

15. A sketch of the Universe.

During more than eighty years some fundamental contradictions are existing between the relativistic theories and quantum mechanics, which could not be bridged until now. This points to a deep gap in the insights. Gravitation could only be incorporated by actual denying the existence of this force and by its reduction to the mathematical problems of a bent space. Actually, all physical phenomena with respect to the exchange of energy by radiation have been reduced to mathematical problems.

Trying to break through this barrier, a new sketch of the structures of the universe will be given now.

The bricks of the universe and their factories.

These bricks (**energons** or pp 's) will be seen as two energetic points, being each others opposite (pole and anti-pole), with a very fast rotation around each other (relative velocity c) at a radius of $7.4 \times 10^{-33} m$. With opposite properties of the poles is meant that all the qualities, needed for description, must be oppositely in sign, namely the inertial mass, the distance to the mutual centre of origin and even time. That makes that the energy of the poles is oppositely, but the forces between the poles and their angular momentum stay positively.

The factories are the elementary charges (**electrons** and **positrons** or ec 's), existing themselves of a very large amount of energons. The radius, $6.7 \times 10^{-18} m$, is 10^{15} times the radius of the energons. The ec 's are like bubbles with a very thin mantle of coherent energons (S_{pp} 's) in 10^3 layers, the surfaces containing $3.3 \times 10^{30} S_{pp}$'s and averagely emitting 1.86×10^{-12} times their own amount of pp 's in $2.5 \times 10^{-41} s$, into the outside as well as to the inside world. The sense of rotation of the emitted pp 's is differently for electrons and positrons. The pp 's can only be annihilated if they hit an ec . Equally turning pp 's in absolute sense will then be annihilated and give rise to an attracting force. Otherwise, oppositely turning pp 's in absolute sense will cause a rejecting force with annihilation. The absorbed energy is the smallest possible energy e_0 in the smallest possible period of time t_0 . The inside directed pp 's will be annihilated at rejecting reactions with S_{pp} 's in the opposite side of the mantle and so inflating the ec until equilibrium. The velocity of emission varies from 0.5- to 1.5 times the velocity of light, leading to the important *period of pp -convergence Δt and to the phenomenon of magnetism at relative ec -velocities.*

The ec 's must be pulsating. The radius varies $\pm 3\%$ with a frequency of $7.9 \times 10^{24} s^{-1}$, and the strength of emission varies with that radius $\pm 6\%$, because the density of the pp -mass and the intensity of reproduction are inversely proportional.

The emission of pp 's with an oblique angle to the ec -surface causes a shift of the axis of rotation to restore a loss of angular momentum. This makes that the shift along each big circle has an equal sense with the total result of a spin-effect of the ec 's.

The ec 's have been created in a fast expanding pp -cloud in the very first phase of the universal evolution at the moment that the density of the cloud reached a critical value.

This value is *the ratio between the particle-volume and the volume of empty space, being 4.4×10^{-15} (Space-factor)*. This is also the ratio between the volume of the outer part of the ec -mantle and the enclosed volume.

This value belongs to the most important values in the universe.

Since the birth of the universe an amount of 10^{83} ec 's are acting and exerting a gravitational force. About 90% in the form of rotating double-structures of opposite charges (**neutrino's**, diameter 5.4×10^{-15} m) and the rest of it in structures of matter.

The buildings.

A new, and also very short phase in the evolution of the universe was the moment of equilibration of electron- and positron-movement in their plasma in such a way that no force was exerted anymore between volumes of neutron-size (radius of 0.51×10^{-15} m). At that moment **neutrons** could be formed. Neutrons exists of 931 positrons and 931 electrons, which make a very complex dance at a relative velocity of 0.741 times the velocity of light. With this dance a continuously existing structure of three 'traffic-knots' is produced. In two of it pass, within a minimal period of time, four negative- and two positive charges, thus with an apparent charge of $-1/3.e$. In the third knot pass within an equal period five positive- and one negative charges, producing an apparent charge of $+2/3.e$. In that way equal amounts of electrons and positrons move from one part of the neutron into the other and still neutralize the total charge.

The neutronic structure appears a little unstable: it decays after a mean period of 15 minutes into **protons**, consisting of 930 positrons 929 electrons, which make a different dance, also causing three 'traffic knots'. Four of six ec 's passing one knot are now negative and five positive and one negative in each of the other duo. The completion to six ec 's for each knot happens with positive ec 's directly from knot to knot. The result is a total of one positive charge, that attracts one electron.

The structures, arising in this way are the **hydrogen atoms**. The dynamic ec -structure of the proton restricts the distance between proton and electron to a $r_H = 5.29 \times 10^{-11}$ m. One of these restricting factors is the specific ec -conjunction. There are theoretically 21×10^6 types of conjunctions, but the chance on realisation is 8.21%. During the ec -orbit, lasting 1.52×10^{-16} s, the proton repeats these conjunctions 123 times.

The period of repetition $t_r = 1,2356 \times 10^{-18}$ s, is a very important value.

It appears to be necessary that all the qualities which influence the orbiting electron are whole numbers. For instance, if r_H is multiplied by value x , then the orbital velocity asks for factor \sqrt{x}/x , the orbital period for $x \cdot \sqrt{x}$, and the number of effective groups for \sqrt{x} . This means that multiplying the atom radius with x , the value of x must be n^2 , being the square of a whole number, to realise the initial condition. In its lowest orbit the electron receives the information of 2 effective groups with 409 specific conjunctions. That 2-groups information can be seen as a wavelength of the electron in its orbit. As the number of the effective groups grows with n , the length of the orbit grows with n^2 so that the wavelength has to grow with n .

In this phase of evolution, under conditions of high pressure and energy, the neutrons reacted by exchanging ec 's. Possibly each nucleon contributed averagely with one ec . That gave rise to the development that four nucleons stuck together, forming a nucleus with two protons and two neutrons expelling two electrons into distant orbits, thus forming a **Helium-atom**. This reaction causes a small increase of density, accompanied by radiation of pp -energy and loss of weight ($m = e/c^2$) as measured by electromagnetic methods (mass-spectrometry). But the number of contributing particles, influencing gravitation, did not decrease so that a difference must exist between the Constant of Avogadro-Loschmidt ($N_A = 6.02 \times 10^{26}$ nucleons.kmol⁻¹) and the nucleonic number ($N_E = 5.97 \times 10^{26}$ nucleons.kg⁻¹).

The ec -structures include a small but unavoidable deficiency: the electric forces between the charges do not have their **point of application** in the centres of the ec 's, like the forces of inertia have, but at a distance of $e_{ex} = 0.14 \times r_e$ from the centre into the direction of the partner. *That difference is the base of the regulating factor for all exchange of energy between the structures of matter, namely the Constant of Planck.*

The **force of gravitation** rests on a second deficiency, caused by a difference in the moving-systems of the electrons and positrons in an ec -plasma. In nucleons opposite charges move into opposite directions. The passage (outside- or inside turn) is ruled by the necessity to save energy, thus by toppling over the ec -spin as little as possible. That makes that, for once and for all, a choice has been made which kind of charge must take the outside - and which the inside turn (**matter** or **anti-matter**). It can be seen, that looking through the dynamic structures of nucleons, a difference must rise between the pp -radiations of both kinds of charges, left by their conjunctions. This is a violence of the necessary neutralization of forces for these structures: neutrons will attract each other (in spite of the choice of charge). However, the force is very faint in relation to the other

forces. A very important rule has been found now:

The exchange of all energy is founded on two small disharmonies in the dynamic structures of the elementary charges.

The difference between both forms of energy can be seen with the following consideration: while gravitation fills the universe with inertial information that cannot be influenced inside the structures of matter, the electric forces built the material structures, which can be influenced by differing distances. Both systems have to be in equilibration. (Further evolution of matter by the action of stars into complex nuclides and molecules cannot be described here).

The building power.

The creation of energons by the *ec*'s happens only at the volume ratio 4.4×10^{-15} . The power of reproduction is the foundation of everything. Reproduction on the base of opposite properties can still be found in life. At increasing density material structures will be destroyed. Via neutron stars and black holes the structures of matter can be brought back to the basic structure of moving *ec*'s. However, it can be shown that the density of a black hole has a critical value at the stage of touching *ec*'s, when the mass has reached 0.629 times the sun-mass with a radius of 921 *m*. At that moment the *ec*-structure disappears and the power of reproduction ($1.86 \times 10^{-12} \times \text{the } ec\text{-mass} / t_0$) will be transferred from the *ec*-mantle into the mass of free *pp*'s, though with a reduced power of 2×10^{-19} . That will cause an enormous explosion at which the *pp*-mass, despite an expansion with light-velocity and not before 350 seconds have passed, will reach again the threshold value of 4.4×10^{-15} . Now the density is equal again to that of the *ec*'s. The power of reproduction, using the period of *pp*-convergence Δt , will cause at that moment a mantle of 10^3 layers of compressed *pp*'s around each volume with the size of an *ec*. By reaching the threshold value, the re-creation of *ec*'s is a fact. During the explosion the mass has increased from 0.629 sun-masses into the 10^{54} *kg* of 10^{84} *ec*'s, that is more than the total contents of the universe. Thus being a real Big Bang !

This mechanism can also work on a small scale with (artificial) collisions between *ec*'s, at which the structure of the *ec*'s is destroyed. Within a period of about 10^{-24} s, new *ec*-masses can be formed with a total weight of 96- to 220 GeV/c² ($\sim 2 \times 10^5$ - 4.5×10^5 *ec*'s), depending on the energy of the collisions.

The gravitational mass-distance relation (Newton), is not valid for the big masses of galaxies at galactical distances. Two extra circumstances must be taken into account: a decreasing effect caused by the expansion of space and secondly an increasing effect caused by the increasing tolerance of matter for gravitational quanta of different age.

These effects must have a stage of change between 10^3 and 10^6 light years from the centre of the concerning mass, in which the total effect increases to 100 times the initial value, causing a big gravitational barrier. It seems not accidentally that the size of galaxies vary between about 10^3 and 2×10^5 light years, that stars in the periphery of big galaxies move too fast and that the universe has a too low weight to be closed.

It seems not to be necessary to suppose the existence of a large amount of dark matter.

The communication.

Free *pp*'s exist in space if the density agrees with the space-factor 4.4×10^{-15} . As they are only able to destroy each other under circumstances like those of the *ec*-mantle, they can be compared with molecules in a gas. The frequency of the collisions may be calculated on $3.64 \times 10^{56} / (\text{ec-volume} \cdot \text{s})$ or 2.0 per *pp*, per mean period of crossing the *ec*-volume.

Signals are induced by disturbances, caused by a sudden change of *ec*-structures and emitted with velocities between 0.5- and 1.5.c with respect to that structure. The disturbance will break up into a range of density-waves, moving with the mentioned velocities. Because of the immense numbers of atoms in even a small amount of matter, a large number of disturbances will take place simultaneously. An eventual receptor, mostly a comparable structure, can react with those waves, on the condition that they move with light-velocity through the system, being the same circumstance as with the emission. That circumstance concerns the intern communication with light-velocity between the diverse parts of the system: ***the constancy of light-velocity is a fact of reception.*** Other velocities do not fit, but the needed velocity will be found within the relative speed between emitter and receptor. This velocity however, causes an other frequency at reception, ultimately ending in relativistic values (not receptive).

The coupling between the constancy of c and the receptor must be provable by using a rotating system of receptors with synchronous clocks and a distant emitter.

There is an other important effect of the described way of electromagnetic radiation.

The resemblance of the *pp*-mass of space with a gas does go so far, that equal phenomena occur with the transfer of waves. A *pp*-wave (signal) will be bent from a low *pp*-concentration to a high one (like a reflection from a hot gas-layer). Therefore a signal seems to be attracted when passing a very large mass (star): ***the bending of light by the gravitation of heavy masses is discussable.***

Looking back at this story, one must become conscious of the fact that ***the same power that created the universe, keeps that creation existing as well !***