino. All this under the direction of the conservation laws: a left spinning muon neutrino, which is offset by the right spinning anti-electron neutrino. The negative electric charge of the muon is transferred to the negative electron through the W^- particle. Both the muon and the electron then have the same spin direction.

The W^- particle gives its remaining energy back to the vacuum energy space.
The Z^0 particle is then a bare rest mass particle interacting with the vacuum energy space (has no magnetic moment).

Let us now consider the Tau decay. Here the contraction is even stronger than with the muon decay. The Tau particle decays to an electron (stable particle) or a muon (unstable) or a down quark with an anti-up quark. See the figure below:



Here we see again that the τ-rest mass particle loses its charge and continues as the tau-neutrino. This tau neutrino is counterclockwise. The electric charge is transferred back to the W^- particle that is borrowed from the vacuum energy space. Because the τ particle is much heavier, there are several decay modes (dependent on the kinetic energy):
1) Decay into an electron and an anti-electron neutrino. Here the anti-electron neutrino is clockwise spinning, and the τ-particle has the same spin direction as the electron.
2) Decay into a muon and anti-muon neutrino. The muon particle is of course also unstable and decays further.
3) Interesting is the decay to a down and an anti-up quark, together an electrical charge of -1. Here the τ particle has the highest energy because heavier particles are produced.
As we know, the τ-neutrino is counterclockwise. We assume that quarks also have a bare rest mass particle (after all, that is the carrier of both electrical and color charge), then one of the quark neutrinos has a right-hand spin, in my opinion the lightest quark neutrino, in this case the anti-up quark. The down quark particle then has the same spin as the τ particle.
A flavor change also takes place here. The W^- particle now decays into two quark-neutrinos that both carry an electrical charge as well as a color charge! The sum of the electric charge is -1 of both quarks. However, the sum of the colors must be colorless since the Tau particle has no color charge.
This is the π^- meson, unstable and decaying further. The pion has a large binding energy, supplied by the kinetic energy of the τ particle. The rest mass is namely 139.6 MeV/c^2 , while the rest mass of the up quark and down quark respectively 2.2 and 4.7 MeV/c^2 .

Summarizing:
1) Bare rest mass is the carrier of charge, which can be either electrical and/or color charge.
2) A hollow sphere with a thin spherical shell has spin 1/2 .
3) The radius of a stable elementary particle can be calculated with the Schwarzschild radius. The contraction speed has then become zero.
4) The spherical shell has an inner and outer shell. Inside is the electrical charge and the color charge on the outside. The hollow inside is really empty. The volume element of the vacuum energy space that was converted to an elementary particle is the cause. After all, all the energy of that volume element has now become matter. So the hollow inside is really empty space.
If there were any remnant left, it would try to blow up the particle as vacuum energy is expanding. Perhaps that could be the reason that the tau and muon particle is unstable.
5) Electric charge is distributed over the surface of the inside of the spherical shell. This is according to the charge of quarks: 2/3q and 1/3q . Where q is the unit charge of the electron. The electron is the stable elementary particle with a single unit electric charge.

Its radius is: $r_{el} = 2G.M/c^2 = 1{,}48*10^{-27} * M_{el} = 1{,}48*10^{-27}*9{,}11*10^{-31} = 1{,}35*10^{-59}$ (mtr)

This is rightly a point mass. However, there is definitely a size! The accompanying spherical surface of the spherical shell over which the unit electric charge q is distributed, is then:
$A_{el} = 4\pi r^2$.
This is then the standard surface over which the electric unit charge is spread. Quarks however, have charges of either 2/3q or 1/3q, which means that the radius of the spherical shell at the inside is smaller than that of the electron. Hence the comment that the electric charge is located on the inside of the shell. Since quarks have rest masses larger than those of the electron, this means that the radius of the outside of the spherical shell is larger than that of the electron. The spherical shell therefore has a thickness Δr !! There is therefore no other option than to conclude that the outside of the spherical shell contains the color charge.
The volume of the thin spherical shell is then given by the following formula:

$V=⅓(r_oA_o - r_iA_i)$ where $A = 4\pi r^2$ and o is 'outer' radius and i is 'inner' radius. This thin spherical shell contains the total mass of an elementary particle. An unstable particle is therefore a particle that has a larger surface than it can hold a charge (color and/or electrical). This means a larger 'bare' rest mass (neutrino)!!! The unstable particle continues to contract and decay until finally a stable elementary particle has been formed: it can no longer contract and has reached the Schwarzschild radius. The contraction speed has then become zero.

This means that in addition to the 3 lepton neutrinos (electron, muon and tau) there are also 6 quark neutrinos, one for each quark. Assuming that each color charge is the same in strength, it has to be that the difference in quark mass is caused by the difference in bare rest mass.
The top quark neutrino is then the heaviest neutrino (also the neutrino with the largest radius), while considering the leptons, the tau neutrino is the heaviest.

It is also possible that the contraction speed does not go to zero but approaches the speed of light. This happens in the annihilation of an electron and a positron. The attractive electric force between the two particles is so large that the bare rest mass cannot withstand this. The radius of the combined particle then moves to half of the Schwarzschild radius. Then there will be a mini big bang and both particles are then converted into 2 photons that move opposite of each other. See the article about the big bang.
This means that there are still 6 'bare' quark neutrinos to be discovered.

6) Now that a stable elementary particle is a hollow sphere, with a center, and electric charge and color charge evenly distributed over the inside and outside of the spherical shell, this means that the exerted forces (interactions) are central.
The electric force is known to be proportional to $1/r^2$ and therefore also with the surface area $4\pi r^2$, 1/A. The zero point is then placed in infinity. There are 2 charges: + and - .
One can expect something similar from the color charge, but now the other way around: the power is proportional to the surrounding spherical surface and thus proportional to r^2 or A. The zero point now comes in the center of the sphere (a quark). There are 3 charges: red, green and blue. A stable particle becomes formed when the equal strength of the 3 colors together yield zero, i.e. the color white (neutron and proton, each consisting of 3 quarks)) in the wide vicinity of f.i. a proton.
Close to the 3 quarks, the influence of the 3 color charges is of course not spherical symmetric from the point of view of center of mass (compare the electric dipole) but it is viewed from the center of each quark. This produces a net force that is no longer proportional to the surrounding spherical surface, but strong enough to hold the 3 quarks in the proton together against the net 'repulsive' effect of the electric charge of the quarks.

Force interaction quarks, with charge G(reen), R(ed), and B(lue), in the proton:
$F = c_1.G.R.r^2$ (force between quarks with charge G and R, r is distance between centers G and R)
$F = c_1.G.B.r^2$ (force between quarks with charge G and B, r is the distance between centers G and B)
$F = c_1.R.B.r^2$ (force between quarks with charge R and B, r is distance between centers R and B)

c_1 is the color charge constant, comparable to ε_0 for the electrical interaction.

A single quark cannot exist because of the strong polarization of the vacuum energy space at large distance (after all, proportional to r^2). There would be a complete disturbance of the uniform vacuum energy space (spontaneous particle creation from the vacuum energy space, potential energy goes to infinity!). They can only exist if the surrounding space were not disturbed. This means a net color charge of zero or in color terms: white.
For 2 particles: Color with anti-colour, net white at a relatively large distance from the center of mass.
For 3 particles: Color combination of even charge Green, Red and Blue, on relatively large distance from the center of mass, net white.
When 2 quarks approach each other under the influence of the two color charges, the mutual force becomes smaller, but the speed will continue to increase. If a bond is to be formed, the excess kinetic energy has to be radiated out, just as happens with the electrical interaction through the radiation of a photon. Here this is done by the emission of a gluon, the photon of the color interaction.
An example is again the electron-positron annihilation. At very high relativistic energies, the annihilation results again into the mini big bang but now a quark-antiquark pair is produced that in turn again breaks down into 3 gluons. Those 3 gluons produce other particles in 3 separate jets. The gluon is a high-energy particle because of the strong interaction and therefore it reacts strongly with other matter.
However, bare rest mass is the carrier of charge and in my view a gluon can therefore not have a color charge to wear. It is the equivalent of the photon but for the strong interaction. Just like the photon it has no charge, moves at the speed of light and therefore has no bare rest mass and can therefore not be accelerated.
Compare the decay of a tau or muon particle. Both decay initially in the bare rest mass particle, after which the charge remains. However, charge must be on a bare rest mass particle. This will be solved by borrowing a W^- particle (with large bare rest mass) from the vacuum energy space , after which this particle decays further.
W^-, W^+ en Z^0 are actually a kind of enzyme that allows decay reactions from the vacuum energy space.
The cyclic universe model therefore consists of converting vacuum energy into matter, both dark as visible. How exactly that works is not exactly known yet, but undoubtedly the Higgs boson plays a role in this together with the particles of the weak interaction (W^-, W^+ en Z^0).
Interlude:
The strong interaction is proportional to r^2 due to the spherical shape of an elementary particle. The vacuum energy space around the hydrogen atom (with only one proton) close to the nucleus is not uniform polarized because of the 3 quarks. At a distance, the potential energy is then large enough to produce neutrinos from the vacuum energy space. This is dark matter then! It means that hydrogen clouds far enough from the center of our galaxy can continuously produce dark matter (to be regarded as a catalyst) whereby vacuum energy is continuously converted to dark matter.
Near the center of the galaxy, the hydrogen clouds have already turned into stars or have been swallowed by the central black hole and the converting process has already largely stopped. Because neutrinos move practically at the speed of light (because the bare rest masses are so light) they are mostly on the outside of the galaxy. This is confirmed by the measurement of the velocities of stars around the center of the milkyway (they indicate no dark matter). This was the first indication for the existence of dark matter (the stars on the outside of the galaxy had a larger speed than they should have).
End interlude.

A major challenge for contemporary physics is then of course to see whether there is indeed a process of continuous converting vacuum energy into matter, the 6 quark neutrinos can indeed be found and how they think they are going to do that!
A few tips:
1) See if the value of the speed of light is still the same as it was 50 years ago. Background: perhaps the speed of light depends on the density of the vacuum energy space. At this time after all, the universe is expanding. This would have major theoretical consequences with regard to energy conservation, since the energy is proportional to c^2.
2) Is the speed of a star in the outer region of our galaxy still the same as say 50 up to 100 years ago?
3) Look at old images of high relativistic energy collisions to see if a bare quark rest mass neutrino is produced. (proton-antiproton collisions at the CERN). Especially collisions where apparently no energy conservation occurs.
4) The 3K cosmic background radiation gives a distribution in percentage of the vacuum energy density, dark matter- and visible matter density. Since the current vacuum energy expansion rate is so low, no more visible matter is produced from a single vacuum energy volume element dV. If, after a period of time, e.g. 50 or 100 years, another measurement is performed, it is possible to see whether there is a shift in that distribution. Visible matter should then be the same be, but dark matter should have increased and vacuum energy density should be decreased to the same extent.