

Big Bang, dark energy, ether and double slit

For Rubi, who encouraged me to ignore the mainstream

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Mathematics is the only perfect method itself to lead around by the nose.

(Einstein: Quoted in Seelig : Bright -time Dark Time , p.72) Piper in 5089/1997 .

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The modern literature on physics and cosmology does not give a satisfactory image . Terms of quantum physics about collapse, non-locality , superposition, decoherence, etc. cause discomfort. In retrospect, the reasons lie in the interpretation of the results at the beginning of the 20th century.

The surprise Rutherford , the atom mainly be found as a vacuum , the conclusion Bohr, the atom to be treated like a planetary system , while partial success (Balmer, Lyman, Paschen, Rydberg) was achieve , created images that shaped the further development. If having viewed the atom as a structure of mass particles (nucleus and electrons), so might have an analogy nearer to the oscillating plate, which leads to the Chladni figures easy to be understood. Since in such oscillations no same modes occur, something like a first postulated Pauli principle was not necessary. However, if the electrons reside in areas of maximum amplitude, the assumed intra-

atomic vacuum oscillates, therefore occupied with any particles, an idea that is no longer so strange in the modern concept of the vacuum.

Then disregarding the then discussed problem of the so-called dipping tracks of the electron, the hydrogen atom, consisting of protons and electrons, would have been considered as a dipole and treated as a minimized, excited antenna, connected with a complex function, the voltage and current seeing as phase shift between these variables, also in the atom. Coupling to an antenna for extracting power in a resonant circuit, the real effective power is calculated by multiplying the result by the complex conjugate function. This further leads to the well-known Thomson equation. An analogy to the usual in quantum physics "collapse of the wave equation" is not to be overlooked. In this sense, the collapse is necessary to deprive the system for the purpose of measuring performance whether you look, listen or not.

However, one could not mention any initial conditions definitely because of the Heisenberg relation, as is common about the spring pendulum. But strictly speaking there as well initial conditions set values, in the microscopic scale not exactly. Showed such a pendulum, such as a double pendulum, chaotic behavior, as the slightest deviation of the output data would be responsible for the lack of reproducibility of the oscillation curve. Coupled pendulums (model for H₂) show periodic energy exchange, which is modeled in particle physics by exchange particles (1).

In preparation for the SRT Einstein had certainly given consideration over the waves of air, which, however, had not been necessary, but regarded as necessary in a modified form. His postulate of the constant velocity of light in relatively moving systems was sufficient. But thus he had to explain the photoelectric effect in the usual way, reinterpreting the Planck's light quanta or packets of light particles that move in a vacuum. This in turn encouraged de Broglie introducing matter waves vice versa. This equality of waves and particles but then had to lead to contradictions when it came to the interpretation of the double-slit experiment. And here began interpretations with Born probabilities, Schrödinger superpositions, Feynman multi-paths and ultimately Bohr correspondence principle. All these developments always posed new questions that are not answered by consensus to date, with more non-locality, many-worlds theories have become more complicated. As Hawking said so well, it's time to shoot Schrödinger's cat as a symbol of superposition finally.

When the double slit results were known, when using electron beams the confusion was total. Superposition of quantum mechanical possibilities, which way methods, multipath calculation incurred and theorists confessed that probably no one would ever understand this experiment. And these remarks were not without influence on the philosophy of physics, especially the theory of knowledge and determinism.

Now it is not certain that human reason will ever know the universe without remainder, but efforts to interpret the results pictorially, should not be abandoned. Quantum fluctuations, ten spatial dimensions, particles as strings or guitar strings, branes as separate universes, "Higgs particle as Prime Minister at a reception" are unappealing. And the argument that evolution has not given us the mind to see the world, but only in order to survive, is true, but it is used too often. The world is just so, one often hears, and while we reject solutions that lead to infinities, but generating the principle of superposition, the non-locality, is not questioned.

The build bridges between the models of classical physics and quantum physics, or - more modestly - to put some planks across the river is the intention of the following article.

H D Zeh noticed about the M-theory : "Of course I'm not so presumptuous to try to understand the high mathematics of these theories, but I usually agree with Feynman's remark to believe in any way, if you can understand it clearly, or even (so understood) with Wheeler's advice, to only start as a physicist with the "Convert" after solving the riddle. Thus, the described models are to

understand that - because they appear acceptable - not at least with reference to the 10 commandments of Bertrand Russell.

The observations by Carlo Rovelli (Scientific American, March 2006) underline the importance of the mainstream differing considerations.

(1) www.walter-fendt.de/ph14d/gekopendel.htm

Summary

After a critical examination of the Michelson-Morley experiment as a hypothesis antigravitative dipoles (Adipole) exist. They can be assumed occurring symmetrically with gravitational particles with same amount. Just as in the entire universe, the sums of positive and negative charges are equal, it also applies to gravitational and antigravitative particles.

Antigravitative masses cannot arise - the basic particles remain isolated. They form in the entire universe the "Einstein-ether". Density fluctuations lead to variations in the speed of light.

The speed of light determines the mass (about: neutrino mass) , the vacuum influence the density of such particles and the product of these quantities, the mean antigravitative density of the universe, the amount of which coincides with that of the gravitational .

The integration of this particle in a model of all known particles makes the existence of an "ether in the sense of Einstein's" likely.

Cosmological constant, vacuum energy and baryon asymmetry are more partial results. Decoherence leads to an explanation of Aspect - results, the double-slit results and description of the light propagation.

The average distance of the vibrating particles leads to a wavelength substantially coincident with that of the background radiation.

Because of the symmetry, the average densities for antigravitative and gravitational masses of the universe are the same. The Hubble constant determined from this shows that not a big bang, but the permanent expansion of the various bubbles through the antigravitative particles is decisive for their expansion, resulting in a positive cosmological constant. The Hubble diagram undergoes another explanation.

The said particles with electric and gravitational forces lead to an isomorphic description of the SRT and ART.

In a chapter on matter the Standard Model of particle structure is indeed extended, but not changed. The antigravitative particles with their gravitational partner Urbaustein (first particle) are the basis. From the latter, many known particles can be constructed. This gives another method, to describe the known reactions demonstrated with Feynman graphs. It is explained in the rest mass of the neutron and the proton and other particles.

A comparison of the solidification of metals or generally of solids with the conversion of the universe shows parallels. From such a model, the order of the formation of stars, elliptical galaxies, spiral nebulae and their known arrangement with large dimension matter-free spaces follow.

The density of the "singularity" condensed matter is calculated according to neutron stars. From their recombination with Adipolen (antigravitative dipoles) once again feed particles are escaping

and cause for the formation of new matter and stars. Consequence of the model is an entropic cycle.

Adipole allow a different interpretation of the double-slit experiment. The derivation of the de Broglie relation is another result.

In conclusion, the calculation of the gravitational constant gives further evidence for the model.

Special attention was always - if known – given to experimental results, which always ultimately decide. But they also allow different interpretations, which, according to Carlo Rovelli (1), as speculative theories are quite interesting.

The "hour of tinkering" shows many more considerations whose potential has not been exhausted.

This model has no chance, because by professorial view it is too far away from the mainstream. But it brings solutions for the enumerated "five great problems of theoretical physics" by Lee Smolin. These are :

The problem of quantum gravity: General relativity and quantum theory combine into a single theory, which can claim to be the complete theory of nature.

The foundational problems of quantum mechanics: Resolve the problems in the foundations of quantum mechanics, Either by making sense of the theory as it stands or by inventing a new theory which does make sense .

The unification of particles and forces: Determine whether or not the various particles and forces can be unified in a theory explaining them all as manifestations of a single, fundamental entity .

The tuning problem: Explain how the values of the free constants in the standard model of particle physics are chosen in nature.

The problem of cosmological mysteries: Explain dark matter and dark energy. Or, if they do not exist, determine how and why gravity is modified on large scales. More generally, explain why the constants of the standard model of cosmology, including the dark energy, have the values they do.

(1) Spectrum of Sciences . March 2006 Rovelli , Carlo

Michelson and Hubble

Bolder than to explore the unknown, it may be to doubt the known (Alexander von Humboldt)
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Doppler effect

It is considered that acoustic and optical waves are not comparable, because gas molecules oscillate longitudinally and form acoustic waves. For optical waves oscillating particles in the vacuum do not exist. The following remarks attempt to compare and draw conclusions.

Between an sound source with the frequency n_1 approaching at speed V_1 and a in the same direction fixed source of frequency

$$n_2 = n_1 / (1 - V_1 / c)$$

a receiver in a rested imaginary point not differ ($c =$ speed of sound) . Removes the receiver from the stationary point with velocity V_2 in the opposite direction, then the received frequency is

$$n_3 = n_2 * (1 - V_2 / C)$$

Replacing n_2 gives

$$n_3 = n_1 * (1 - V_2 / C) / (1 - V_1 / c) .$$

With either V_1 or V_2 is equal to zero, the Doppler equations follow. With $\Delta N = n_3 - n_1$ follows:

$$\Delta n/n_1 = (V_1 - V_2) / (C - V_1)$$

It follows : Regardless of the reference point when V_1 is equal to V_2 ,the frequency change is $\Delta N = 0$

On the other hand, it follows from the speed of sound

$$c = \text{frequency} * \text{wavelength} = \lambda * n$$

by logarithmic differentiation : $\Delta n / n = - \Delta \lambda / \lambda$

This means that with $\Delta N = 0$ also $\Delta \lambda = 0$

In each relative to a rest frame of the moving system independently of speed of the system there is always the same frequency and wavelength, and therefore the speed of sound for rigidly connected transmitter and receiver.

In motion direction to the receiver, the wavelength is shorter, for moving receiver it is extended to the same degree . The product of the frequency and the wavelength remains constant over the path, since the speed of sound is thus a property of the gas and intended as a homogeneous and isotropic medium.

Now let $V_2 = V_1 - \Delta V$ and only a little off V_1 . Then $\Delta n/n$ depends only on c beside ΔV and V_1 . Here, V_1 refers to the reference point chosen initially. But where is a reference point selectable in a gas chamber without other solid state? The gas molecules move in each point around the room according to the Maxwell velocity distribution. A locally fixed gas molecule does not exist. Vector addition of the pulses over a small gas volume yields the zero vector. This result is true for any point in the gas space, to ensure that all points are equivalent as reference points. The frequency shift in such a moving system is only dependent on the difference ($c - V_1$), thus, if all molecules of the speed V_1 is superimposed as convection.

With $V_1 = 0$ although there is a preferred reference frame, but in any parallel to this moving rigid system with $V_1 < c$ is $v_1 = v_2$ there is the same speed of sound. The nature of the gas (c in the denominator) is irrelevant.

Applying the previous results on Einstein's SRT, the speed of light for all moving optical systems parallel to each other is postulated to be equal, which corresponds to the above result. But Michelson testing the presence of a light transmitting medium was negativ. However, considering that transmitter and receiver as well as mirrors are rigidly connected together the experiment for such an assessment appears to be unsuitable.

In galaxies relative velocities between solid bodies are barely larger than 1000 km / s; that means V_1 compared with c negligible.

Taking a medium to which its structure actually cannot be made, and transmits the ideas on the sound propagation to the propagation of light, it is immediately clear that the approach of the velocities as in (2) with $c + V$ and $c - V$ is then not allowed. Condition is, however, assumed that

the medium is not affected by the system, or even carried, as it is inevitable for the acoustic waves in gases.

The Michelson experiment in which emitter, receiver and mirrors always have constant distances, required an ether, which was then not confirmed. The considerations show, however, that the experiment was not suitable to demonstrate this. It in no way refuted the existence of a medium. In the experiment are rather in every inertial same results can be expected when measuring the speed of light, which corresponds to Einstein's postulate.

Criticism of the Michelson experiment

The Michelson experiment was to examine the sole task whether light propagation is effected by an ether which fills the entire space and whether this ether can be used as a universal reference system at rest and for all physical processes. For this purpose, in the known form of the experiment equipped with a beam splitter, two reflecting mirrors and an observation unit which can measure the two interfering beams .

The considerations described herein are based on the representation of the textbook "Gerthsen, physics, 20.Auflage.Seite s 835ff ".

As usual, the principle is described with two swimmers who swim across and along the same long distances in homogeneous water stream flowing and ultimately reach the starting point again after reversing. For crossing the river an angle has to be hold.

Then this representation is transmitted to a wave as a light beam, even though the float rather applies the particle image. If one replaces the continuous beam of light by pulsed light, each pulse would describe around his starting point a spherical wave. A second pulse is emitted from a different point in the coordinate system moving along the ether and in turn also produce a spherical wave. Both waves do not affect each other. As a whole, the envelope of all waves shows a "light front" as it is described in sound (p.177 of the textbook; supersonic) .

Similarly, there is no reason to assume a lead angle in the evaluation of the experiment. In addition, so that would also have an angular displacement of the beam splitter done, because it is the iron law " the angle of incidence = angle output ". Otherwise the returning beam is directed from the second mirror by the plane-parallel plate in a different direction.

According to the current image both partial beams for round trip through regardless of the direction the same distance L. Now the wave passes the distances with the same c: $L+vt$ and $L- vt$. The sum of the times is $2 * L / t$.

The result of today's interpretation states that V_1 is omitted in the denominator of the above equation and $\Delta n/n$ is only related to the velocity of source V_2 . But the upper equation and $V_2 \rightarrow c$ gives $n = 0$ and the wavelength goes against infinity (Einstein's ride on the light beam).

Connection with the kinetic theory of gases

The kinetic gas theory calls for the speed v of the molecules in the gas space at 3 pulse coordinates the expression

$$v = \sqrt{3 * k * T / m} \text{ with } k = \text{ Boltzmann's constant.}$$

At $T = \text{constant}$, the particle mass m determines the particle velocity. Because of the homogeneity and isotropy of the molecular distribution this result is valid for all points and directions. The table shows that the speed of sound and average molecular velocity vary regardless of the type of gas (hydrogen, oxygen, nitrogen), by a factor of 1,30.

Medium	Speed of sound m/s	Average molek speed m/s	Quotient
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Hydrogen	1309	1694	1,30
Nitrogen	349	453	1,30
Oxygen	326	425	1,30

When molecular motion triggered successive atoms, more precisely, the shell-electrons repel each other. But what if the hypothetical particles of the medium do not carry electrically charged masses? Their nature is not initially known. (As is known, Einstein said: He does not need the ether, but he did not deny its existence!)

Mass of the hypothetical particle

Although the repulsive forces between such particles are not known, tentatively an analogous mechanism can be assumed for light, and then the mass of particles is calculated. For the constant c is used analogously to 1.3 times the speed of light in vacuum (adiabatic compression of the particles). For the temperature T the actual value for the background radiation is (2.7 K).

Followed by a mass of $0.73E-36$ g or $3 * 10E-4$ eV for the hypothetical particles.

[Physics University of Bonn] and Kamiokande (tau neutrino with $3 * 10^{-2}$ eV) (See also KworkQuark News) : DESY's KworkQuark - Questions and Answers Have a neutrino mass) .

Even compared with the results as they were obtained during the SDSS (Sloan Digital Sky Survey), a very fair agreement is reached. Those results were the upper limits for the neutrino weight 0.06 to 0.2 eV(1). Very many results are shown in the PDP. The observations of K.Nakamura et al (3) for Dirac or Majorana - particles move in this mass range.

References are usually upper bounds on the neutrino weight, but with improving experiments in course of time become smaller, but not less than the particle weight calculated here.

Now uncharged neutrinos can be as elementary by no means the leading wave particles, because they should interact with electromagnetic waves and be polarized or polarisable. Simplify this (and many other) declarations, when you look as a model the particles as electric dipoles that are oriented parallel to the electric field strength and thus assume a preferred direction. The idea is that initially symmetric gravitational and antigravitational mass particles originated, and then symmetrically disintegrated into particles with positive and negative charge. With dominance of the electric force the antigravitational particles coagulated in pairs to antigravitational dipoles (Adipolen), the gravitational to the first matter.

The assumption of antigravitational behavior is initially not necessary, but has a great potential. Neutrinos lived in theory a long time as mass less, gluons in theory still today. Particularly appealing is the balanced development of both kinds of matter.

Positrons and electrons are particles of equal mass with electrically opposite qualities, although we have no idea what electric charge ultimately means. Gravitational interaction could just as attractive as a repulsive act. Only the latter would be difficult to determine behavior when such particles since the beginning showed as singles, as well as neutrinos do and just so were very mysterious for decades.

From this acceptance are surprising results.

(1) flood lights Urkosmos, Hermann Michael Hahn FAZ Nature and Science July-23- 2004

(2) Berman - Schaefer , Lehrbuch d Exp.Physik , Vol 3 , optics, 7.Auflage , S.925

(3) rpp2012 rev neutrino mixing.pdf

Density of the hypothetical particles

By two independent calculation methods, the particle density of the adipoles is to be determined.

Path 1:

Electromagnetic waves in matter show dispersion. The refractive index n is a function of the natural frequency of permanent or induced dipoles, and the radiated frequency.

Is the electric displacement in vacuum?

$D = \epsilon_0 * E$ (influence constant ϵ_0 , electric field strength E).

When matter is placed in an electric field, its polarization P is:

$P = \epsilon_0 * (\epsilon - 1) * E = \epsilon_0 * E * \epsilon - \epsilon_0 * E$ (ϵ as the relative dielectric constant)

Not the rigid dipoles, but these vibrate against each other - now the particles assumed above cause the vacuum influence. The influence constant ϵ_0 is thus a consequence of the particles adopted.

For the determination of the polarization is generally

$P = 4 * \pi * E * \sum h (N_h * e h^2 / m h) / (4 * \pi^2 * (n h^2 - n^2) + 2 * \pi * g h * n * i / m h)$

where the summation $\sum h$ runs over all dipoles of the number N_h and the mass m_h . The summand with $g h$ account internal friction of the medium. It does not apply if there is no friction (see below) is present. $n = 0$ means radiation-free space. In addition, a matter-free field should be considered. In a vacuum, are only the Adipole of mass m . Then the reduced equation

$P(0) = D = (N_h * e h^2) / (\pi * m h * n h^2) * E = \epsilon_0 * E$

where now $N = N_h$ the number density, $e h$ is the elementary charge, $m = m_h$ the mass of particles and $n = n_h$, the natural frequency. Unknown, N , m and n

For m above the calculated mass is chosen from $0.73E^{-36}$ g. N is, as usual, the natural frequency of the medium, here the spectrum of background radiation $1.5E^{11}$ /sec be selected. Thus, it is assumed that the universe is filled with the hypothetical dipoles, the vibrations of this frequency are running against each other. If we transform to

$\epsilon_0 = (N * e^2) / (\pi * m * n^2)$

then N can be determined, since the value of ϵ_0 is well known. It follows for the density of the Adipole

$N = \epsilon_0 * \pi * m * n^2 / e^2 = 1.8 E^{+10} / m^3$

The value is interesting because with an average baryon density in the universe of $0.2 / m^3$, the ratio Adipole / baryons $5E^{+10}$ amounts, a result which is puzzling in connection with the so-called baryon asymmetry for theorists. There, however, photons are assumed as a reference (2) instead of Adipoles.

The equation of P is similar to the Feynman propagator terms when $n = 0$, and n_0 by $C / H *$ will be replaced p_0 , but there is the four-pulse of the butted particle.

Solving the equation for e^2 / ϵ_0 and expand by $1 / (2 * c * h)$ leads to the fine structure constant α with

$$\alpha = (\pi * m * n^2) / (2 * c * N * h)$$

or by insertion of the values

$\alpha \cong 1/137$

Thus, α is connected with the Adipol weight, the maximum of the background radiation and with neutrino weight (m), speed of light and background radiation (n) determined. A breakdown of the constants $\frac{1}{2} * m * n * d^2$ as rotational energy of the Adipol, for which a model of an circular motion is thought by a fixed pole allows the following

Interpretation of the fine structure constant:

$\alpha = (\pi / 2) * \text{Adipol rotational energy} / \text{energy photon background radiation}$
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Where $N * d^3 = 1$, $c = 2d * n$ and $E\text{-Photon} = h * n$

$d = (N)^{1/3}$ is the average spacing of Adipole in vacuo. This relationship is important for the models of the electromagnetic interaction in the chapter " Bastelstunde ". Furthermore: The background radiation is described by Planck's radiation law and includes a large range of wavelengths. The approach for $c = 2d * n$ with d equal to half wavelength is therefore a simplification which serves as an orientation. In addition, the polar adipoles show torsional vibrations or oscillations and are separate base with negative force o direction, which are similar to treat the lattice vibrations in solids.

From the constancy of α follows with the "vacuum density" $m * N$

$\rho = 2 * \alpha * c * N^2 * h / (\pi * n^2) = 1.3E^{-29} \text{ kg} / \text{m}^3$
--

This value is depending on the references 1 to 2 orders of magnitude below the adopted today for a cyclic universe critical density and is almost equal to the proportion of shining matter. It is assumed that gravitational and repulsive matter is symmetrical.

Adipol density N is greater in the region of matter formation, thereby locally the refractive index n (background radiation) and hence influences c (light velocity) does not remain constant . Consequently, therefore, a constant density of the Adipole but also the gravitational matter is not present. However, since many statements presuppose homogeneity of the vacuum conditions, likely many of today's statements are approximations.

From the linear relationship between N and ϵ_0 follows a proportionality between the speed of light, and $N^{-1/2}$. So if slightly varies the Adipol density in the universe , so does the speed of light, which in turn the value of the frequency shift for a given $(c - V1)$ by changing the differential changes in the expression of the previous chapter $(V1 - V2)$.

If as an approximation the particles form a primitive cubic lattice, their average distance is about $d = 0.4 \text{ mm}$. Such a grating undergoes dynamic vibrations, which influence only nearest neighbors because of the polarity. Such oscillation has the wavelength $2 * d = 0.8 \text{ mm}$. It is in the range close to that of the maximum of the background radiation. The distance seems large, but a similar case exists in the crystalline solid state, in which the fundamental of the distance between the nuclei is used as the lattice spacing, although taking between atomic nuclei orbitals the much larger space. One must conclude that electrons, similar to the grains of sand making Chladni figures, get their assigned positions only by the oscillating dipoles in the volume of atoms. Both in the vacuum of the atom as well as in vacuum in space there are oscillating particles in much greater numbers .

The value of Bohr's magneton by orbital angular momenta, and other individual particles, if they do not exist like nucleons as combination of eg Quarks exist, are inversely proportional to their mass. Now the adipole model implies that these particles rotate with the electric field strength, or represent the wave itself. Taking for the sake of simplicity the positive charge as the center and the negative as analogue of the electron in the hydrogen atom, so also must exist such a magneton that because of its small mass must be significantly greater. In terms of the Bohr magneton is to apply for an estimate:

$$\mu_{adi} / \mu_{Bohr} = m_{electron} / m_{adi}$$

Then follows:

$$\mu_{adi} = e \cdot h / (2 \cdot m_{adi}) = 7.25 \cdot 10^{-4} \text{ eV} / \text{T}$$

For the classical model of the atom, the magnetic moment is considered

$$\mu = -\frac{1}{2} \cdot e \cdot r \cdot \omega^2 = -e \cdot \pi \cdot v \cdot r^2$$

The mean frequency of the background radiation is $v = 1.5 \cdot 10^{11} / \text{s}$ Thus follows the radius of the rotating adipoles:

$$R = 0.4 \text{ mm}$$

This result in conjunction with the above- determined lattice constant of the "ether" gives the impression that the imaginary individual particles rotate around each other.

[The above- found mass value for the adipoles formally corresponds to a Compton wavelength of 3 mm, and this value is a measure of the sphere of influence of a photon on a charged particle around]

The background radiation is the natural vibration of this "quasicrystal", which of course then also couples to the large horn antenna of its discoverers Penzias and Wilson. Then, so that would explain the result recently found by R.Lieu missing shade of nearby galaxy clusters in the background radiation - we live within the background radiation.

Application of the theory of lattice vibrations (3) shows that the energy is negligible with respect to the Einstein temperature compared to the required by quantum physics zero-point energy. This produces for the individual particles an energy input of

$$u = \frac{1}{2} \cdot h \cdot n$$

where n is the frequency of the background radiation and the Planck's constant h. The same size is also true as the zero point energy of the vacuum due to the assumed theory vacuum fluctuation. Applied subsequent to the determined grid here, if it is assumed for all Adipole only the fundamental mode, to the vacuum energy density with the calculated N particles / m³, a value of

$$U = u \cdot N = 9 \cdot 10^{-13} \text{ J} / \text{m}^3 \quad \text{or} \quad 1 \cdot 10^{-12} \text{ J} / \text{m}^3$$

Measurements of "Wilkinson Microwave Anisotropy Probe "(John Baez) give an approximate value of $1 \cdot 10^{-9}$ to $1 \cdot 10^{-12} \text{ J} / \text{m}^3$. However, the quantum field theory yields a value 120 orders of magnitude higher. Thus, the model performs at least a significant improvement.

According to the current picture, the vacuum energy density must be distributed to the adipoles. This means that the rotational energy of each adipole U, mechanics teaches that about an axis perpendicular to the connecting line between the particles, rotating dumbbell includes the rotational energy of $2 \cdot m \cdot v^2$. The speed on the other hand $\omega^2 \cdot R^2$ or $(2 \cdot \pi \cdot s)^2 \cdot R^2$ where n is the rotational frequency corresponding to the maximum of the background radiation. It follows from this

expression for $M \cdot n^2$, inserted into the equation for αr determined power. As a result, it follows for the length of adipoles $d (= 2 \cdot r)$:

$$R^2 = E(\text{vac}) / 8 \cdot \pi \cdot \alpha \cdot C \cdot H \cdot N^2 \quad \text{or}$$

$$d = 0.8 \text{ mm}$$

The determination of the average mass density of the antigravitational dipoles (and because of the symmetry and the gravitational) of particle weight and particle yields a value of $1.33 \text{ E}^{-29} \text{ kg} / \text{m}^3$, which is of the order with the determined involving dark matter in intergalactic space average mass density of $1\text{E}^{-28} \text{ kg} / \text{m}^3$ for gravitational masses relatively good agreement .

Note only for comparison : The average photon density, as it arose in the aftermath of the Big Bang and today " diluted " is specified with $4\text{E}^{+8} / \text{m}^3$.

Calculation of the total number of adipoles with data for the dimension of the observable universe gives 5.4E^{+91} particles , or with the determined weight of the individual particle 5E^{+51} kg. In contrast, the same source is called a mass of the universe of 8.5E^{52} kg , a deviation by a factor of 10 , but still appears to be acceptable in the assessment of such large numbers in a hypothetical model.

Path 2:

Cosmological argument.

The hypothesis was: It emerged symmetrical gravitational and antigravitational particles, which in turn were divided into electrically positive and negative particles. The antigravitational positive and negative particles united in antigravitational dipoles show the corresponding antigravitational behavior. While the gravitational particles together curled into larger bodies, the Adipole preserved in its original state.

With this hypothesis are due to the then prevailing equality of the "masses and anti-masses" particle densities calculated in the same way. Based on the astronomically estimated (4) Density ($1\text{E}^{-28} \text{ kg} / \text{m}^3$) is held above 1.8 E^{10} particles the result 13.6. The density found is thus an order of magnitude too large. One reason for this might be in the universe was uneven distribution. Thus the known arguments by Zwicky and Rubin convincingly suggests that this density can be considerably exceeded in star and galaxy clusters, and in individual galaxies. So that is possible that the density in the remaining large gaps is much lower. An average value is difficult to determine.

Speed of light in conjunction with the kinetic theory of gases resulted in the mass of particles, vacuum influence with the laws of electrostatics the particle number. Therefore the product is supposed to be right ($1.33 \text{ E}^{-29} \text{ kg} / \text{m}^3$) for further consideration .

Would kinetic and potential energy of the masses spontaneously disappear, the distances between stars and galaxies still grow, because the expanding adipoles the matter brought with them without relative motion. And this pressure is always positive, so that a continuous expansion under these circumstances would be expected. Because of the different nature of the expansion of the existing critical mass for a flat universe is now no direct meaning. If you calculate it yet, according to current procedures from measurements of the Hubble constant, critical density is determined to great. Not missing matter is the problem, but a too large required critical density.

The above relationship between the density of matter and the Hubble value follows from the Friedmann equation, which cannot explain the accelerated expansion. Instead of mechanical forces Adipole should rather be treated as a gas, for which the thermodynamics is responsible.

Thus, with the kinetic theory of the present within the adipol gas pressure according to

$$\rho = 1/3 * N * m * v^2 = 56 * d * c^2$$

is calculated, where d is the vacuum specific weight, and v is again 1.3 times the speed of light.

Then the expansion pressure $p = 6.7 \text{ E }^{-13} \text{ Newton / m}^2$, the equivalent mass with $U = p * V$ with use of $E = m * c^2$ about $0.74 \text{ E }^{-29} \text{ kg / m}^3$ or 56 % of the above calculated average quantity of matter.

The sum of both "mass" is less than the actual critical mass, and shows that the universe is expanding at all times.

Result: The universe undergoes a constantly accelerated expansion, where the accelerating force continuously decreases due to the decreasing density of the adipoles.

However, this result will be revised with later chapters!

It should be underlined that the average density is calculated in combination with the kinetic theory of gases to determine the adipole weight and the dielectric induction to determine the particle density, ie concepts of classical physics.

In summary, it is to say that adipoles came up because their special properties as the earliest particles with antigravitational masses,

Fill the universe as a quasi-lattice without any indication of convection

moving gravitational masses without any resistance (as discussed in the next chapter)

offer to be regarded as wave-guiding components of a phase in the space.

The only acting mechanical property is their rejection and thus causes an accelerating expansion of space.

A description of an "ether" almost taking away all the mechanical properties, has been pronounced by 1920 Einstein during his speech at the Imperial University of Leiden as a possibility. That is his final sentence:

In summary, we can say: According to the general theory of relativity space is equipped with physical qualities, so it exists in this sense is an ether. According to the general theory of relativity space without ether is unthinkable, because in such there is not only no propagation of light, but also no possibility of existence of rods and clocks, so no spatio-temporal distance in the sense of physics. This ether may not be thought with the characteristic of ponderable media property to consist of trackable by the time parts, the concept of motion may not be applied to him. "

See also gravitational ether in ether (physics), where the ether is given merely as another term for the ART.

Therefore, the result leads to the conclusion : The dark energy is based on the existence of adipoles.

Last correction :8- 8-2011

(2) James M.Cline in spectrum D. W. Dossier 3/2005 / The origin of matter

(3) Gerthsen physics, 20.Auflage , S.777

(4) Fritzsich , From Big Bang to decay , Piper (1999) p.293

Discussion of the results so far

The results from the two different and independent calculations of Adipol density agree relatively well. Result also :

The influence constant is predictable, if one assumes a symmetric decay of primordial matter, using the Adipol weight (or approximated the neutrino weight) and also the results of the background radiation.

But which of the two values for the mean particle number N enjoys greater confidence?

Going to the first calculation only measured quantities such as the speed of light, influence constant and data from the now fairly well measured curve of the background radiation. Together with the (ästhetic!) hypothesis of symmetric generation of gravitational mass and antigravitational leads to the result. The further calculations show that these particles give a proper but different explanation for the background radiation.

The second calculation is based on the now little backed average mass density of the universe, which is a function of the Hubble constant, which in turn is difficult to determine. The number of particles recovered therefrom the background radiation is less well explained, since the mean distances between the particles be too low with respect to the maximum of the background radiation.

After the Hubble constant went through a large range of values in recent decades, the value of $22 \text{ km s}^{-1} / \text{MLJ}$ is now considered as the right number. But it is only of minor importance for the assumed model here. The Adipole cause a permanent expansion and acceleration, wherein the driving force with increasing radius R of the considered room decreases fit to $1/R^3$, if the temperature remains constant. In addition, the used in the previous chapter relationship to determine the critical mass only if the cosmological constant is exactly zero applies. But this is not the case when the image of the adipoles is selected.

Looking for dark matter

Why today is sought with great efforts for Dark Matter?

The Friedmann equation yielded three solutions: Two of the ever -expanding and those of the cyclically -renewing universe. End of each cycle should be the "Big Crunch".

Given a start in the form of the Big Bang, it was only natural that a forever expanding universe was inconceivable. This was accompanied by the question of why the universe as we know began just about 14 billion years. What was before that time, a question that is mentioned in the theory does not make sense? So the search for "missing matter" made only make sense to develop a cyclic universe?

Today, the search has a concrete background. The rotation of galaxies can only be understood if around the core a belt of dark matter is present, which can be explained, however, as attempt described with a later chapter.

If the developed model is reasonable, then it follows as

RESULT: THE WEIGHT OF THE UNIVERSE FILLING PARTICLES EVENLY DISTRIBUTED AND LIGHT TRANSFERRING ("ETHER") IS APPROXIMATELY $7 * 10^{40} \text{ KG}$. THE SECURED (?) "BIG BANG" CREATED EQUAL AMOUNTS OF GRAVITATIONAL AND ANTIGRAVITATIONAL PARTICLES. WITH THE KNOWLEDGE OF GRAVITATIONAL MASS FOLLOWS THEREFROM A PARTICLE DENSITY OF $1.8E(10) / \text{M}^3$. THAT IS BASED ON THE INFLUENCE CONSTANT. THE BACKGROUND RADIATION IS THE VIBRATION CHARACTERISTICS OF THE UNIVERSE

FILLING ETHER. THE HUBBLE CONSTANT IS IN ADDITION TO THE GRAVITY FAR MORE INFLUENCED BY THE EXPANSION OF ADIPOLES.

Antigravitative particles.

Of course, the assumption of antigravitative particles is incredible at first. So far nobody ever mentioned such particles in physics, rather disputed. However, just as there are particles that are electrically positive or negative, so there is a hypothesis, particles whose gravitational property are attractive or repulsive. It was always aesthetically disturbing that unlike electric charges, masses should always look attractive. But how they can coalesce to form larger bodies of antigravitative particles? How they would be detectable?

Particles can be found usually on the basis of their specific properties. Therefore, the postulated particles become noticeable only by their specific capacity of anti-gravity. While moving gravitational body in gases lose their energy through friction (Coulomb, Stokes, Newton), which should be different for such particles:

Coulomb friction is adhesion of the medium ahead of the body, but this effect does not apply to adipoles (details in later chapter).

Stokes friction is viscosity or friction of the flowing layers. Because missing this there is also no influence of this effect.

Newtonian friction means displacement of the particles, this effect should be felt as in liquids and gases. For the maintenance of movement to compensate losses of this type of friction, the semi-empirical equation is :

$$F_n = 1/2 * c_w * \rho * A * v^2$$

with F_n = Newtonian friction force , c_w = drag coefficient (for sphere=1), ρ = density of the medium, A = cross-section and v = velocity of the body. It is considered view that the medium accelerated by the body and is displaced. The applied power is lost as friction in the medium. But are not yet Stokes Coulomb present, then the process is non-dissipative, which means that the body, once brought to the speed v , without further supply of energy maintains its speed. In this case, the acceleration energy generated by the flow around the contents is proportional to V^2 constant (1). ($P * A * v$) is accelerated in the time unit mass .

If a moving body is accelerated in the ether, the force increases the mechanical movement, at the same time the energy content of the flow around.

The thickness of the boundary layer certainly depends on the mass of the body, should be at least linearly enter the mass into the force. This raises the question:

What is kinetic energy?

Antigravitative particles do not influence the motion of a moving body in a vacuum.

This idea can resonate terms such as Cooper pairs , superfluidity , bosonization and Bose -Einstein condensate . According to (2) the thermal wavelength of the adipole is about 1.6 mm.

Determining the mass of adipoles a temperature of 2.7 K is used. Thus, it is a function of the temperature, which means that at higher temperatures, such as room temperature, particle velocity and the speed of light should vary. That with e.g.air at ambient temperature cannot be determined

Now, temperature and kinetic energy are proportional to each other, and since the adipole, as assumed above, do not deal with gravitational particle kinetic energy, the "adipolgas" with minor fluctuations in the universe has a uniform temperature of 2.7 K.

Dispersion by Adipole

Non-conductive materials show on transillumination dispersion. Cause are bound ions and electrons that experienced under the influence of electromagnetic waves charge displacements that lead to the polarization of the substance . For the polarization is generally :

$$P = 4 * \pi * \Sigma (h) [Nh * eh^2 / mh / (4 * \pi^2 * (nh^2 - n^2) + 2 * i * \pi * gh * nh / mh)] , \text{ where } i = (-1)^{1/2}$$

The sum $\Sigma(h)$ always runs through all dipoles h the number Nh of the charge, an attenuation factor gh , the mass mH . The frequencies of the natural vibrations are NH . Whenever $n = nh$, resonance occurs , dielectric constant and thus the refractive index are large and the speed of light $c = c_0 / n = c_0/\epsilon^{1/2}$ smaller.

According to the present hypothesis in the "vacuum" now are only the adipoles, so anomaly should be in the region of 150 GHz. The maximum of the background radiation is expected only in the area of nh . In optics, the anomaly can be explained by re-orientation of the dipoles in the region of the resonance. This is done with a 180° phase shift and a relaxation time

$$\tau \sim \gamma / (\mu * p * E)$$

γ = angle of rotation with the middle of the dipole, the dipole moment p , E = electric field strength, μ = rotational motion, in turn, is inversely proportional to the viscosity η .

But Adipole experience no friction by viscosity ($\eta = 0$). Thus, the relaxation time becomes zero, and the change of orientation occurs spontaneously. This means that also in the wavelength range around 2 mm, the maximum of the background radiation, no anomalies are to be expected.

Not the electromagnetic wave rotates adipoles, but the rotating adipoles generate the wave in their entirety.

This is reminiscent of spin waves in magnetic materials. Also a water wave is not the sum of isolated dances of the water molecules, only the interaction between the near-surface molecules structured the wave.

Conclusions:

The previous discussion shows that by this hypotheses a consistent picture has emerged. However, additional considerations lead to more plausible results, which are explained in detail in subsequent sections.

You can also call the following assumptions:

Since the speed of light is a function of Adipol density, but this was greater in the past, so the speed of light in the early period must have been lower.

The theory of relativity with four-dimensional space-time does not have a timeline, but a " speed of light * timeline " exhibit . So that $c * t$ is an invariant, which in relation to the inertial system itself, a time-expansion means to decrease the light speed. Time intervals in the early period granted in comparison to longer today. The "First three minutes," according to Steven Weinberg ran correspondingly slower.

Was the mass of the particles according to $m = E / c^2$ ($E = \text{const}$) is greater in the early days ? Then the mass attraction was also greater .

The electric power was smaller in the early universe, as the adipol density was bigger and one smaller ϵ_0 .

Thus, in the early days the gravity was dominant.

The influence constant, and with it the speed of light is often linked to other fundamental constants, which must also prove to be variable. Thus, the fine structure constant, α with $c \sim 1/\epsilon_0^{1/2}$ be converted into $\alpha \sim e^2 / (2 * H * \epsilon_0 / 2)$. Since $\epsilon_0 \sim N$, it is inversely proportional to $N^{1/2}$, is therefore greater with expanding universe. On the other hand, it was small, during the early phase.

Even in the field Adipol no fixed reference point can be determined. All locations would be equivalent, if no matter would have existed. The matter is a separate world of adipoles indirectly affected just because of their expansion, so that the principle of relativity is still valid.

With variable speed of light c , the Planck sizes lose their constant value. Thus, the Planck length changes with $1/c^{3/2}$, which in the vicinity of a black hole is particularly important. But also Planck temperature and Planck time lose their adventurous values.

In the discussion of the Michelson test the relative change in frequency was represented by the Doppler effect as:

$$\Delta n/n1 = (V1 - V2) / (c - V1) \text{ or with } \beta = V1 / c$$

$$\Delta n/n1 = (V1 - V2) / (C * (1 - \beta))$$

$V1$ concerned the relative motion of the transmitter-receiver system in relation to the transmitting medium.

Applying this result to optical waves - and that was the goal of the considerations - the following interpretation is possible:

1. For $V1 = V2$ also occurs for optical waves no frequency change: This is especially true for the Michelson - attempt where components are rigidly connected together as the transmitter and receiver.
2. Are the instruments of the expanding adipoles (or expanding space-time) carried off without relative proper motion of the device relative to the ether, then $V1 = 0$. The difference of their whereabouts is determined only by the speed of the expansion of space. In this case, the distance increase to be replaced because of the Hubble law by $H * S$. S is the distance between the devices. The doppler effect goes into the equation of the cosmological redshift.

$$\Delta n/n1 = H * S / c \quad H = \text{Hubble constant}$$

The frequency shift is proportional to the distance S from the point of observation. This relationship is actually considered for the distance calculation of distant galaxies.

Within the Milky Way, where maximum rotational velocities of stars around the center of the galaxy are as a maximum of about 1000 km / s, $V1$ can be neglected and thus $\beta = 0.003$ in the above equation with respect to 1.

Moreover: For very large values of S , if the cosmological escape velocity (and expansion of space) according to Hubble is very large, an airspeed $V1$ marginally affects the denominator of the equation, the frequency shift. However, in rapidly rotating binary stars because of the opposite movement direction of the frequency deviations of individual stars can be great if the distances from Earth are practically the same.

3. The general equation is:

$$Z = \Delta n/n1 = H * S / (c - V1)$$

Z is used in astronomy as an expression for the redshift. V1 is the cause for the correction of dipole first necessary when evaluating the results of the background radiation.

The difference in the denominator, if V1 for the object to be measured is very large, deviations from the linear relationship between Z and S become important. If S is very large, ie, galaxies in the "edge" of the universe move with nearly speed of light, the error for the determination of z is large, but difficult to be seen.

In contrast, when S is relatively small, the observed emitters move with great speed V1, then the size of $S / (c - V1)$ may be greater for rotating masses than for spotlights in its immediate neighborhood. This could be rapidly rotating binary stars, but even fast moving quasars or matter flows in the vicinity of a nearby galaxy with a correspondingly lower Z. Here the interpretation approaches the dispute over the deviating "Redshift" - Results of Halton Arp, who observed that quasars and matter flows with large Z in the immediate vicinity of a relatively nearby galaxy with smaller Z occur, but this is rejected by the astronomers community as unlikely.

Mathematically, this is only possible because of the size of V1 in the denominator, which in turn is a direct consequence of the equation of the acoustic and optical wave propagation in media.

But what is now V1? Analogous to sound propagation now must be taken on a motion relative to the adipoles. But this is how the assessment has shown for β , already in a galaxy compared to the speed of light negligibly small. This is true for each galaxy, as the chapter will show on the galaxy formation.

The significantly greater increase in the distance of two distant galaxies, however, is a result of the expanding adipoles, even though they themselves have small velocities compared to the Adipol lattice.

When evaluating the WMAP images of the background radiation, the relative motion of the sun is taken into account by the Milky Way center as the first correction. In the above equation

$$\Delta n/n1 = (V1 - V2) / (C * (1 - \beta))$$

This can be determined with the measurement data $\Delta n/n1 = 10^{-3}$ with $\beta = 0$ to 300 km / s. For exact calculations, the earth around the sun at 59 km / s should be considered additionally.

Thus, the correction of the year has to be different because it can be assumed that the earth moves through the fixed adipoles.

If the described model is correct, then the question arises, how relations would be denominated in a theoretical world without electromagnetic radiation, in which only sound waves as the fastest signals are possible, the transmission medium elastically connected balls are and these are not adhered to moving objects. In all relatively moving systems, the same speed of sound would be present. And – similar to optical waves - obeyed transformations analog "Lorentz equations". However, if such a formal analogy is not visible, this is due to the different gravitational behavior in both media.

During supersonic flights the body is faster than sound, but closely spaced between laminar layers, the difference in speed will be smaller than the sound velocity, the velocity profile will be continuous. In ether, the profile would be discontinuous, however, on the body surface.

(1) Gerthsen physics, 20.Aufl.S.123

(2) http://de.wikipedia.org/wiki/Thermische_Wellenl%C3%A4nge

A Urteilchen explaining the Particle

So the Nobel laureate Richard Feynman said about string theory: "String theorists do not make predictions, they make excuses."

To create a new particles as a hypothesis, as it happened in the previous chapters, was only useful because it showed compatible with the known facts and some forecasting capabilities for unsolved problems. That is the only reason the next chapter .

The multiplicity of elementary constituents often stimulates to seek an Urbaustein (primary particle). This proposal tries, based on present knowledge, to develop an extended model.

Lederman et al take quarks and leptons as basic particles. Feynman, however, suspected a common Urbaustein for both particle types. It is reasonable to assume such a part and to attempt a representation of all the particles. It remains a mystery what ultimately is an Urbaustein.

Feynman once remarked, that Franklin, if he would have already known about quarks, would have given the electron the charge -3 . This implies that the electron consists of three such Urteilchen. Here it is to be tried by 6, ie the Urteilchen bear the elementary charge $(+ / - 1/6)$.

The question of how six such particles with negative and positive charges form a bond and form structures remains open. Also in the many decomposition products, as observed today in accelerators. On the other hand, nucleons are not resembled purses with different denominations as content. In atoms and atomic nuclei only shell structure and orbitals led to deeper understanding.

Looking to nature for any justification for the number 6, only the three spatial dimensions were obvious, but this is speculative and should only be an organizing principle. So the electron and positron consist of six particles, on the axes thought in the same positive and negative distance from the zero point, forming an octahedron. There is also imaginable an arrangement similar to the annular benzene ring, the case of two ligands three structures (ortho-, meta- and para-arrangement; analog to the three colors QCD) permits and by folding the benzene ring peaks can also be easily deformed to an octahedron. Such a model differs absolutely from current representations. Such octahedron will perform oscillations; exhibit the particles themselves due to the Pauli principle, different quantum numbers. It also covers the neutral particles (the only exception later). Each such block has mass, charge , spin, and is subject to gravity, the electric force and the spin interaction .

Combinations of particles 6 are arranged along the three spatial axes, so that the shape of an octahedron is produced. Since there are in spite of the different string theories only three spatial axes this was a useful first assumption for the number 6. Therefore, the following particles : Non-compliance of isomeric symmetries with respect to the electric charges possible (!)

Modeling with 1/6-elementary charges

charges in 1/6 units	Total	Corresponds	electr.Charge	MeV / c ²	baryon
1+1+1+1+1+1	6	Positron	1	0,5	0
1 +1 +1+1+1-1	4	u	2/3	5	1/3
+1 +1 +1 +1-1-	2	d'	1/3	7	- 1/3
1 +1 +1 -1 -1 -1	0	u ^o	0	0	0

1 +1 -1 -1 -1 - 1	-2	d	- 1/3	7	1/3
1 -1 -1 -1 -1 - 1	-4	u'	- 2/3	5	- 2/3
-1 -1 -1 -1 -1 - 1	-6	Electron	-1	0,5	0

u', d' should mean u (transverse) , d (transverse)

If 1/3- or 2/3- charges are characteristics of quarks, then u° is not to be regarded as quark . Here, however, this name should be used.

For the description of the electron and positron as composite particles Gell-Mann was quoted: " If - what should be now unlikely - quarks are themselves composite structures, then also the electron should be composite" (2).

In addition to electron, positron, the known quarks, the zero quark (u°) results in the form 1,1,1 , -1, -1, -1 . This block is then important when carrying out the known reactions in the sense of keeping the electric charge unchanged. So-called sea quarks are now accepted in addition to the valence quarks in the atomic nuclei. Other distinctive quantum numbers of such clusters in the six-number-groups are not considered. However immediately evident is, in view of the spatial coordinate system in the positron and the electron exchange of particles is of no significance. The position of the single charge at u or u' quark is important if a preferred direction is given physically. d- and d - quark offer two, the u°- quark three isomers. Alone, according to the laws of electrostatics , therefore, result in different energy contents of the structures adopted, but probably are only effective within the nucleons, since free quarks have never been observed .

Furthermore, it is assumed that all six components have spin ½ , but in pairs bound by strong spin forces, thus leading, for example, for the electron to the spin-orbit spin ½ . This applies to all lines. The magnetic moments should be extremely large because of the very low mass of the particles.

In addition it should be noted that reflecting about the u -degree line of the table each part is transferred in antiparticles. In nature, it would mean converting matter into antimatter. But a deduction, why nature preferred matter, the consequence of the baryon asymmetry, the representation cannot explain.

The following equations are strong reminiscent of the reaction equations of chemistry. There must be on both sides of the equation the number of atomic species involved, albeit parts in other compounds. However, such equations say nothing about the direction of reaction, for this energy are crucial issues. It is intended to be only examined whether long-known reactions with such six representations are compatible. Influences of spin, form factor and charge distribution, cross section and structure functions are explained in detail elsewhere (4).

The presentation is simple, if occasionally supplemented the described six blocks for the respective quarks to one or mostly two u°, with each writes one or two sixes blocks for ejected particles (such as electron or positron) sweeps out. The resulting particles is the new product. The origin of the u° is discussed later. Besides, many possibilities of reactions are possible, as they are also adopted by Feynman graphs. The six blocks and their surroundings are processes within the vertices.

The acceptance of a neutral quarks u° indicates many equations. But this is only the charge balance, ignores the energy conversion. The direction of the reaction cannot be determined. Spins should also be considered. Overall, the u° is important to understand the reactions. Since the u° is electrically neutral, any single lot or as pair in the nucleon are available. But that would have due to the Pauli principle, more distinctive structures similar to the present shell structure of electrons in the atom.

In theory, it is pointed out that gluons in the nucleon form quark-antiquark pairs. With u° quarks these reactions is as gross formula :

$$2 u^{\circ} = uu' \text{ or } dd' . (1,1,1,1,1 , -1) + (1, -1, -1, -1 , -1, -1) \text{ and } (1,1, -1, -1 , -1, -1) + (1,1,1,1 , -1, -1)$$

For example, if the d and d' exist in the proton for a short time, creating a pentaquark $uuddd'$ reported in the Spektrum.dW 9/2009/S12 . An expected neutron would then be $uuu'dd'$.

It is also true (when ignoring the mass balance here and in the following equations) :

$$2 u^{\circ} = (1,1,1 , -1, -1, -1) + (1,1,1 , -1, -1, -1) = (1,1,1,1,1,1) + (-1, -1, -1, -1, -1, -1) = \text{electron+positron}$$

Are u° components of gluons? Or are gluons combined out of two u° ? The six- model also allows three isomeric structures for the u° .

Quarks u, d, u', d' carry the baryon number $1/3$ and $-1/3$. Then pairing $u^{\circ} u^{\circ}$ gives the value 0

The following equations describe known reactions of nucleons.

The solar power generation are as balance two protons converted into neutrons

$$2u^{\circ} + \text{proton} = \text{neutron} + \text{positron} + 3 * \text{neutrinos}$$

$$2 * (1,1,1 , -1, -1, -1) + (1,1,1,1,1 , -1) (1,1,1,1,1 , -1) (1, 1, -1, -1, -1, -1) = (1,1,1,1,1 , -1) (1,1, -1, -1, -1, -1) (1,1, -1, -1 , -1, -1) + (1,1,1,1,1,1) + 3 * (+1, -1)$$

Gross equation (taking into account the annihilation of neutrino -antineutrino pairs) :

$$4u^{\circ} + 2 = 2 \text{ protons} + 2 \text{ neutrons} + \text{positron} + 2 \text{ neutrinos}$$

The number of leptons on both sides of the equation is zero.

Designed this comprehensive particle model, the annihilation is not yet defined initially. So is

$$(e^+) + (e^-) \rightarrow 2\gamma + 1.022 \text{ MeV}$$

replaced by

$$(e^+) + (e^-) \rightarrow 2 * (\nu_e + \bar{\nu}_e)$$

Cosmic radiation :

Gamma neutron + proton = π^+ + yields:

$$uud + 2u^{\circ} = udd + ud'$$

It is conceivable that the quantum of radiation initially activates the u° of an atomic nucleus and so initiates the reaction.

$$p + n = n + n + \pi^+$$

yields

$$uud + udd + 2u^{\circ} = udd + udd + ud' = 2n + \pi^{+}$$

This occurs without radiation to activate the u° , rather kinetic energy.

Pairing :

From $2u^{\circ}$, which are present only in matter, there arises a pair. Therefore not possible in a vacuum.

$$2u^{\circ} = e^{+} + e^{-}$$

or meson and antimeson. Is gamma radiation stimulating the u° ? According reads in the block of six $2u^{\circ}$

$$(1,1,1, -1, -1, -1) + (1,1,1, -1, -1, -1) = (1,1,1,1,1,1) + (-1, -1, -1, -1, -1, -1)$$

Such reactions are also commonly used in Feynman - charts, which in the nucleon one gamma ray is briefly formed an electron -positron pair.

Pair annihilation:

Particles and antiparticles included in the sum equal number of +1 and -1, from which (+1, -1) combinations arise as neutrinos. This operation is possible also in vacuum, because there no u° is necessary.

neutrinos:

The particles used in the table are electrically positive or negative. A neutral must therefore consist of at least two oppositely charged particles. So as a simplest model is (+1, -1). Such a dumbbell-shaped dipole with terminally opposing electrical charges do not generate magnetic vectors despite spin moment in the direction of movement. They are therefore at oppositely oriented spins indistinguishable (3). It is natural to regard them as mirror images of the non-gravitational adipoles.

Neutron decay:

$$n + 2u^{\circ} = p + e^{-} + \nu_e + \bar{\nu}_e + \nu_e = p + e^{-} + \nu_e$$

In all previous equations were used as reactants always two u° , of which one u° row of six left in some cases. It is assumed that a neutrino with antineutrino immediately respond.

Proton decay: (if it exists)

Theorists suggest that magnetic monopoles M accelerate the decomposition, which themselves remain unchanged :

$$udu + M \rightarrow uu' + e^{+} + M$$

In the six model (without M) :

$$2 * (1,1,1,1,1, -1) (1,1, -1, -1, -1, -1) \rightarrow (1,1,1,1,1, -1) (1, -1, -1, -1, -1, -1) + (1,1,1,1,1,1)$$

$$p \rightarrow \pi^{\circ} + e^{+}$$

you realize that no implementation, but an inner charge reallocation must be done, taking both conservation laws are violated. To the following equation

$$p = e^{+} + n$$

$$uud + u^{\circ} = e^{+} + udd$$

satisfies a u° . However, this event does not occur, since the necessary u° always occur in pairs by dividing gluons. The second u° cannot exist alone for both conservation laws are not possible. With appropriately activated $2u^{\circ}$ with block of six, while maintaining both sets an equation

$$uud + 2 u^{\circ} = udd + \pi^{+}$$

where π^{+} decays in $\nu\mu + \mu^{+}$.

Gluons and quarks u°

Each u° (similar to the benzene ring) has three isomeric structures. If a gluon is a compound of two u° (red, blue, green for the color (?)) ($3 * 3$) nine configurations and thus transmission options are possible. Each three isomeric structures and three colors correspond to each other. If both u° coupled to a configuration two parts are fixed: That leaves 8 free valences ($= 9-1$).

Here it is shown that consideration of an energy balance is necessary.

Formation of neutrons:

In the formation of neutron stars arise for a large packing density neutron (inverse beta decay).

$$p + e^{-} = n + u^{\circ}$$

$$uud + (-1, -1, -1, -1, -1, -1) = udd + u^{\circ}$$

or with 6 number blocks

$$\begin{array}{rcl} 1\ 1\ 1\ 1\ 1-1 & & 1\ 1\ 1\ 1\ 1-1 \\ 1\ 1\ 1\ 1\ 1-1 & \text{plus } -1-1-1-1-1 & \text{results: } 1\ 1-1-1-1-1 \quad \text{plus } 1\ 1\ 1-1-1-1 \\ 1\ 1\ -1-1-1-1 & & 1\ 1-1-1-1-1 \end{array}$$

The reaction product formed a single u° - quark. Other hand, the following equation holds in the literature

$$p + e \rightarrow n + \nu_e$$

Instead of u° there occurs a neutrino. This suggests once again that u° is divided into three neutrinos two of which annihilate. What is annihilate in a particle image? Transition into the vacuum that contains many neutrinos.

Other reactions:

Since u° are electrically neutral, they can connect with ordinary quarks and form heavier particles. This can more easily be the case, since the 6 Urteilchen may be distributed such that 3 particles are directed to the positive and the other to the negative axis, thus forming a dipole. Such attachment may be analogous to the series of the nuclei of hydrogen, deuterium, tritium, where neutral neutron attach to hydrogen nuclei.

Supported is the assumption by the following statement: Assuming a mass of 145 MeV for u° , so results $= 7 + 145^{\circ} = 152$ MeV. Next are the decuplet of $J = 1/2$ baryons, for example, the masses of ddd, dds, dss, sss in the same order in 1232, 1385, 1530, 1672 MeV, the differences 153, 145, 142 MeV. Any conversion of d in s results in a mass increase of about 150 MeV. This would correspond to the degrees due to the s- quark, whose mass is given in the literature with 150 MeV. The same increase in mass is also found in mesons with open charm (1):

$$cd' + u^\circ \rightarrow cs' . 1869 + 145 = 2014.$$

Formally, the following applies:

$$s' \text{ Quark: } d'u^\circ = \{e^+ + u'\} = e^+ + u'$$

$$s\text{-quark : } du^\circ = \{e^- + u\} = e^- + u$$

$$u'u^\circ = \{e^- + d'\} = e^- + d'$$

$$uu^\circ = \{e^+ + d\} = e^+ + d$$

If the { } are regarded as intermediate compounds, after reaction with u° they have replaced the flavor after emission of e^+ and e^- , the output quarks. The same applies to the last two equations.

Particularly interesting is the treatment of the proton-antiproton collision. The compounds made of 12 basic particles occurring in the potential $u + u'$, $d + d'$, $d + u'$ and $u + d'$ with the sum always straight charge could form in connection with $2u^\circ$ short-lived unstable intermediates. Erasing here again the famous outgoing particles, remains (in addition to the neutrino) in {W+} and {W-} that u° . The {Z0} is divided into two rows of six (positron and electron) in contrast to a number no neutrino is emitted.

The braces { } indicate that in the standard model appear here intermediate bosons of the specified type.

$$u + u' = \{Z0\} = e^+ + e^-$$

$$d + d' = \{Z0\} = e^+ + e^-$$

This should logically be interpreted, that in addition to the ejected reaction products a u° is formed in the reactions on {W+} and {W-}.

$$u + d' = \{W+\} = u^\circ + \text{positron} + \text{neutrino}$$

$$d + u' = \{W-\} = u^\circ + \text{electron} + \text{neutrino}$$

In the first equation remain 4 six blocks, which can only be as $d-u'$ or $u-d'$, ie as π^+ and π^- respond in accordance with integer charges. These decay as a result of further accounting in e^- , neutrino and u° or e^+ , neutrino and u° . It cannot be said whether the leak u° as neutrinos or as neutral form the e^+ or e^- append and so heavier leptons of the same families.

In the case of the other two equations each 2 e^+ and 2 e^- and 2 neutrinos and 2 u° arise. Again, nothing can be said about the whereabouts of u° .

With all these considerations, it is only the balance of the charges. For a theoretical confirmation spins and magnetic moments of elementary particles must be taken into account. If the magnetic moment with the abbreviation $K = (e \cdot h / (4 \cdot \pi \cdot c))$ are analogous to those of proton ($2.785 \cdot K / \text{mass of the proton}$) or electron ($K / \text{mass of the electron}$) results, it would be because of the very low mass of the subcomponents extremely large. This could be an explanation for the binding of 6 particles to be found, each with 1/6 of the elementary charge. Nor is it to be assumed that the six components of the particles form a rigid structure; vibrations of the subsystems are more likely to suspect.

More results:

The equation hypercharge $Y = A - S$ with $A =$ baryon number and strangeness $S =$ still applies, if only in A charge-carrying quarks are included (number of quarks minus the number zero quark / 3). Subtraction of S , means that do not take account picture above, the neutral u^0 in heavier quarks with charge.

Examples:

(K +)

$$su' = (du^0) + u' \quad \text{number baryon} = + (1 + 0 - 1) / 3 = 0$$

$$\text{Strangeness} -1 \quad \text{hypercharge} = 0 - 1 = -1$$

Hyperon Ξ

$$dss = d + (du^0 + (du^0)) \quad \text{baryon} = + (1 + 1 + 1) / 3 = 1$$

$$\text{Strangeness} = 0 + 0 - 1 + 0 - 1 = -2 \quad \text{hypercharge} = 1 - 2 = -1$$

Following the decay of the hyperon, first a u^0 is consumed for $d + d + u^0$ to give a d' . This continues with the second d and u^0 from the second s in $\pi^+\pi^-$. The strangeness is reduced because of the necessary intermediate d' in two stages. Thus, the term strangeness becomes a visual size.

Other models

Plotting for neutron or proton only for modeling the valence quarks at the corners of an equilateral triangle, the latter must be effective as binding particles on the sides of the respective gluons, but these are to be replaced by u^0 quarks in this picture. The binding particles are formed by rearrangement. From 6 u^0 quarks a solution can be found if $3u$ and $3u'$ arise, and one pair is placed on the sidelines.

The two u^0 - quarks build on each side not a connection, otherwise they form π^0 mesons, such as earlier were considered as binding particles.

The same results are obtained if, instead of uu' couples dd' pairs are selected.

But it is also a ud' pair (analogous π^+) possible if occurs on another side $u'd$ pair (analogous π^-). As a model the two quarks represent vibrating strings between the two corners. Cutting mentally this string as a connection, the vibration-energy is lost, and the pairs occur as the corresponding mesons out of the composite.

Among the mentioned assumptions, the correct charge balance can be achieved. In addition, you can determine the masses of the proton and neutron now by summation over the rest masses.

$$\text{Proton: } 6 \cdot u + 2u + d = 6 \cdot 145 + 2 \cdot 5 + 7 = 887 \text{ MeV} / c^2$$

$$\text{Neutron: } 6 \cdot u + u + 2d = 6 \cdot 145 + 5 + 14 = 889 \text{ MeV} / c^2$$

It should be noted that 145 MeV was estimated for the u^0 ; 150 MeV would almost the right results. Scale and ranking but agree.

Valence quarks u and d are of minor importance, and the 6 u^0 - quarks are decisive for the Nukleonmassen. It is striking that even mesons, hyperons, and also resonance mesons - occur

with baryons intervals of 140 -150 MeV or a multiple. This may corroborate the existence of u° quarks.

kaons

By using the above assumptions obtained for s and s' quark (du° and $d'u^{\circ}$) arise (after Gerthsen , 20.Aufl , S.724) following representations :

$K^+ \text{ ---- } \rightarrow us' \text{ ----} \rightarrow du'u^{\circ}$	$12 * (1/6)$	$6 * (-1/6)$	Total charge : +1
$K^{\circ} \text{ ----} \rightarrow ds' \text{ ----} \rightarrow dd'u^{\circ}$	$9 * (1/6)$	$9 * (-1/6)$	0
$K'^+ \text{ ---- } \rightarrow su'^{\circ} \text{ ----} \rightarrow du^{\circ}u'$	$6 * (1/6)$	$12 * (-1/6)$	-1
$K'^{\circ} \text{ ----} \rightarrow sd'^{\circ} \text{ ----} \rightarrow du^{\circ}d'$	$9 * (1/6)$	$9 * (-1/6)$	0

Counting the (1/6) is leading to the loads shown on the right total charges.

K° and K'° both show the total charge zero. However, the origin of the u° are different.

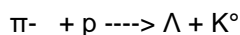
The components of K^+ and K'^+ are symmetrical in the table above for u° - line , ie, particles and antiparticles.

From line 1 to 2, from 3 to 4 as an up is replaced by a down: On the adoption of 3 MeV mass difference of u and d and a mass of about 495 MeV for kaons arise mass differences of 0.6 % between the particle types.

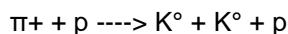
Whether charge exchange and parity refer to the above outlined octahedron is questionable.

A record with six blocks for the various components, with or without u° supplement can often prove the decay channels.

For the production of kaons the literature gives



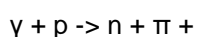
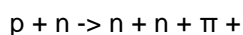
and



Realization of six blocks required for the first equation, the activation of 2 for the second equation of 6 u° or 1 and 3u3 gluons. Accordingly, the required activation energy is smaller or greater than 1.5 GeV.

Production of pions in the cosmic radiation

In the above textbook (Gerthsen , 2nd ed , S 713) the pions are created by proton impact or photo effect with hard gamma rays γ



With six blocks could escape with a u^0 instead of the pion also an electron in the first equation, but not the lepton number is preserved. Instead, the equation is satisfied by $2 u^0$. What does this mean physically? A single u^0 is not present in the nucleon. It can only be won by the shock from the cleavage of a gluon. Then in a block of six u and d remain, which together form the π^+ . In the second equation, the hard radiation will cause the gluon decay .

Neutron and proton

The following equation is satisfied:

$$u^0 + \text{neutron} = \text{proton} + \text{electron} + \text{neutrino}$$

$$(1,1,1, -1, -1, -1) + (1,1,1,1,1, -1) (1,1, -1, -1, -1, -1) (1, 1, -1, -1, -1, -1) = (1,1,1,1,1, -1) (1,1,1,1,1, -1) (1,1, -1, -1, -1, -1) + (-1, -1, -1, -1, -1, -1)$$

No neutrinos are results in this equation, so the condition for the lepton number is not met, unless $2u^0$ enter the reaction after decay of a gluon.

$$2 * (1,1,1, -1, -1, -1) + (1,1,1,1,1, -1) (1,1, -1, -1, -1, -1) (1,1, -1, -1, -1, -1) = (1,1,1,1,1, -1) (1,1,1,1,1, -1) (1,1, -1, -1, -1, -1) + (-1, -1, -1, -1, -1, -1) + 3 * (1, -1)$$

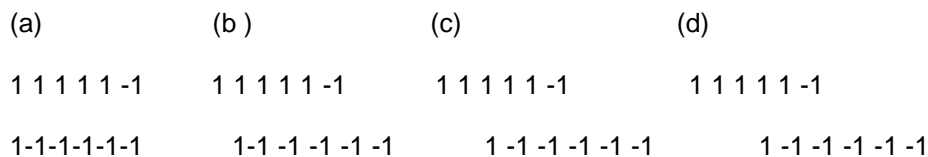
or

$$2 * u^0 + uud = udd + e^- + 3(1,-1)$$

The lepton number is obtained if, in addition, two electric antineutrinos an electron neutrino is produced, where a neutrino annihilates with an anti- neutrino. In the literature, the decay happens, however, as a W^- -decay .

confinement

In estimating the mass of nukleons a triangle was adopted as a model. Are the lateral connections stress-free , then the connecting particles could very schematically (!) row up as in (a). With increasing stress the array deforms to (b), in (c) in (d):



With increasing stress the pair of u^0 quarks is shifted towards the corners of the triangle. Free electric charges occur at the ends, which in turn exert a contractive and thus counteract the external stress. The attractive forces increase only when the bond stress is increasing and remember a spring force.

Furthermore, the charged particles have a spin, which causes extreme strong forces, because of the very small mass in analogy to electron and proton, which certainly reorient in the described expansion of the sides.

Already in (c) could be created by cutting in the middle of the string two new u and u' quark, which form together a new u^0 . This could be understood as a description for the described "confinement" behavior of quarks while trying their isolation.

Since not isolated free quarks exist, and this is also true for the u^0 -quark, mediated by binding forces they can not extend beyond the dimensions of its containing nucleon.

In the model described here, no color forces are encountered, electric charges are always been determined the type of the particles. Critical but the question remains, why ever shown in the table of particles then remain connected . That will be a topic for the last chapter.

This chapter shows that the known reactions can also be represented with the model concepts for the Urteilchen. In addition including the adipol all particles are thus reduced to one Urteilchen.

Matter and antimatter

Although the known universe is composed predominantly alongside neutrinos from electrons, up- and down - quarks, a universe of antimatter would also be possible as a mirror image. In view of the table produced above, the reflection would mean turning around the u^0 - line.

The known world forces to emphasize the first, third and sixth line, because so far, although the particles, but no existing anti-world has been discovered. Hypothetical and purely formal can be calculated from the table such an operation as justified, but which is always associated with a change in the baryon number. The addition of the first 3 lines formulated the equation

Positron + $d^- \rightarrow 2 u$

With change in the baryon number of +1 (0 $-1/3 \rightarrow 1/3, 1/3$).

The same with the line 5-6 causes antimatter $2 u'$, so that no anti-symmetry may be represented . But the combination of Aten lines 1 and 5 yield the following reaction :

$e^+ + u'^- \rightarrow u + d$ baryon number of +1 (0, $-1/3 \rightarrow 1/3, 1/3$)

In both equations , the positron reacts with the negatively charged quark.

But just such a pair of equations is also represented with electrons as the first component

$e^- + d \rightarrow 2 u'$ baryon number of +1 (0, $+1/3 \rightarrow -1/3, -1/3$)

$e^- + u \rightarrow u' + d'$ baryon number of +1 (0, $+1/3 \rightarrow -1/3, -1/3$)

The difference between both systems is that the changes of the baryon number are different. The nature preferred the system with increasing baryon number, thus increasing baryon asymmetry. This means that positrons consumed (decreasing lepton number) are ultimately converted into baryons, because the resulting u and d quarks combine to further nucleons.

But such reactions take place only at extremely high temperature ($> 100 \text{ GeV}$) in the early phase of the universe, according to theory. But the electron reactions should always run when mesons occur in any decay, which always contain antiquarks, since nucleons from today's point of view consist only with up and down quarks .

To see details, the formation energies must be known in connection with mass action laws. Perhaps the choice was accidental, an analogy to the long known amino acid selection in nature.

(1) LBOkun , German paperbacks, Bd.58 , 1988, p.52 / 53

(2) Gell-Mann , The Quark and the Jaguar ; Piper Munich Zurich , 1994

(3) Küpfmüller K. Introduction to Electromagnetic Theory , 11.verb.Auflage , Springer 1984 , S.275

(4) Lecture Experimental Physics VII Winter Term 2006-2007

addendum:

The here described considerations were necessary after critically examined in a previous work the Michelson experiment, which lead to a kind of "ether" creating the basis of which - analogous to positive and negative electrical charges - antigravitative particles with about neutrino mass are (adipolese) the constituents.

In this section, only gravitational particles were assumed . The antigravitative particles carry the same elementary charge. Here remain many intermediate stages, as observed in high- energy collisions, unmentioned.

How galaxies could arise

Summary: An examination of the solidification process of molten metals leads to analogous ideas about the evolution of the universe.

This chapter was the beginning of all considerations, because the image of the large-scale distribution of galaxies in the universe according to representations of Peebles et al. strikingly resembled the metallurgist of metallographic images from familiar structures as they occur in technical metal alloys of not the highest purity .

If the structures are similar, could not also their generation mechanisms, which are well known in the metals be similar? It is dared to make a comparison between the measure lightyears distances of galaxies with the crystal structures occurring in the micro range. But encouraged that Bohrs atomic model was initially employed Newtons laws following planetary movements.

The comparison leads to surprising results, which are presented in the following chapters.

The following section will first briefly outline the mechanisms involved in the solidification of molten metall technically interesting as it is not to assume that the interest here, processes are well known.

Crystallization of the molten metal

Cooling a large-volume metal melt slowly it forms in a certain temperature interval around the melting point nuclei that grow into larger crystals, until finally the entire melt is solidified.

Contains the melt impurities or intentionally added impurities the solidification runs very differently depending on the type of addition. In many cases, additions are dissolved homogeneously in the melt, but in the solidified crystal, they are practically insoluble. The decisive factors are the enthalpies of formation of the resulting phases. These cases are of interest here. During solidification no intermetallic phases are formed.

Example is a copper melt. Copper wires have a higher electrical resistance when the unavoidable oxygen content is relatively large. A zirconium addition binds already in the melt oxygen to form solid zirconium oxide which is not incorporated into the copper crystal, but in front of the solidification front, it swims until it accumulates in the final state on the borders between the individual crystal grains. Because of the now higher purity of the copper the electrical conductivity is better. During the walk, the precipitates coagulate into larger particles already.

Another example is a lead-containing copper melt. Again, the lead dissolved in the melt homogeneously. In solidification, the lead remains fluid and in the solid state it is now frozen on the grain boundaries and results for materials such as brass, nickel silver or bronze good machinability.

In a suitable metallographic image in which only the precipitates are visible, there are approximately annular impurities on the boundaries between the many crystal grains. Of course, these are seen on plain surfaces, but a spherical structure in the volume of the solid material is easy to imagine .

Such structures are those of the galaxy distributions very similar when considering the matrix, here without the copper. Necessary for their formation were:

- 1 The miscibility in the initial phase, here melt.
- 2 The immiscibility (and therefore excretion) in the solid state.
- 3 Slow cooling: For faster cooling, the crystallization front of pure copper is faster than the rate of migration of the precipitated particles. They form many smaller precipitates.
- 4 The statistical distribution of germs over the melt volume.

analogy

Although, as stated above, there are very different dimensions, this should be tried as a heuristic tool to transfer the operations.

To transfer the image obtained the metal oxide precipitates are to be equated with the distribution of matter in the universe. But in contrast to sluggish diffusion processes in the solidified solid body movements in "quasi- vacuum" of the universe are possible, so that matter flows from the neighboring "crystal grains" meet each other and lead to vortices. Also take place after the "clash" of the bubble fronts because of gravity to date continuously further compaction and turbulence.

In order to have a relationship with the currently valid idea of the Big Bang, to serve the following consideration:

At the beginning of bubble formation exists an extensive, but matter-free universe, the consistency of which is not known initially. As a result, occur randomly over the volume distributed locations where first gravitating matter is created (via the mechanism will be discussed later). These places are located in the centers of large matter-free rooms (in literature also referred to as voids or Hubble bubbles). The resulting material migrates, accelerated by the adipoles parallel formed, as surface of the growing bladder to the outside. During the growth phase on the bubble surface, matter condensates with releasing large self-energies due to the gravitational already to dust, stars and star clusters, also condense to quasars and black holes. It built on the bubble surface only planar centrally symmetric, but non-rotating structures. Also the formation of heavier stars and associated supernova is already possible.

Only when the surfaces of adjacent bubbles meet each other, matter flows so mostly tangential flow past each other or penetrate, eddy will occur. The axes of rotation of the vortex are randomly distributed over all directions. The distance (or impact parameter) of the imaginary focus of galaxies at closest approach should be for the shape of the resulting spiral of meaning.

Of course, the mass concentrations remain subject to the gravitational and continue accumulating. However, they do not occur in adjacent bubbles because of the attraction on the bubble surface over time. Particularly weighty accumulations should occur when - statistically not just often - Matter flows from several bubbles meet each other (great wall?).

On the bubble surfaces appear tangential gravitational forces. A beautiful analogy are soap bubbles, which have a spherical shape due to surface tension and initially have a uniform wall thickness. In the gravitational field of the earth liquid flows from the top to the bottom bubble section. The upper surface is thin and the bubble bursts. Without gravity field, the liquid molecules attract each other and the same applies for the bubbles in the universe. Since the mass density on the surface is not uniform, there are accumulations of matter and form strands as they are today in the Universe, or result of computer models are. Such annular structures are observed depending on the orientation as circles, ellipses, or slices.

Since the counter-rotating streams contain a myriad already born stars, multiple encounters are very easily probable are the prerequisite for the formation of many double stars which are older than the spiral galaxies in general.

Binary stars form a plane of rotation, which also dark matter, such as stars, they often carry with them circulate in the same plane. After compression this matter forms planets form the same direction in planar arrangement.

The image requires that initially only dust, then stars, star clusters and non-rotating galaxies occur in elliptical flattened shape on the growing bubble surface to take place simultaneously tangential mass attraction. Such galaxies are often found in the depths of space and thus billions of years ago in recent times. Star clusters can arise even before the formation of galaxies.

Let us imagine a tiny observer in one of the numerous crystallites of an extended metal rod, looking through the for him transparent crystals of copper only the grain boundaries, so he would look at a stretch of the rod, as the distances of the many grain boundaries proportional to the distance after all sides away. He concludes that with decreasing temperature, distances shrink, thus lead to a point at the zero point of time. Thus, we interpret today the Hubble results. Similar to the thermal dilatation of a metal rod is the sum over the expansion of the individual crystals, the Hubble law remains as the sum of the dimensions of individual bubbles unaffected. But since we live ourselves in such a surface between bubbles we see all spirals of the area moving in different directions. For example, the Andromeda galaxy approaches the Milky Way.

The bubbles must grow into a homogeneous "Urphase "(first phase)", which preceded the formation of matter. If the bubbles touche at the beginning of the expansion already, the spirals generating matter currents would not have been possible. Those high-energy events at the edge of the known universe could be witnesses of assumed here, "nucleation".

The induced image that the large-scale state of Urphase changed that then statistically germs created for the bubbles and wandered into this as a crystallization front in the Urphase. In contrast to todays big bang theory the formation of matter, and thus the first stars began in many places of the universe. First stars and star clusters must therefore be older than galaxies.

In the described mechanism to expand the voids, at constant or infinite volume the sum of all void volume must remain constant. This means that, if new voids occur they grow at the expense of older.

But what corresponds to the copper matrix ?

In a crystal, the incorporation of impurities requires additional energy due to the lattice distortions. However, this is energetically more favorable the effort for the diffusion of the precipitates before the crystallization front. This mechanism is applicable to the described picture.

Assuming that the creation of matter started in the center of each bubble as in the currently accepted big bang and all parts escaped at the same speed, so the expansion could indeed continue steadily, the expansion velocity of single bubbles should decrease, however, and therefore also their sum. The opposite astronomers have found in recent times.

This leaves the alternative that within the bubbles within acts like a gas in a balloon, the volume is constantly increasing. To arise in the growth front during the growth phase is constantly new particles condense as gravitationally acting on the existing material, while the remaining antigravitativ acting in the inner of the bubble. There may be other explanations, but here, this hypothesis should be accepted.

The assumption that different bubbles took their origin in the analog to the metal melt early phase, also overcomes the so-called horizon problem. The homogeneity of today's universe was

determined by the characteristics of the early phase, similar to the morning coffee water at 100 ° C does not pass on the information about the initial boiling bubbles, these are to be sought rather in the properties of water. Then the assumption of inflation is still necessary? The bubble screen also allows inflation, when thinking of undercooled water or even to boiling delay, which solidifies at the smallest disturbance immediately or evaporates, the heat of fusion or heat of superheat is released, resulting in a temperature rise in the ambient to the true melting temperature or a very rapid increase in volume leads.

Many questions can be answered if one assumes that the universe at the formation of the first gravitating "particles" symmetrical even those created that behave antigravitativ. They possess opposite characteristics with respect to gravity. Such an idea also corresponds to the experience that many quantum numbers show symmetries. Especially in high-energy physics symmetries were often guide for prediction and discovery of new particles. Such particles repel each other and the gravitational matter, by definition, in the period from constantly and are accelerated, unending expansion of the universe (positive cosmological constant) .

If both types of particles obtained in the region of the growth front, the gravitating particles coagulate and walk because of the anti-gravity outwardly, recombination in the rear area is not possible. The bubbles remain free of gravitational matter. The density of the adipoles should remain constant during the growth phase in the return chamber.

We know of no electric charges without the masses, on the other hand materials without electrical charges. So electric charges presuppose mass particles. So both types of mass particles were formed, which are electrically neutral, but later crumbled in the positive and negative particles. Gravitational particles reacted under the action of gravity directly to heavy bodies, antigravitative combined to form electric dipoles which in turn remain isolated for all time. With this is a polarization of the "vacuum" is possible, as is assumed in electrical particles in a vacuum. But it will be difficult with measurement procedures, which are ultimately based on the interactions between mass particles demonstrated these antigravitative particles.

The following sections may further speak for the acceptance of the hypothesis.

In physics class 60 years ago, it was taught that the electromagnetic radiation propagates in a vacuum. Dielectric constant and magnetic permeability of vacuum, have been introduced to define the electric and magnetic vector quantities.

The vector product gave the Poynting vector, which then also got the measurable energy transport in a vacuum. That did not disappear in crossed static fields of the Poynting vector, called an early textbook by Bergmann - Schaefer as a paradoxical failure of the theory.

However, it is the Poynting vector, which is a flow of energy, because of the mass-energy equivalence ($E = m \cdot c^2$) replaced by a mass . With consideration of the Maxwell relation between the speed of light and said vacuum constants obtained for a mass flow initially

$$m = \text{const} \times D \times B ,$$

where D is the electric displacement, and B is the magnetic induction.

Now, this mass is not moving at the speed of light. But if we assume that unknown mass particles are carriers of the electromagnetic waves, then its mass density will change as a function of time and space locally. Differentiation with respect to time is at a fixed place an expression for the mass change, the frequency occurs as a factor. Thus, the error described above is resolved.

$$dm / dt = \text{const} * n * D * B$$

For $n = 0$, ie, radiation- free space , the mass density is constant in time, in crossed static fields but polarized.

What qualities would have the mass that such a local and temporal change subject?

First, it would have to consist of particles that are subject to an electric charge, since they interact with electromagnetic fields. On the other hand, they should behave antigravitativ because otherwise the particles coagulated. The required properties are similar to those of the previously defined hypothetical particles.

The argument that only transverse waves in solids are possible, does not apply if you as carrier the hypothetical dipoles accepted , which have the tendency due to their mutual repulsion to arrange themselves as equidistantly as possible .

A counter-argument was the result of the Michelson experiment. That was the trigger for the chapter on " Michelson, ether and Hubble " .

Was there only one big bang?

Science is the belief in the ignorance of experts.

(Richard Feynman in 1966 , speech to the National Science Teachers ' Association)

In the earlier chapters the hypothesis that gravitational and antigravitative particles exist has been created by splitting a symmetric Urteilchen (basic particle) of the Urphase (first phase). Therefore, both types were present in equal numbers.

The logical conclusion from this is: The Urteilchen as compound showed neither gravitational nor antigravitative forces. Only after its collapse the experiential gravitational force was created. Electrical forces caused by another symmetric collapse of gravitating particles in positive and negative particles. There are 4 types of particles are referred to as [(+/-) m (+/-) e]. But nothing is said, what electric charge and mass are.

After the disintegration growth a bubble started with (+ m / + e) - and (+ m / e) gravitational particles, which further condensed with the release of the very large self-energy to atoms and heavier bodies, and further by the growing gravitational force star form globular clusters and black holes already, as it describes the current cosmological standard model. Today as elementary besides electrons and neutrinos practically only neutrons and protons exist.

The (m-, (+/-) e) particles (adipoles) behind the reaction front remained in the interior of the bladder to expand pushed the reaction front ahead. The increase of volume is proportional to the increase creates new first Adipole. Only when bubbles meet (impossible: see later) a normal expansion

begins. The Adipole now allow electromagnetic radiation, but because of the high density only at low speeds of light (and because $c * t = \text{constant}$ possibly with extended time) .

If in the smallest mass particles there would be a smallest energy package in analogy, as well as this is always structured so incur first mass particles corresponding to $m = E / c^2$. Since c is small, m would be tall; early universe would be gravitationally determined. With decreasing dipole concentration by expansion of bubbles c would be greater, so m became smaller.

Note: If, for the present electrical and gravitational force equal to each other, so this is only possible if the particle weight is approximately equal to the Planck mass. If there really is a smallest energy package, then the speed of light was extremely low, as it requires high density of adipoles.

This can have been quite "cold or cool" as early condition of the Urphase containing the Urteilchen. A fluctuation or an increase in the concentration of the particles caused a local instability as a melt and allow local decomposition centers that expand and grow to Hubble bubbles. The formed masses hike before the growth front outwards until they meet each other and swirling galaxies.

During the trek, the gravity only acts on the bubble surface only tangential direction, because inside the bubble repulsive particles act, outside the bubble, there is no forces. The result is a matter accumulation up to an elliptical galaxies as they were also found in the early universe.

Only when the bubbles have extended to the mutual "touching", arising from matter accumulation on the surface, depending on the impact parameter of the colliding masses different spiral galaxies grow. The image also implies that up to coincidence of the bubbles only elliptical matter accumulations occur on them. The formation of spiral galaxies requires, as in meteorology at tornadoes and cyclones, the third dimension, but does not exist on the bubble surfaces.

The phase of $(-m (+/-)e)$ particles in the bubbles constantly continues to expand. Since the pressure inside the bubbles only asymptotically approaches zero, there occurs a continuous acceleration, as it was recently found.

In large scale, the galaxies in the contact planes will attract constantly, on a smaller scale, so if both are in the zone of two bubbles, distances (Milky Way - Andromeda) can decrease, but also increasing distances between galaxies occur, the latter when both in different bubbles.

Addendum: The article by George Musser : Cosmic cold hole spectrum of Sciences. August 2005 shows in a graph the movement of galaxies towards the Virgo cluster. The presentation on the running band of compaction could be such a zone where two bubbles collide.

The galaxies, now fixed on the bubble surfaces, condense gravitationally tangentially to large mass concentrations or clusters of galaxies. A new formation of adipoles now no longer occurs, so that upon further expansion with decreasing density, (see above) means an increase in the fine structure constant.

According to this idea today all matter should be found on the edge of the universe with a central big bang. But the fact that matter is uniformly distributed in space on a large scale, argues against a single central event. It is therefore likely that in many places of the universe, the events described took place, and because of the different bubble sizes at very different times. But then one cannot speak of a certain age of the universe, and it is quite possible that permanent new bubbles are created.

In the centers of galaxies, the compression continues until the formation of black holes .

Does the steady accumulation of masses mean an end of life of the gravitational $(+m)$? Black holes contain apart from the dipoles forming $(-m)$ particles, all the initial components described in section Urteilchen.

Resolution black holes

If, and this idea is as intriguing as hypothetical and fertile, the black holes where the gravitating mass is now under completely different conditions, recombination with adipoles are taking place. They combine as new Urteilchen, which gravitationally or electrostatically neutral, subject to any force to leak into the room and there in turn increase the concentration of these particles. Thus black holes lose constantly in size and mass and have limited lifetimes. The result is a cycle without universal Big Bang. It is important then that gravitational (from the black hole : SL) and antigravitative (of adipoles arise) remove the same amount of matter.

An analogy: Hot coffee dissolves the sugar cube. Coffee cools down, so you can find the sugar at the bottom of the vessel crystallized. Controlling parameter here is the water temperature. Replacing the temperature by the local gravity, adipoles connect with the mass particles of the SL to H-particles, which are spread in space and disintegrate in less gravity places to form new matter. This is done in the context of heavy masses, which arise through further compression of dust clouds

If many of these particles leave the SL, there must be a large number of new stars appearing with the appropriate radiation at their decay beyond the control of the SL, but at the same time a host of new adipoles arise that stabilize the concentration gradient of their density to the SL back and constantly ensure replenishment. This in turn is the cause for new H-particles (without gravitation and electric power) - and their greater radiation: Overall, an autocatalytic process is established which must ultimately lead to the dissolution of the SL with simultaneous formation of new stars (4) (5).

An argument for the big bang is the metallicity of the different populations in the Hertzsprung-Russell diagram. Such stars, which have low metal content should be taken during the primordial nucleon-synthesis and delayed by nuclear burning elements up to iron. This assumption must be corrected if the model described here is valid for new giant stars formed by condensation of new matter by H-decay permanently. After their formation to the giant Pop II they open into the main sequence. Such emergence of giant stars is happening in the entire universe. They fall on the particular visible edge of the universe.

Active SL are sources of new stars. The obvious is the idea that this means the formation of globular clusters is connected, namely, when the SL is completely dissolved.

The adipoles are quasi vehicles that transport from the surface of the black hole or the matter core as H-particles gravitational mass outward. Thus decreases the mass of the black hole, and with it also the radius and surface area of the event horizon (6). This is, however, according to Hawking, the authoritative size for the entropy of the hole, which increases inversely upon entry of external masses. The entropy can thus be negative depending on the size of mass gain and discharge of the H- particles. When later the individual particles in the H-remote in outer space disintegrate at a low temperature, the new matter shows low entropy. Adipoles caused an entropy cycle, as it is necessary for an ever renewing universe .

As abstract the Adipole replace those particles arising after Hawking by vacuum fluctuations, virtual particles of Hawking radiation attributed to (3).

Supportive could the description by P.Davies (2): He shows how in the hole incoming negative energy is a cause of the Hawking radiation. It is the empty space of the short-lived virtual particle swarm without gravity effect. An analogy between the ideas is unmistakable.

[To select a different picture: the water molecules evaporate in the ocean, ascend, move across the earth's surface, condense, releasing heat to drop, ultimately to return to the ocean .

In the vicinity of the black holes, the Urteilchen are again stable. In another environment, however, they are again unstable when they escape from the extremely large gravitational influence, they decay again to gravitational masses and adipoles. Here they are interacting with electrons from atoms initially formed "dark matter" arise where this is thought today because of the deviation from the Keplerian rotating systems $r^{-1/2}$ -law. Here and in a more distant spherical shell around the black holes are the birthplaces of new stars to be found, which is consistent with the observation of "starbursts" in recent times. Such formation of matter occurs on the edges of former bubbles, because only there exist black holes and galaxies. Thus, new bubbles eating the older ones. By analogy, it is just in the solidified metal solids at high temperatures, the so-called secondary crystallization.

The Urteilchen decay into gravitational and antigravitative parts, following the classical physics to fly because of the conservation of momentum in opposite directions, then decompose into positive and negative particles and fan out in a magnetic field further. A precisely such an image has already been shown by Georg Wolschin (spectrum d Science 11/2000) .

matter formation

The matter formation is done by means of the model presented in the chapter on Urteilchen schematically in stages: three of the present now by decomposition of three Urteilchen (+m/+e) - (+m/s) - or (+1, -1) - couple via intermediates condense to form a u^0 curd (1,1,1, -1, -1, -1) . Three Adipole emerge from the process whereby the reaction is irreversible. Three of these u^0 -gluon associate numerically to form a composite, being directly caused by a neutron charge rearrangement from the. The neutron reacts as described above, with two other gluons and decays into a proton and an electron with emission of three neutrinos (+1/-1), which are now identical for further reactions. It should be noted that the same operations can also lead to antimatter. In the table of particles would mean a reflection in a plane through the u^0 - quark. Obviously, this idea is not enough if the masses of the nucleons are observed. More in the last section.

After passing through the chain of reactions described above in parallel occur with the electrons resulting atoms that interact with photons from the protons and neutrons. Previously, the resulting particles act only through its gravitational force. Because of the small concentration of particles the H- reactions proceed slowly. In all that time they count as a precursor of emerging star to the dark mass.

In a gravitational field, such as it is present in the vicinity of black holes Urteilchen are unstable. The same applies in the immediate vicinity of quarks within the nucleons. In theory, then any number of these particles in addition in the nucleon be the only disintegrate when energy, such as inelastic collisions, is entered in the nucleon. In this case, the resulting adipoles escape, so that the reaction is irreversible. However, similar to atomic nuclei, in which you cannot install any amount of additional neutrons, the number of Urteilchen will be limited in the nucleon. They are neither gravitational nor electrically effective, but demand volume whereby the binding force is reduced by the valence quarks due to increasing distances.

Density of black holes .

The current theory of star formation describes how in the formation of neutron stars, the gravitational force exceeds the pressure of the electron gas and protons and electrons combined to form neutrons, which in turn then form the compact neutron star (inverse beta decay) . Then there is calculated a density of from 10^{18} kg / m³.

As an analogy, it is conceivable that even quarks at sufficiently large gravitational forces in black holes (+m,+e) - (+m /-e) are compressed and form a structure analogous to the cubic NaCl - crystals. Then the following statement to the plausibility analysis is possible :

According to Cowan and Rhines, the cross section of the neutrino is ($q = 10^{-47} \text{ m}^2$) are known. Then the elementary volume of such a structure is of the order $q^{3/2}$. With the above-identified neutrino weight (m) is followed for the density $D = m/q^{3/2} = 3 \cdot 10^{+31} \text{ kg / m}^3$. It follows for the radius of such a compact mass

$$R = (3/4/\pi)^{1/3} * (M / D)^{1/3}.$$

For explanation of quasars today central masses are adopted by several billion solar masses (1). With the above calculated density follows a mass of 1 billion suns, a radius of 240 m, where a density gradient in the body is not observed, although a small ball, but no singularity. In contrast, the Schwarzschild radius is associated $3E (+9) \text{ km}$.

A compressed ball of 10 solar masses would have a diameter of approximately 1 m. For the same mass follows according to $R_s = 2 * G * M / c^2$ a Schwarzschild radius $R_s = 30 \text{ km}$. Masses with $R < R_s$ form black holes with sufficient gravity and thus mass .

In classical computation a black hole with the mass of the earth of $6E (+24) \text{ kg}$ would have a diameter of 8.9 mm , resulting in a density of $2E (+30) \text{ kg/m}^3$, although less than the value calculated above, far greater than the density of a neutron star.

If the Urteilchen of the Urphase prove in the presence of strong gravitational forces as stable, then the matter-free hem should have around black holes as a function of their mass different diameters, which in turn coincides with recent observations.

If the black hole is rotating , the spherically symmetric radially exiting Urteilchen remain with increasing distance behind their point of origin. It was only at a great distance they decompose and form gravitating masses that further condense and lead to spiral arms according to their distance from the center. The result is a kind of matter halo. But that is dependent on the central mass circulation velocities of the stars no longer inversely proportional to $r^{-1/2}$ with r as the distance from the galaxy center . Outer star experience because of the integration over the mass of the halo a stronger central power and rotate faster than predict the Kepler laws An they should be older, if not second generation.

The reaction rate between adipoles and the black hole is proportional to the surface area (r^2), the mass, however, is proportional to r^3 . From this it is seen that small holes dissolve much faster.

The background radiation is to prove that the bubbles emerged almost at the same time. But may have been severely stretched early time intervals. Thus, the starting points of the bubble onset may be quite different in spite of today only a small deviation from the mean frequency of background radiation. As a function of time, the dipole concentrations have asymptotically matched a final value , which determines the current spectrum, similar to an picture after an explosion, a rapid pressure equalization takes place. The uniformity of the radiation could only be due to the fact the other hand, that the concentration of adipoles in our part of the universe is uniform.

Principle can be extended infinitely of the Urphase. This is also room for multiverses, which are also embedded in this phase. A light signal from there is not possible when in the spaces between the light-guiding dipoles missing. But so for each of the universes an optical limit (problem of Olbers) is given .

In the current physics many differential equations include the time flowing as smoothly. If, however, depend on time intervals themselves on the age of the universe, the description of the past and future of the universe is questionable. While it is likely that the formalism of the theories are identical, many natural constants but are variable. Thus, the concentration of the dipoles determines the influence constant, this the speed of light, these many other constants. However, the current theories for the present time without this restriction are valid. Only temporal extrapolations in the usual form are doubtful.

Together with the extended time in the early universe, "the way into eternity" with further extrapolation should therefore be time and space of infinite dimension.

Certainly the last remarks are daring like the overall model. But here are the performance limits, because a finite universe is just as inconceivable as an infinite. It should be remembered, however, that mathematicians like Hilbert and Russell the Cantor treatment of infinite sets of Aleph0 to Omega admired as the greatest mathematical achievement of the 19th century, although indeed this doctrine made the infinity treatable, but in no way contributed to their clarity.

But what remains as evidence of the central Big Bang, when the Hubble - Escape the summation of many individual bubbles, the background radiation is the natural vibration of the Adipole?

Last correction :8- 8-2011

(1) The Young Universe / Sufi Special 1/2003 p.44 cosmology M.Bart

(2) Paus Davies : in JIM AL- KHALILI Quantum , Modern Physics amazed Spektrum Akademischer Verlag ISBN3 -8274-1574-8 page 210

(3) Penrose , R., computer thinking , Spektrum D. W. 1991

(4) Spectrum D.W. Dossier , 3/2005 Amy J. Barger p.78

(5) spectrum D.W. Dossier , 3/2005 Hassinger G. and R. Gilli / All Light of the World p.38 ff

(6) ([# Entropie_und_Temperatur](http://de.wikipedia.org/wiki/Schwarzes_Loch))

Is the photon wave or a particle?

"One repays a teacher badly if one remains only his pupil" Nietzsche

In 1900, Planck formulated the hypothesis that atoms emit energy as radiation packages, the light quanta. Some years later, Einstein added this idea by the fact that such packages are necessary for the radiation of electrons from the atom. But for the "parcel ", the transport of energy through the room, there was no real idea. The ether since Michelson did no longer exist as a medium. Thus, the photons were appointed as particle with zero rest mass, which is constantly moving at the speed of light.

Now it was difficult to explain how, according to Planck's law $E = h \cdot \nu$ interference, reflection and polarization are to be understood, where a division of energy takes place, but the color does not change. The photon as a particle must therefore also have wave property. And then was born the duality of light, which later expanded to material as Dirac particles.

All these proposals were so successful that in the future with wave-particle image was operated, which, depending on the experiment, the photon is viewed or used as a wave or as a particle. And with this duality was found off in the subsequent period.

Now is this ambiguity really necessary? There are today, 100 years later, more recent findings are allowing a renewed discussion of this point.

From the nonlinear quantum optics has been known for some time, that high-intensity laser beams show extremely self-focusing. Cause of the self-focusing are permanent dipole moments of the example substances listed in the table. If polar Adipole exist, the photon could be subject to the same mechanism also in this medium. Is it conceivable that a similar process is present in the emitted photon?

Medium	G [cm ² / V ²]	P (k) [W]
Carbon disulfide	2E (-16)	4.5 E (+4)
Water	2E (-18)	4.5 E (+6)
Glass (BK7)	2E (-18)	4.5E (+6)
Lanthanum glass (LaSF7)	6E (-18)	1.5 E (+5)
Air (1 atm),	4E (-20)	5E (+7)
Air (100 atm)	4E (-18)	5E (+5)

Self-focusing occurs when the field strength E in the light beam is greater than a critical field strength E (k). The following formalism is taken from the literature (1).

$$E(k) = 0.185 \cdot \lambda^2 / (G \cdot n \cdot R^2)$$

r = radius of the emitter, n = refractive index, λ is the wavelength

G is a material specific constant of the order of between 1E (-18) -1E (-20) [cm²/V²]. With, for example, λ = 5E -5 cm, G = 4E -20 (cm/V)², r = 3E-13 cm (classical electron radius), n = 1 follows for the critical field strength E(k)= 2E17 V/cm. The field strength at the classic imaginary surface of the electron is 1.8E18 V / cm. Thus the conditions for the focusing of the photon are met in that issue, if you look at the electron itself as the emission source.

Had the entire atom, the beam area (r = 3E -8 cm), this figure would reach the required field strength E (k) = 2E27 V/cm, a value which is absurd size.

Now, the field strength decreases with increasing distance d from the electron proportional to 1 / d². When the diameter of light beam, as experience teaches, still does not increase, the field strength must be so strong that after the emission during the remainder the critical field strength is exceeded.

A laser beam at the power P must be greater than the critical power P (k) , so that self-focusing occurs. For these services, the following equations apply:

$$P = \pi \cdot r^2 \cdot [0.5 \cdot n \cdot c \cdot \epsilon_0 \cdot E^2]$$

$$P(k) = (0.29 \cdot \epsilon_0 \cdot c \cdot \lambda^2) / G$$

Here are more : ε₀ = influence constant , c = speed of light, E = electric field strength

G is again the substance-specific constant of the order of 1E (-20) [cm² / V²]

As for focusing P > P (k) must be , can be achieved by equating the two equations a critical

Limit for the product (r * E)² determine .

$$(r \cdot E)^2 = (2 \cdot 0.29 \cdot \lambda^2) / (\pi \cdot n / G) = 0.184 \cdot \lambda^2 / G$$

N = 1 , λ = 5E- 5 cm, and G = 1E- 20 follows (R * S)² = 4.6E +10

The value of E (k) = 2E +17 found above follows for r :

$$r = 1.1E -12 \text{ cm}$$

Formally, this would be the beam diameter 5E -5 cm found for the wavelength when the field strength in the jet exactly the same would be critical.

The medium acts as a converging lens coupled to a light waveguide. At a distance Z is already present a focused beam. For the length Z (1):

$$Z = \pi * r^2 / \lambda / (P/Pk-1) + 1 / 2$$

$P > P(k)$ must be for self-focusing. If one takes, for example, $P = 1.0001 * P(k)$, it follows that the root $1E^{-2}$. It follows: $Z = 2.5 E^{-17}$ cm. That means that is already focused in the distance of about $1 E^{-17}$ cm from the electron wave.

It was natural to think that the same mechanism applies for a photon. How then does the calculation for a single photon?

The field strength of a light beam can be calculated:

$$\text{Energy} = P * T = I * R * T = F * T * 0.5 * c * \epsilon_0 * E^2 = h * \nu$$

with T = coherence time, F = beam cross-section, h = Planck's constant, ν = frequency, I = intensity. It follows:

$$E^2 = 2 * h / (\pi * \epsilon_0 * \lambda * T * r^2)$$

Inserting the values used for r and $\lambda T = 10^{-8}$ sec as the time duration of the emission process (and the settling of the electron) yields a field strength of $3.5E7$ V / cm, compared to the above determined value of about $1E^{17}$ much too small. This value for the critical field strength is $= 1E^{-22}$ cm reached with r as the upper limit.

The real value can therefore be considerably smaller. A radius of about $1E^{-35}$ cm results in a cylindrical wave, which does not interfere with a counter-rotating, parallel, wave property of the same, since the cross section of the theory is called with $1E^{-72}$ cm (2).

The extremely small radius of $1E^{-22}$ cm corresponds approximately to that of the neutrino - the cross section ($1E^{-47}$ m), as determined by Cowan and Reines (3).

For the emission of a single photon from an atomic emission time of $T = 10^{-8}$ sec is often assumed, corresponding to a coherence length of 3 m. This length certainly does not occur even when single emission process.

The following thought experiment may bring closer the atomic emission process pictorially:

A coil spring is hung so that its lower end reaches under water surface. Now a metal ball is attached to it. When released the weight drops under the water. The weight resulting from damped oscillations, and produces a surface wave whose amplitude level becomes smaller with distance.

If you switch the water to oil, so the vibrations are strongly attenuated due to the change in viscosity and the wave is correspondingly shorter.

If one removes even this medium, the mass oscillates in air and dissolves periodic pressure waves. At large amplitude the body reaches the ground, comes abruptly to rest and generates a shock wave, as occurs in avalanches in the rule.

Would be an "absolute vacuum" before, so the kinetic energy of the ideal oscillator could not escape, it would have to perform a continuous vibration or be constantly stimulated.

If the metal ball (or a pith beads) electrostatically charged and placed between the charged plates of a capacitor, the body oscillates between the plates, thus producing an electric current, which in turn triggers a wave field .

In the nuclear core, and the electron-emitting forms a vibrating mini capacitor varying capacity, whereby an alternating magnetic field is generated which acts on the environment. The oscillations decay because with the dipoles an absorbing medium outside the atom exists.

In all cases, no particles, but waves are radiated .

A beam of light is due to the lack of viscosity of the Dipole medium to an unlimited range.

Taking a swing for the electron in the atom as a replacement image, then the restoring force is not linear between the electron and the residual nucleus. The idea of transition from one orbital to another is via vibrations, the apparent charge of the nucleus for the electron permanently replaced. This is associated with a radiated frequency band. The vibration itself is damped by energy transfer to the medium.

Ultimately, then light rays light waveguide, in which waves of different frequencies are compressed to wave packets that retain their form as so-called solitons and maintain their package or particulate over very long distances. If this is also true for a photon, so therefore there is a "particle" as a wave package".

If the criterion that the power P is greater than the critical, is not satisfied, there is no focusing, and no formation of the waveguide. Therefore Large transmitters generate electromagnetic radiation in space propagating waves.

Some of the ideas described are based on the basis of classical physics to Planck, because the focusing rays was already indicated by Maxwell with the so-called pondero -motor forces that should lead to a constriction of the imaginary field line tubes in the ether. Only the interpretation of the Michelson - trial, which dismissed the ether theory, these ideas had become obsolete.

As a note should be added here that even for the double-slit experiment with electrons with these ideas, another interpretation is possible: the toward the gap moving electron produces a forward wave in the dipoles that produce analogous to the appearance on the screen interference. Now looking dipoles are the stripes are on the screen, however, produce the positive and negative charge centers, together with the screen material. If the electron passes through a slit, so it produces only one the screen overlapping spherical wave. The positive charge sites would therefore be landing places of the electrons.

If a gap is closed, normal diffraction occurs at the gap with altered charge locations.

(1) Bergmann Shepherd , Textbook of Experimental Physics , Vol.3 , optics 7.Auflage , 1978.
S.860 -863

(2) Bergmann Shepherd , Textbook of Experimental Physics , Vol.3 , optics 7.Auflage , 1978.
S.735

(3) Gerthsen , physics, 20.Auflage 1999 , S.720

Electron diffraction - double slit

"There was a time when newspapers said, only twelve people might understand the theory of relativity. I do not think there ever was such a time. On the other hand, I think it's safe to say that nobody understands quantum mechanics. " (Richard Feynman)

The hypothesis of adipoles allowed the determination of the influence constant. Here a model is to be tried, which in a simple way can explain the electron diffraction with the double slit.

In space the Adipole form a kind of lattice because of their mutual repulsion. An electron creates an electric field, orientating the surrounding adipoles at its center, as after today's presentation the polarization of the vacuum by naked electrons describes. The imaginary electric field lines are like a chain linked out of adipoles.

An electron with charge Q and speed v in the x direction is moved to a gap, so it causes a displacement current classical there in a vacuum in accordance with (1):

$$J(x) = Q \cdot V / x^2.$$

With decreasing distance x from the gap the induction is steadily increasing. In an adipol field the surrounding Adipole are aligned with the charged particles. The particle moves, so the adipoles orientation in the immediate vicinity too (An analogy is the flipping of the spin orientations in ferromagnets) .

A linear model provides that the nearest in the direction of flight Adipolteilchen flips by 180°, is then shifted to the rear so as disturbance continues in the direction of the gap. Thereby each folding-over is equivalent to a half wavelength.

Derivation of the de Broglie equation.

A moving particle causes $f = u(t)/d$ turns, wherein $u(t)$ its speed, d is the distance between the adipoles. The resulting wave travels at the speed of light c, and the associated wavelength is $\lambda(L)$. With this is:

$$\lambda(L) = c / f = 2 \cdot c \cdot d / u(t)$$

or

$$u(t) = 2 \cdot c \cdot d / \lambda(L).$$

Multiplication by M the mass of the particle yields:

$$p = 2 \cdot c \cdot d \cdot m / \lambda(L). \quad (\text{Pulse } p = M \cdot u(t))$$

By using the relativistic relations $E = m \cdot c^2$ follows

$$p = 2 \cdot d \cdot e / \lambda(L) / c$$

$$E = h \cdot \nu = h \cdot c / \lambda(t) \quad \text{i Association of the particle with frequency } \nu \text{ and wavelength } \lambda.$$

Then with appropriate conversion:

$$\lambda(t) = (h/p(t)) \cdot (2 \cdot d / \lambda(L))$$

For $2d = \lambda(L)$ the equation is determining the de Broglie matter wave of a particle:

$$\lambda = h / p$$

What means the equation of $2d = \lambda(L)$?

Without particles corresponds as described in the previous chapter the half wavelength to the distance of the adipoles. If a particle moves, the radiated wave in ratio is $\lambda' = \lambda \cdot (1 - v/c)$, but at the same rate also the particle distance. Thus $2d/\lambda(L) = 1$

When the wavelength of the forward beam is small, then the particle distances. Reminiscent of the maximum of the acoustic representations arise, where with increasing approximation of the speed of sound (Mach1) waves become closer together and peaks to a minimum value, the density of the gas molecules, the distance between them so is minimal.

The calculation process is modeled. Show that the hypothesis of Adipole leads to reasonable results. Without them, this calculation process would not have been possible.

The Adipole effect after the double slit experiment in the cleavage planes of high-frequency electric displacement currents, which in turn are sources of additional waves.

Thus, the following applies: An electron moving to the double slit, emits a spherical polarization wave that hits both slits. Both column bend the rays and produce on the screen known from light interference lines. Now, however, the maxima not only intensity, but charge maxima, since the adipole oriented in the same direction in the individual lines. The electron after passing the slit hits a column preferably that line in which the positive adipoles have positive orientation. From this perspective does not interfere the electron, rather the Adipole determine the landing site for the electron.

Closing one gap, the diffraction forms lines as single slit. The incidence of the electrons are determined according to the diffraction at a single slit.

According to this model not electrons are diffracted or even show interference, but their landing places will be determined by the wave-like movement of the adipoles.

This model is plausible. The idea of matter waves by de Broglie has shown a great potential. Probably that idea was a good transformation, which resulted because of the lack of adipoles in the wave pattern.

Since Adipole fill the entire vacuum, the area orientation in the field will propagate. Here there is also a possibility to explain the Aharonov - Bohm effect pictorially.

(1) Küpfmüller , K. Introduction to Electromagnetic Theory , 11.verbesserte edition 1984 , S.457

Bell's inequality

Quantum mechanics asserts that if two entangled photons propagate in opposite directions, both of them remain entangled and maintain a constant angle between different polarization directions. Regardless of their mutual distance to both photons remain entangled. If a photon is measured or "prepared", so it takes a defined value. Then instantaneously that of the other property already sets far away appropriately, so that the angle is maintained. This setting is not affected by the emission point, thus there is the problem of non-locality. Common sense rejects such results and searches for explanations. Other find therein mysticism and invent appropriate philosophies. But that is alien to physics and cause discomfort.

In the presence of adipoles (and air molecules for sound) they are carrier of wave propagation. That is performed immediately after the atomic emission of the photon interacting with the adjacent adipole so that the photon pair is immediately de-coherent. Quantum theory, the interference terms occur for the superposition of the wave function should vanish because of the immediate localization (3). Measurements on two photons lead to disjoint results, however, the vibrational levels are maintained because of the previously described interactions between the Adipolen (spontaneous non - dissipative orientation !) along the entire beam.

An air molecule is not sound. Also many air molecules do not mean sound. Only the organized movement of the molecules forming waves that produce sound as emergence. Likewise dipoles are not light; until the coordinated movement produces light

In the presence of gravitational matter the length of the light beam is an exchange of energy which influences the direction of vibration. Gases are able to rotate the vibration levels in the presence of electric or magnetic fields (Faraday, Kerr, Verdet) .

Here will help models from the macrophysics: Saccharimeter measure the concentration of optically active sugar molecules by measurement the rotation of the plane of vibration size. The degree of rotation is proportional to the product of the optical path length, and sugar concentration. If both factors become steadily smaller, so ultimately makes a single molecule its specific contribution. In so-called racemic mixtures left - and right-handed molecules are present in such quantities that compensate for both effects precisely. In this case, one is reminded of the Galtoplate, in which the distribution of the balls follows a binomial law, which merges with large ball and slot numbers in the normal distribution.

From a standard textbook (1) Task: Two twisted optical filters by 90 ° relative to each polarization filters are transparent for white light. However, bringing a third filter between for example, the beam is twisted 60 ° from the first, between the two filters, the system of three filters now is transparent. It is with Intensity I_0 as the input intensity according to the law of Malus:

$$I = 0.5 * I_0 * \cos^2(60^\circ) * \cos^2(30^\circ) = 0.094$$

9.4% of the incident beam exit the system.

Were photons particles, whose polarization is difficult to imagine, the result would be similar to two mutually identified Galton boards, the second is placed beneath the first under a slot outside the middle of the first. Under the second board can be found in the same distribution, but with fewer balls. The centers of the distribution curves are shifted from each other. Background board 2 slots are reached that have never been reached by board 1. At any stray nail of the board, the particle chooses one of the alternatives "Right or Left". This corresponds to the slot assignment of the Gaussian normal distribution.

$$f(\alpha) = 1 / (\sigma * (2\pi)^{1/2}) * \exp(-1/2 * (\mu - \alpha)^2 / \sigma^2)$$

It is expected that the maximum at $\alpha = \mu \exp(0) = 1$ and $1 = \cos^2 + \sin^2$

From this distribution, $f(\alpha)$ and the supplement for different angles (usually are 0 °; 22.5 ° , 45 °) were removed and inserted into the Bell inequality. Two such curves correspond to the correlated photons that travel in opposite direction. However, the results of the Aspect experiment, this general law does not obey. The image of the photons as spheres or particles thus can not correspond to reality.

Were photon particles with energy $E = h * \nu$, then they would have in case of partial reflection in two packets of energy, but different colors, may occur. This is not the case.

Without hidden property of quantum mechanics is in accordance with the examined photon may have any polarization direction to the measurement, a consequence of the superposition. If the direction is "prepared " by the measurement, so the second spontaneously ans the angle that was specified by the since issue specified correlation.

In contrast, dipoles accepted as atomic dipole transmitter based on emission of the photon and the nearest particle gets this orientation and travel through the space. The wave transports this orientation as hidden information. Using simultaneous emission of two photons they that will at any distance hold the correlated angle. Preparing a photon, makes the polarization direction of the second to be known, if you know the setting during the issue.

As in an earlier chapter executed ("discussion of results") interactions between Adipolen are non-dissipative. The waves of adipoles therefore carry these existing to a reference direction angle difference as far as desired. They were decoherent shortly after emission.

The adipoles "swing" to the rhythm of light frequency and their momentum can be decomposed according to the rules of vector analysis into two components, wherein the components in turn are the cosine projection on the original direction. In front of a polarizer so only the component is going to happen parallel to the gap. Mathematically, this means splitting the wave vector decomposition in momentum components.

From here, it is understandable why you can detach the electrical field vector into components, even with a single photon. The quadrature component gives the law of Malus.

So it is understandable that two photons, both in example z- direction polarized by two remote analyzers with high probability the same orientation are measured. In addition, since gravitational matter is present in the beam path, would be the source of a normal distribution.

The mechanism with adipoles describes the result obvious: the vibrational levels of the "photons" are correlated already at issuance and do not lose these properties on their way to the receiver. This suggests that local parameters are already given at the emission.

With the Adipol model discussions about non-locality are superfluous, because after leaving the radiator, the "photons" are decoherent immediately. When this satisfies, then the current interpretation of the different type of world of quantum mechanics with "Copenhagen School" is not necessary, the adipole model suggests to other interpretations.

(1) (example cited by: Halliday, Resnik , Walker , Physics , Wiley VCH 2003, S.981)

(2) Josef Küblbeck , Rainer Müller , The essential features of quantum physics ; Aulis Bd.60 , 2002) :

(3) Claus Kiefer, quantum theory , Fischer -Taschenbuch 2002

(4) Helmut Vogel : Gerthsen , physics , 20th Edition, S.535

Criticism of the models

The starting point was the similarity of images of large-scale galaxy distribution and the form of metallic precipitates. The comparison led to the question of what the big white space could fill, especially since the Michelson experiment denied any ether. On the other hand, today WIMPS and quintessence dark matter are discussed that are as purely speculative. Thus, the assumption of adipoles was after critical examination of the Michelson experiment as a hypothesis also acceptable.

If these particles are able to answer the open questions, the properties ascribed to them were necessary. Affirmative then were the determination of the mass and density of the particles, which in turn was confirmed through the second path of the symmetric particle.

Implausible appeared the average distance of the particles but on the other hand equivalent to the wavelength consistent with the background radiation. If, however, generated by a symmetric decomposition of a primary particle both, gravitational and anti-gravitational of same mass had to be created. These masses have been incurred prior to the formation of electrically charged particles.

An analogy is made of crystal vibration at which the half of the wavelength corresponding to the grating spacing. In view of the atomic structure, however, would be considered analogue of the distance between the nuclei, but which is determined by the "electron shells". Here's an indication for the existence of other particles in the vacuum.

Force had form the gravitational Urteilchen all of today's "Elementary Particles" have arisen. The Urteilchen itself had neither gravitational nor electrical properties which indeed only arise with symmetric decay. Although speculative considerations the result recalls that emerged in the discussion of "Higgs", because only by "decay" of this hypothetical elementary particle gravitational particles, which is ascribed to mass. The representation of different particle reactions was used to test the Urteilchenmodells, but were also the masses of neutron and proton (when the simple addition of the rest masses is justified) .

Since the Adipole be far proven the step towards the adoption of waves with appropriate interference in this "ether" was obvious, as they must necessarily be created by moving particles. It created waves that can be considered as "guide shafts", a term that is used by Bohm in its alternative quantum mechanics. Conclusively was also the simple derivation of the de Broglie relation.

Even a light beam with a photon image as soliton in a waveguide is novel, not proven, but easy to imagine on the basis of known effects.

Aspect results could not be verified by this model. There may be a suitable model for this purpose leads to a satisfactory outcome. Then problems such as superposition, collapse of the wave function would be seen in a different light. Immediately upon existence of particles in the vacuum follows the decoherence of coherent photons assumed in the experiment. Superpositions of the type adopted then do not occur.

In terms of cosmology, the picture was taken, that did not take place, a one-time big bang than rather constantly a cycle through aggregation of matter to black holes, whose resolution by emanence new Urteilchen (appeal to Hawking radiation) at extremely high matter densities, and their decay in the room in turn leads to new particles. Not too fancy , when one thinks of the cyclic model of the "Big Bang to the Big Crunch", the calculation occurs, however, in 10^{100} years.

To conclude that these sites have the purpose to present alternative thoughts that if they find acceptance, lead to new considerations in the strongest terms.

Relationship between image and mathematics

So far the different kind of interpretation of known results including hypotheses and partly logical inferences and speculation have shown an almost complete picture of the material world.

So an initial aggregation of all H-particles as the beginning of the universe (similar to the Big Bang) is unimaginable. In incipient decay the gravitational components would immediately accumulate the antigravitative produce against external in re-entrant field lines. Overall, would create a separation or layering that wouldn't allow other masses going outside. Then an outside held recombination of the two components would not be possible - the central mass grows and includes all gravitational matter.

More convincing is the assumption of a homogeneous in time and space of H-particles filled the universe, which leads to different places by the splitting to the first mass concentrations, with densities up to a wide variety of star shapes arise with subsequent star burning, supernovae and black holes as a cyclic process.

So clearly, the recovered full particle image is, it should be represented by mathematical functions are thus allows for an experimental confirmation provable predictions and conclusions. But here start other problems

Is mathematics for the desired theorie for unity a sufficiently powerful tool to capture the images developed theoretically?

In the two- body problem (Sun and Mercury) in otherwise matter- free space Newtonian mechanics ae suufficient (if one neglect for the perihelion motion). Bohr initially began with describing the hydrogen atom as a two - body problem with known mechanical models. But after adding more particles the road was blocked. In addition, magnetic terms, spin quantum number, the model had to constantly refined. Ultimately, every atom is a vibratory many-particle-structure.

The three-body problem allows solutions only for special assumptions, but with even more bodies pure analytical solutions are no longer possible. Then iterative solution method may be required.

In many-body accumulation of gases only statistical thermodynamics allows connection to classical physics. But if coagulate the many particles, forming crystalline body (and atoms), overlays of the electric potentials of the individual atoms (and particles) are assumed (Bloch theorem) , which is represented by an anisotropic periodic waveform - only periodic solutions for the locations of the electrons are valid. Theoretical aids are the effective masses, but which are determined by the electron mass.

Reason for the distinction between the two problems is the lack or versatile networking potentials in crystals. The individual particles do not change apart from the common energy bands as an indication of energy redistribution. Only the structure of the potential now requires different solutions (extreme cases : BE condensate, magnetism) .

[Similar to the brain : the brain cells of the brain synapses, axons, dendrites, and conduction mechanisms are quite well understood, but the multiple connections to networks cause difficulties for the understanding of brain processes.

Analog Economist describe each operation in detail to the most accurate, but are missing a tuning theory of interaction of all the details in spite of the greatest mathematical efforts] .

So must infer that the matter as mass particles neither wave properties is still smeared, only the mathematical approaches lead to wave functions, but which reflect the structure-dependent interactions of the particles.

Waves arise only through interaction of particles. Particles resulting from decomposition of the H-particle, certainly like all dynamic processes in the nature of an Arrhenius equation below. Vibration-free the universe would be only at $T = 0$ K, but this is the theorem of Nernst following unreachable.

The examples show how imperfect or provisionally are present theories, what hardly will be doubted. If there were ever a "theory of everything (TOE)", it would be a fundamental equation, resulting from the present current or improved theories as limiting cases. This would therefore be as image of mathematics, the osculating of surfaces or balls already in limited areas, and only in these, be valid. How absurd it is obvious then to extrapolate today's theories about the ART to time $t = 0$, or by researching theorists beyond.

What if

The designs show that the idea of adipole is productive. In general, it leads back to the discussions of the century to 1900.

Because of the results of the Michelson-Morley experiment 1887 ether was rejected. 1900 Planck induced an energy quantum. Einstein explained the photoelectric effect in 1905 analogue, which discovered in 1887 by Hertz and Hallchs, but could not be interpreted. Without the presence of ether, the photon was then created as a particle of mass zero, which always moves at the speed of light.

According to Bohr's atomic model Sommerfeld enhancement was promising results, which were signal for new ways.

How about the development of run if the results of the first chapter are acceptable, it would have been a suitable ether?

Planck and Einstein had their statements probably not changed. The idea of the photon as a particle with wave properties would have certainly not developed. Also de Broglie in 1924 imagined postulate of matter waves would have been omitted as an extension.

Then it is also questionable whether Schrödinger 's wave equation would have imagined that standing on the notion of matter waves of the electron in the atom is based. Heisenbergs matrix mechanics, which only presents structures capable to vibrate, though found no intuitive solution, but requires a new task for an interpretation. The uncertainty relation presupposes matter waves. Negate it in particular spontaneous virtual particles in the vacuum are not possible. However, the questions of the measurement problem as an interaction between object and measuring instrument still exist, but are understood by the theory of deckohärence.

The discussion of what the wave functions represent a solution of the Schrödinger equation, would surely not end with the Born interpretation, but the turn was so successful that it was also the Lagrangian formalism of classical mechanics getting a wave face. Necessary provisions have been as pulses, places, energies were to transform in operators, and this formalism is now generally. Would the development have been different with adipoles?

Something like this? :

An ether mediates the exchange of energy quanta. Each moving particle generates a wave in the ether.

Jönssons attempt by the electron interference is actually interpretable as both column are excited coherently, which is immediately evident in the ether screen.

Speed of light and kinetic theory of gases determine the mass of the ether-particle . The vacuum-influence allows the determination of the particle density. The product of the results leads to the average energy density of the universe, which is a nice confirmation.

The existing over all distances superposition of the solutions in the Hilbert space of emitted particles collapse immediately after emission, and the discussions to collapse and decoherence are superfluous.

It would be only particles. Beside adipoles and gravitons (next chapter) of the type described can be all the other particles - as described in chapter "Was there a Urteilchen" described - construct a model. In an absolutely motionless universe ($T = 0^\circ$), there were no waves. Only the polar

properties of the Adipole can at $T > 0^\circ$ by interacting systems of coordinated movements and thus generate waves and create oscillating particles. Consequently, there is no wave particle duality. The Hilbert space is the state space, but the measurement problem remains unsolved.

The special theory of relativity would have come as Einstein would have skipped the deformed vacuum with the hypothesis of constancy of light for all inertial frames.

Furthermore, Maxwell would receive his stolen parameters vacuum-influence and vacuum-permeability back and could build field line tubes, schoolboy would not have the mystical energy transfer through the vacuum by non-existing substrate, nor students handle vacuum creation and annihilation operators of quantum field theory because all matter is of permanent existence. One would look amazed for the big bang and some researchers never return from the previous universe.

Attempt of an elementary system and other models

We absolutely must leave room for doubt, otherwise there is no progress, no purpose learning. You can find out anything new, if you did not before asking a question. And to ask, there is a need of doubt" Richard P. Feynman, It is so simple, S. 148

The heading should be emphasized that this is an attempt for at an integrated particles and forces model.

From the speed of light in conjunction with the kinetic theory of gases the adipole resulted as ether particles and its mass (about neutrino mass); vacuum-influence and mass resulted in particle density, the products of both sizes as the adopted today mean density of the universe. Although this result is not a proof, but at least an indication of the existence of the particle.

The Hawking - Bekenstein radiation created disintegrated particles from the vacuum in the vicinity of black holes (SL). In so far this picture there are particles adipoles that react with the core of SL (SLK) and form neutral H particles with no properties as gravitational effect and electrostatic interaction . Such particles derive from the SLK and disintegrate at some distance from the SL in a gravitational part $g+g-$, and a antigravitational $a+a-$, which finally

create gravitational force as the first power and heavy masses

The further decay of the formation of electrical charges leading to $g+$ and $g-$, and also to $a+$ and $a-$, which

creates first loads and the electrical interaction

Thus, there is no electrically neutral elementary particle.

But two free parameters exist: mass and charge of the particle. Furthermore: Adipole and gravitons (see below).

The first step therefore creates gravitational masses, but which are not atoms with different energy levels and therefore do not absorb "photons" or emit, but in the episode about quarks, etc. (as in Urteilchen explained) to atomic nuclei and continue to atoms . The antigravitational particles remain isolated (often shown in the bell-shaped representation of the universe from the Big Bang to the present time it shows here like a bustle of all possible particles, interspersed with question mark).

All precursors to the atoms belong to the gravitational dark matter.

So H forms the created four types of particles, which react with each other in the sequence. Obviously, $g+g-$, where both forces are attractive, is the most stable. $g+g+$ and $g-g-$ become $g+g-$, which coagulate as first mass.

$a-a-$ are the most unstable. They are coupled with $a+a+$ to $a+a-$, which remain separate as adipole or gravitons (see below) for their lifetime.

Macroscopic antigravitative body cannot occur.

From here results of the chapter "Is there a Urteilchen " are followed, often described by the standard theory .

The adipoles are antigravitative and neutral with regard to electrical charges, the four particles are both gravitationally and electrically neutral with respect to other particles. Decompose the H particles into particles with opposite spin ($+1, -1$ bosons), the components have the spin $1/2$, that is then spinning Adipole1, the four- particles the spin is 2

But how react the $g+g-$ dipoles with each other? You can make a lot of link chains, rings, planes and cubes. The simplest ring consists of three dipoles which are two connection lines folds (particles 2-6 and 3-5, similar to the count in a benzene ring) and assuming an octahedron. Thus, there is the spatial model of the introduced above u^0 quarks. Two of these u^0 quarks can directly disproportionate by charge exchange in uu' or dd' - antiquark pairs. The following is explained in the above chapter "Is there an Urteilchen?"

(An analogue for longer chains shows the biochemistry, where multi-unit DNA molecules split off portions which lead to a wide variety of folds to a variety of nucleotides)

More likely, the mass creation by binary collisions is done u' and d' mesons with mean half-lives, whereas the so-called mixed states uu' - dd' are extremely short-lived.

During the final stage all remaining particles and antigravitative dipoles have a rotation spin and magnetic moment. They induce in their environment torques to other dipoles, as observed every chemist as he switch on his magnetic stirrer. This particle image magnetic forces are reduced to the electric force.

It should be noted once again that immediately after decay of the H gravitational masses exist, but not interact with radiation, if any. Qualitatively here is the opportunity for adoption of "dark matter " to see as a precursor in the formation of matter .

Output for all particles was the H- particle with decreasing gravitational force of the environment is hypothetically unstable and this initiates the reaction initiates. In the case of very large gravitational forces, H- particles are stable. In that environment, the reverse reaction occurs. Thus, the reaction is reversible. Such gravitational forces are present on or in black holes. This supports the assumption of a radiation of H-particles from the SL (analogy to Bekenstein - Hawking radiation).

The current described in the FAZ on 25 - April - 2012 results about missing dark matter in the vicinity of the sun to a distance of 13000 LJ is very easy to understand on the basis of the described model here: As outlined, the H-particles are formed on SL escape into the room and form new matter and force particles by decay. All these precursors are components of the DM sun is relatively far from the galactic nucleus, in its environment there is no new matter.

According to this model positive and negative charges in equal numbers are before the universe is starting. The ratio of the particle types is 1. It should be recalled to the extensive studies of Eddington, Einstein, Dirac, as described in detail by John D. Barrow (1). In an age of physics, the ratios of all the elementary particles should be a smaller integer. With the ideas of how they were described in the section on "Urteilchen" to the experimental calculation of weight of nucleons of the components determining the ratio is also given there.

Remains incomprehensible at first if continue this strictly corpuscular description of the structure of matter and of matter formation the representations of decay images as they are produced in high-performance ring accelerators. Whole shower of particles as they are generated in the high-energy scattering processes, are certainly not part of the mutually reactive particles. Such reactions are now described with relativistic particle masses, convert the kinetic energy into calculated gravitational masses. Here it is shown that in addition other particles (g+g-) are included in large numbers in the nucleons, similar to the SLK. The locally high density quarks and baryons are stabilized therein by their existence. Only at the entry of the kinetic energies of the collision partners of decay and thus the particle generation is initiated, which in general leads there too symmetrical decays. The findings from the HERA experiment (2) are then easy to interpret pictorially. Instead of partons the non-electrical uu' particles are viewed. When they are hit by the colliding particles whose energy is sufficient for deep - inelastic collisions, they decay into gravitational masses, as they are found in the scattering experiments. The resulting particles are "compounds", which, like the small decay times show fast decay into the known quarks and leptons.

In considering the density of the "singularity" of the SLK, it was assumed that g+ and g- similar arrange the NaCl lattice. When g(+/-) condense as neutrino-like particles with straight inner spin are born. If also here the theory of Bose-Einstein condensates is applicable, then the particles with Eq.(1) form (5) a "thermal de Broglie wavelength "

$$\Lambda = 28 \text{ nm} / T^{0.5}$$

is determined. That means, even at slightly elevated temperatures, indistinguishable particles are allowed in the nucleon and thus condensation is possible.

At 2.7 K, the de Broglie-length is 17 nm, which means that for smaller particle distances, (in particular at 0.4 nm) condense to solid particles. This is necessary if the "black holes" radiated H-particles condense in regions of lower gravitational force after its disintegration with release of heat of condensation back to stars. Extremely high temperatures, as assumed today in the Big Bang, are not necessary.

Through this mechanism particles could be massive. But once the question arises, which causes a limit to the increase in mass to the top. If the particles initially grew by condensation at high temperature, so they reached after cooling to about 10^{+24} K thermal de Broglie wave of about 1 fm, which means that up to this volume by attaching particles of $u^{\circ}u^{\circ}$ or g+g- pairs condense.

Reversed: With a temperature of 2K, a particle density of 10^{+30} kg/m³ (as the core of SL) voted de Broglie wavelength and a fictitious particle diameter consistent if d is around 10-15 nm or 1 fm.

As shown in the table under "Was there a Urteilchen" adopted included the imaginary octahedron from the electron to the u° - quark rising (0-3) positive and negative positions that internally stabilize the octahedral spin also electrostatically. Therefore, the particles can accommodate up because of rising spatial distances, the binding internal force is too low in the table in increasing numbers g+g- pairs. The electron is the lightest, the u° -quark the heaviest particle.

particle	Particle mass [eV]	number ny	$v [\sigma = 1E^{-47} \text{ m}]$	Dia. [M]
ny	3,00 E-04	1,00 E +00	3,2 E -71	2,0 E -24
e	500000	1.70 E +09	5,4 E -61	2,4 E -21
u	5000000	1,70 E +10	5,3E -63	5,1 E -21
d	7000000	2,30 E +10	7,4 E -61	5,6 E -21
u°	150000000	5.00 E +11	1.6E -59	1.5E -20

Of course the calculation in the table is only to test the reasonableness. So the electron $5E(+5)eV/0.0003 eV = 1.7E(9)$ couples included and will be the smallest of the particles listed in the table because of the six negative $1/6$ -charges. A rough calculation of the neutrino volume (from cross section) and the number of pairs of electrons gives a radius of about $2E(-21)m$. u , d and u^0 continue the series in a plausible order.

Today it is considered that the diameter of the electron is certainly less than $10^{-18} m$. With the known electron mass it follows by assuming a spherical shape a density greater than about $10^{+24} kg / m^3$. The density of a neutron star, however, is $10^{+18} kg/m^3$. Thus, the density of the SLK is still several orders of magnitude larger but acceptable for such plausibility consideration .

The plethora of $g+g-$ pairs are produced from the decay of $H-$ particles in space, simultaneously the equivalent number of $a+a-$ is created. As below (" graviton ") described they store at the surface of the particle and provide so gravitational field lines or "Heavy Weight".

Division of nucleon weight ($1.7 * 10^{-27} kg$) by the determined adipol-weight (representing the neutrino weight) yields about $3 * 10^{+12} g+g-$ pairs as condensed mass . For the Higgs particle, whose mass is theoretically about $2.25 * 10^{-25} kg$ (132 times the proton weight) is assumed to deceive the number of $g+g-$ corresponding to about $4 * 10^{+14}$ pairs. But be obtained during acceleration the necessary $g+g-$ reaction with $H-$ particles of the vacuum, and the resulting parallel $a+a-$ produce by addition its now increased gravitational force. Again, the decreasing static (and spin) forces of many $1/6$ -Ladungen will be limiting for further growth in the u and d quarks.

Analogous calculations show for up- and down- quark diameter of about $10^{-21} m$, for u^0u^0 particles (gluon) about $5 * 10^{-21} m$. HERA had a resolution of $5 * 10^{-19} m$, therefore, could not see any structures that would have looked like quarks.

Reliable knowledge is that atomic and nuclear diameters differ by about a Faktor 10^{+5} . Between nucleon and quark so would an analog ratio of the order of 10^{+6}

This supports the notion that the densities of quarks and "singularities" in the SLK are of equal size. Thus, recent suggestions that SLK are nothing else but extremely dense particles tend to agree.

If the same considerations of "thermal de Broglie wavelength" also apply to the adipole, then that is important for the discussion of coherence in "quasi lattice", which fills the universe.

Another very easily conceivable possibility is that the entire universe is filled with the "mass - and charge -free" $H-$ particles. The ratio of the other types of particles will not vary. Its decay with subsequent back-reaction is to be regarded as a quantum fluctuation in a vacuum, with short-term "borrowing" energy from the vacuum is always difficult to understand.

But then also at a certain temperature and appropriate activation energy, a dynamic equilibrium of complete and dissociated H -particles is conceivable, so that in the micro-range masses arise briefly and disappear. According to the general theory of relativity which is associated with a short-term curvature of space (spacetime foam) (3).

This is the same as for a long time known in chemistry Le Chatelier's principle, the concentrations of reactants and products change with change of environmental variables so that the change of variables is counteracted (Example: Haber- Bosch process for ammonia synthesis). The collapse of the $H-$ particles in the wider community of SL generated next to new matter and stars adipoles that increase the local concentration to the surface of the SL. Binding of adipole with the matter of the SLK produce there new H , which in turn escape. If the enthalpy of the reaction would be known, as would be by means of mass-action law in addition to the concentration of Adipol (speed of light?) concentration of the $H-$ particles in the range of the SL could be calculated, but also in large free voids.

Around the SL, the concentration of Adipole is greater, so the permittivity ϵ_0 for the vacuum must be greater and the speed of light decreases. This would result in a deflection of light rays that pass through the tangential SL, an analogy to the diffracted rays of the sun in the earth's atmosphere (Einstein-circles).

In the electrostatic field electrostatic potential energy of the electric field using the influence constant ϵ_0 are defined, but is proportional to the number of adipoles. With $n = 0$ in parallel the field creating charge is zero because of the symmetry of adipole and electric charges, the field strength is $E = 1/4\pi r^2 Q / \epsilon_0$ is finite.

It should be noted that high temperatures are not necessarily required for the decomposition of the H and the formation of new compositions. Also taking place in time compression to form larger masses will be slow. They rise only at still further compaction with incipient star burning at the temperatures.

Ultimately this development leads with sufficient star size beyond the Chandrasekhar limit for supernovae, where in addition to the higher atomic weights and the exotic particles such as hyperons and "Resonen" arise, which in turn decay by kaons to pions.

Another option:

It was mentioned above that electric charge and mass of adipoles occur in the decomposition of H as a free parameter. But are they? In the chapter, "Is there a Urteilchen that particles explain" the masses are mentioned, but not used in the following reaction equations that are similar to the Feynman diagrams in the vertices. The elementary charge (or sixth) may well vary in only accounting for the constancy of the charges, without the equations would be wrong. However the weights are not significant. But acceptance of the octaeder-configuration, the particles of the table each consisting of three dipole pairs, what ($3 * 0.0003 \text{ eV}$) corresponds to 0.0009. This charge-carrying "quarks" are the framework for further $g+g-$, as described, performs addition to the final weight of all the particles of the table. The H itself is equivalent to an energy of about $0.001 \text{ eV package}/c^2$.

In modified elementary charge and the stability of the backbone and thus the number of the deposited particles varies. Quarks and leptons were other masses. This image is not so strange when thinking of the "virtual particles" surrounding electrons in QED .

Model of the "graviton"

In the described model it has been possible to describe electrostatic and electro-dynamic forces by particles adipoles. Because of the dipolar nature of the particles it's only possible to bind between dissimilar electrical charges. Similar charges are repelled. The most important property is therefore the mediating dipole character.

The following thought experiment may wish to try a concept for gravity:

Two large masses, each with a positive excess charge attract each other gravitationally. Now step by step from both electrically neutral partial masses are taken away. After finitely many steps the masses will repel each other because now dominates the electric charge. If the charge $+e$ (with e as the elementary charge), the corresponding mass is $1.9 * 10^{-9} \text{ kg}$ (order of the Planck mass: about 10^{-8} kg).

If now the masses are gradually reduced until the weight of a proton ($1.67E (-27) \text{ kg}$), the gravitational force is reduced by a factor of $10^{-36} [2 * (-27 + 9)]$.

Since e or $1/3 e$ is the smallest possible charge, particles with smaller mass can, if they carry the same charge, condense gravitationally or not, because according to the above concept no particle

exists with no electric charge, antigravitational masses except adipoles are not possible. So it requires a relatively large mass to overcome the electric force.

The following representations are used to visualize the ideas.

MM = Macroscopic mass

Since the surface of the Earth MM is neutral, positive and negative particles must be there side by side, which is highly idealized but, as compared to the dimension of the surface, they will not be smooth. This demonstrates the adipole couples also alternately.

Neutral masses form double-stranded:

MM (g+g-) a+a-a+a-a+(a+ a-) ... (a-a+)a-a+a-a+(g+g-)MM

MM (g-g+) a-a+a-a+a+(a-a+) ... (a+a-)a-a-a-a+(g-g-)MM

Between the two rows of lateral forces cause a compact connection, so four-component-particles are created for each Adipole of each row. In the center of the contact because of the mismatch in the single-chain gradually particles as adipoles (a+a-) are pushed out and cut the strand.

Both sides with the same charge:

When both masses same charge, so couple the positive (or negative) ends of the adipoles to the excess charge places, now causing lateral forces a spreading of the chains. Within the spread single chain repellent forces arise which extend the chain by incorporating adipoles.

MM (g+g-)a+a-a+a-a+(a+a)..... (a-a+)a-a+a-a+a+(g+g+) MM

MM (g-g+)a+a-a+a-a+(a+a)..... (a-a-)a-a+a-a+a+(g-g-) MM

Both sides of opposite charge:

When opposite charges (positive and negative) are splayed single chains that shorten due to the attractive forces, by repeatedly emit adipoles in the center of the chain.

MM (g+g-)a+a -a+a-a+a-a+a+ a-a+a-a+a-a-a+(g-g-) MM

MM (g-g+)a+a-a+a-a+a-a+a+ a-a+a-a+a-a-a+(g-g+) MM

The forces between the chains are similar to electric conductors repelling each other. The gravitational g+ of MM orients the first adipole. And this is close to the next adipole. Then, however, are adipoles the support of both remote forces.

Of course, the structures are modular models. To strain the model even further, the following idea is described:

With the introduction of wave mechanics always is asked why the electron is not associated with the proton of the hydrogen atom producing a neutron. For neutrinos, as interpreted here, and adipoles there is the same problem. Wave mechanics provides with the Schrödinger equation and Heisenberg relation a mathematical representation, but no visual mechanism that generates a potential well for the electron. Because of the probabilistic interpretation for the electron at the nucleus is a node of the Schrödinger solution before - the electron is off limits by law.

In this image is regarded as a consequence: If the electron has the known distance to the core, so bring adipoles, as the analog of electric field lines, the attraction. The current screen states, however, that in the immediate vicinity of the particles the density of adipoles as the shell is so large that (1Graviton 2 Adipole < --->) they are compressed by the reverse reaction to

gravitons. But still both particles are oppositely charged, so that the model outlined above applies. However, the electric force is becoming less effective because of the now-missing adipoles; antigravitational force as described above prevented the formation of macro-bodies, also here a further approximation is prohibited.

With great momentum the electron could penetrate the antigravitational wall, transforming a proton into a neutron (inverse beta decay).

How can the electron and positron annihilate? One possibility is the formation of six $g+g^-$, in the vicinity of large density of adipoles turn back to H and thus drop out of the realm of matter. This is an answer to the question posed in the section "Urteilchen" "What does annihilation?"

$(g+g-g+g-g+g-)+(g-g+g-g+g-g+) + 6^*(a+a^-) \rightarrow 6^*H$

Because of $1/r$ -distribution particle of surface / particle of volume it follows that the electric charges per particle are no longer limiting, if the distance between the two particles is extremely low. The electrical attraction is due to lack of adipoles near the core to zero, the gravitational repulsion is growing because of the increasing number of antigravitational gravitons. The converse is true when the electron is back on its orbital.

Applies the image so the mechanism even with larger atoms must be valid, and this shows that the inner forces of an atom in the particle picture are much richer and more complicated.

If an metallic ball that is continuously charged electrically the electrical charges are distributed on the surface, couple to the now more adipoles and thus additionally cause the electric power. If such a repulsive electric force is greater than gravity, then the distance between the bodies increase.

Both electric and gravitational fields are conservative and free of whirls. Now as a result electric field lines are materialized, by definition start from the positive to the negative sources and sinks are no longer just a "mathematical constructs" .

The same applies to gravitational field lines. Because of their continuity, they end in the observed masses. From according to $1/r^2$ decreasing field lines density follow - as in Coulomb's law - the law of distance in the familiar form.

Because of the symmetry of creating masses and adipoles the gravitons should increasingly reside in the immediate vicinity of the mass and almost all couples are bonded to the surface of mass. The mass itself is, as assumed earlier, from the $g+g^-$ particles. Which are located on the surface $4\pi*r^2/(4\pi/3*r^3)=3/r$. The surface for the coupling, in turn, corresponds to the adipole or neutrino surface (cross-section). With these assumptions, the density of pairs can be determined arising from the body. Related to this is the notion that, as with chemical compounds, two particles are combined at a defined location.

As a result, it follows that there is for all the planets , sun and earth , but also for gold and lead balls by a factor of 10^3 to 105 times more coupling sites as field lines. If the density is greater, the field line density exceeds very quickly the number of coupling points in neutron stars around the Faktor 10^{15} in the nuclei of SL (SLK) to 10^{30} .

Volume of the body = mass/density.

$R = \text{radius of the spherical body } (3 \cdot \text{vol} / (4\pi))^{1/3}$.

Points for coupling $K = 4\pi*r^2/\sigma$

σ corresponds to neutrino cross section according to Cowan - Reines ($1E-47 \text{ m}^2$) .

Number of gravitons $N = M/(2 \cdot \text{Adipolgewicht})$.

$N / K =$ occupation density of the coupling points

The table shows the coverages registered for different body.

As a boundary between the ranges of validity of the ART and Newton's mechanics applies the term

$$Z = (GM) / (Rc^2) \approx 1$$

with gravitational constant G , the mass of the body M , the radius R and the speed of light c . Also, this size is taken from the table. The Z - test shows that the bodies of the first four lines are to be treated relativistic. From line "sun" the Newtonian theory mostly requires minor corrections.

Body	N / K	(G * M) / (c ² R)
Universe as SLK	4.30 E +23	1,70 E +19
Galactic nucleus	1,20 E +23	1,10 E +08
Sun SLK	4,10 E +23	5,90 E +03
neutron star	2,80 E +11	8,20 E -01
Sun	2,00 E -05	2,00 E -05
Moon	5,00 E -05	3,20 E -11
Earth	7,90E-05	7,10 E -10
Jupiter	2,50E-05	2,20E-08
Mercure	7,70E-05	1,10E-10
Water 10 ³ kg	1,40E-05	1,20E-24
Iron 10 ³ kg	1,10E-04	2,40E-24
Gold 10 ³ kg	2,4 E -4	3,1 E -24

The extremely large N / K values are interpreted as follows: Outside the Schwarzschild radius the density of "gravitational field lines" is great, it falls according to $1/r^2$ because of the continuity of the lines. Within the SL, however, they must form closed lines, like the sun creating protuberances of electric field lines. These field lines do not cross the surface of the SL. Are gravitational particles ejected so they move in orbits similar to the trajectories back to the body. Only the escaping H as combination of g+g- and a+a- is possible. That means there has to be a steady flow to the outside to form new mass.

Such a mechanism is known for analog electrical processes on the sun as a protuberance. Charge separation or vortex on the solar surface through orientation of a dipoles to field lines through the adjoining room, and these cause the flow of electrical particles. But what could cause the inhomogenities on the surface of the SLK. Density gradients, collapsing heavy masses, jets as flowing masses are conceivable.

Analog to graviton-density outside the analog to $1/r^2$ -distance law in its immediate vicinity as with black holes - now the elementary particles have similar SLK (nuclear black holes), so they are subject to the same considerations . Summation of the outer graviton-number is equal to the sum of g+g- modules of the particle. The number of the electric charge seems to be determining. In such an image the electric charge determines the size of the bare particle mass (g+g-) , the accumulated (a+a-) as gravitons) give the gravitational force to the particles.

The field concept, which has been more of a mathematical construct, needs to be modified. Thus defined Laplace fields with sources and sinks (electrically positively and negatively charged body) remain unaffected, but a central Newtonian field looks different. If one combines all the matter in a point, then this mass is source for all gravitational field lines in space, finally as remote power because the divergence in each subspace which does not contain the mass is zero. Field lines are therefore continuous. The integral over the antigravitative masses of infinite space is also infinite. As the number of Adipole is finite, the field lines are only possible between masses, they must lead into the same ground again.

What is the course of the field lines when the SL thinks decomposed into two equal parts? There must be a great field line density between those parts, but at a great distance, the system acts as a unit (Newtonian shell theory), but also the lines return in it. So you can mentally accept always more mass points in addition. If the total mass of the universe is finite, then the field lines ever run back into the system. With decreasing line density, the universe would find a physical limit.

Note: For a non-rotating SL the event horizon is proportional to its mass. Far outside the horizon there is a certain gravitational potential. If now we imagine the SLK as a sphere is divided into two hemispheres, many gravitons cause an attraction between two partial masses. As with additional gravitons also g+g- particles are formed, which are absorbed by masses, increases the area enclosed by the event horizon mass, which in turn affects the external gravitational potential. The resulting mass is greater than the sum of both the previous individual masses.

Gravitons are released conversely, in the union of two holes or masses, g+g- form H- particles that exit without gravitational or electrical interaction into the space. This decreases the mass of the SLK.

Looking at elementary as mini holes on, it is called the difference in mass and mass defect.

For the origin of new adipoles there is the possibility of the decay of H- particles, which means a weight or energy increase due to the condensation of the resulting heavy mass with MM .

The bound to the surface of the mass particles are dragged along because of their attractive binding upon rotation of the mass, and thus a layer of gravitons (affiliated adipoles). This happens less at the pole, more intense at the equator of the rotating body. The adipole-distribution and thus the gravitational potential are distorted by what a curvature of the surrounding space means a maximum in the vicinity of the SL. This effect is described by the Lense-Thirring. The ART - effect can be explained so vividly. If the central body of black hole has a transverse movement relative to a stationary environment in adipole-field, the field is reminiscent of the well-known and proven Flettner rotor.

Furthermore, it is conceivable that the ball to the cylinder is deformed to form hollow cylinder. Then the inner and outer chamber of the cylinder can distort the outer gravitational field by rotation. If the cylinder is closed after filling with water, so the liquid spreads over the inner wall because the inner and outer walls likewise represent an equipotential surface. It is driven by gravity on the inner edge. Then, when this structure is put in a gravitational field, such as the earth, in addition gravity is introduced, which leads to a paraboloid.

The water surface is the paraboloid - this is the rotating water bucket of Newton and Ernst Mach.

However, this also implies that in the absence of the added gravitational force paraboloidal surface water is not to be expected.

The density of the core SLK as 10^{+30} kg/m^3 was calculated under the assumption that g+g- particles experience a cubic condensation, and the density of the neutron rating is of the order of 10^{+17} kg/m^3 . The density of the electron was determined to $>10^{+24} \text{ kg/m}^3$. Should not the space around the electron as in the rotating SL also cause a Lense-Thirring effect? Such an effect would be equivalent to the classic unexplained spin.

The hydrostatic explains the buoyancy of a body in a liquid by the pressure of the overlying water column. Critical to the magnitude of the force is the volume of which is not its shape. Likewise, couples a body in a gravitational field of gravity up and down with different numbers of gravity lines. Critical to the figures, the density, such as the last three rows of the table show. The difference creates the "Heavy Weight".

A body moves in a homogeneous "graviton-field", this results a non-dissipative flow around the body also having different field line density in front and backside. If this difference is as great as the force of gravity, so the power corresponding to the gravitational force was necessary for the acceleration of the body in the "vacuum". So the result is:

Gravitational mass equal to inertial mass

The series of all decay steps of H shows in a row that Adipole a+a- for the remote forces g+g- pairs are the basis for the matter. Both types are to be formally connected by the law of mass action:

$$[\text{ Forces }] * [\text{ mass }] = \text{concentration (H)} * \exp (-Q/kT)$$

with Q as the binding energy between (g+g-) and (a+a), T is temperature and k is Boltzmann's constant .

The image also shows that each mass is reduced to electrostatic attraction forces. With increasing distance the mass is surrounded by a shell becoming continuously thicker in antigravitational particles, thereby the effective mass is reduced, similar to naked dipole electron shield as "vacuum polarization".

A confirmation of this assumption is made on the basis of a comparison of both remote forces. For mechanical or electrostatic force between two particles we have:

$$K (m) = G \cdot m^2 / r^2 \quad K (s) = 1 / (4 \cdot \pi \cdot \epsilon_0) \cdot e^2 / r^2 \quad G \text{ as the gravitational constant .}$$

From the Division of both equations and substituting ϵ_0 from the result in the chapter "density" section with use of N particles/ m^2 (mass of the particle) = ρ (density of the "vacuum") follows:

$$K (m) / K (s) = 4 \cdot \pi \cdot G \cdot N \cdot m = 1.2 \cdot 10^{-38}.$$

Thus, the gravitational force is around 10^{-38} times weaker than the electric force.

The ratio of the two forces is then a function of Adipole-density, if the gravitational constant G is constant. Increasing the density, as is the case in the vicinity of the SL, the gravity will dominate. Far away in space with lower density the electric force should gain in importance

The Newtonian gravitational theory with the shell theory shows that the gravitational potential is determined in an arbitrary field point by the area enclosed by the equipotential surface. Since, according to the model described a mass engulfed dipoles , their "mass" must be included in the calculation. This adds a negative contribution, so that the effective gravitational force decreases with increasing distance from the center of mass proportional to radius and the Adipole-density.

The application of the theory extends the well-known Newton's law to

$$K = G \cdot m \cdot M / R^2 \cdot (1 + dv/df \cdot (R^3/rf^3 - 1))$$

or

$$G' = G \cdot (1 + D \cdot (R^3/rf^3 - 1))$$

with $D = dv/df$ and dv as generating negative density of the shell volume to the field point, df density of gravitational mass M , radius rf of the body.

With $r = rf$ the field point is on the body and it is not corrected. Only when r takes on larger values must be corrected. If r so large that the -1 is negligible, so the correction will be zero as

$$R_0 = rf \cdot (df/dv)^{1/3}$$

since the density of the shell composition is negative and decreases the power. For the sun with a density $df = 1400 \text{ kg} / \text{m}^3$ and a radius of $7E(+5) \text{ km}$, a value of $3E(+6) \text{ km}$ with $dv = 1.3E(-29) \text{ kg}/\text{m}^3$. For $r > R_0$ again the expansion of space dominates.

For comparison, the distance Sun - Pluto is on average about $6E(9) \text{ km}$. A light year is $1E(13) \text{ km}$.

In this estimation, a homogeneous distribution of "negative mass of dipoles" was assumed over the entire shell, which hardly corresponds to reality because $1/r^2$. With decreasing density with distance from the sun, the range is certainly considerably smaller.

The starting point is always on the body surface, and the radius rf at first very small, so the assumption leads to a false $r = rf$, since the radius of the specimen is taken into account. However

small if the distance in the Newton law will always be $r_f + r_m$ if when r_m is the radius of the specimen.

At a variable distance from the trajectory as of Mercury around the sun thereby varies the force of gravity, wherein layers of adipoles with different density are determining the movement. Here the "antigravitative mass" causes the motion of the apsides coincides with the direction of motion of Mercury. In gravitational mass the apside-curve would move into the contrary direction. The speed is a function of the distance from the sun, as the slower motion of the perihelion of the earth proves what corresponds with the notion of lower Adipol-density.

With vanishing force with infinite r should - similar to the barometric formula - the density to the "vacuum level" decrease.

Choosing the analogue of the barometric formula

$$n(h) = n(0) \cdot \exp \{-m \cdot g / (kT) \cdot \Delta h\}$$

so the exponential term is considered as a correction with m as adipole mass. Then, the gravitational potential is of the form

$$V(r) = m \cdot g / r \cdot \exp \{-(m \cdot a \cdot g / (kT) \cdot (r - r_f))\} = A / r \cdot \exp(-m \cdot a \cdot B / r)$$

This is similar to Yukawa approach for the strong interaction. Because of the smallness of the mass of the "exchange particle" the correction is small.

The polar structure of adipoles leads to the same consideration for electric power. Thus for all four interactions, the same shape of the potential might be the same, but for strong and weak forces, the exponents include the positive masses of mesons or bosons (10), which means that the potential is growing exponentially.

In general, the Yukawa approach with different parameters for the description of all forces can be seen.

Above it was assumed that both remote forces caused by single or paired adipoles. This suggests the idea that - analogously to chemical reactions - a temperature-dependent equilibrium exists.

$$c(\text{Adipole}) \cdot c(\text{graviton}) \sim \exp(-Q/RT) \quad c = \text{concentration}$$

with unknown reaction enthalpy Q . Here, c is the concentration of the respective particle.

At constant temperature, then according to the law of mass action product

$$c(\text{Adipol}) \cdot c(\text{graviton}) = \text{Const.}$$

Since emerging as equivalent the particle mass $g+g-$ and adipoles, this dense, but radially decreasing concentrations (analogous to the vacuum polarization by an electron) forms the environment. The first large density $c(\text{Adipol})$ decreases by the formation of gravitons. Consequence is that in the immediate vicinity of the particle increases the gravity - and Adipole-density decreases. The law of gravity must vary accordingly with decreasing distance between the particles from Newton's law. Furthermore, in the absence of adipolesn be "photons" can escape.

Gravitational (F) and electric (E) field force can be determined by

$$\text{div } E = Q/\epsilon_0 \quad \text{div } F = 4 \cdot \pi \cdot G \cdot M$$

Q and M being the field generating charge or mass. Now the mass M can be unlimited in size, large charges Q of individual electrically charged particles, however, are very limited. Since both forces use the same kind of particles, the gravity should be negligible and vice versa in strong electric fields - unless additional splitting H- particles are available in the environment, which then creates adipoles and heavy mass in a vacuum.

Gravitational waves are easy to imagine in this picture. Furthermore, the assumption that the entire universe is filled with this neutral H hard to refute - but also hard to prove. The total balance is not affected.

In particular, the last sections are speculative models. However, they are attractive because of their closed representation and should only show that interaction particles are also conceivable for the gravity particle-based. Although it always works in high-energy physics field theories, yet always defined particles are ultimately the end goal, such as the now extensive tables of nucleons, hyperons, mesons, leptons show.

Recalling also the Maxwell field line tubes similar chain-like adipoles were considered as an intermediary between electric charges.

If this model holds, gravitons should have the spin number 2, on the other hand adipole 1. Treated as gas adipoles should obey Bose- Einstein statistics, which merges at low temperatures in the Boltzmann distribution. Then a simple transition to Plancks radiation law and thus to the background radiation is given.

Following the ideas described "gravitons" and adipoles exist in the entire universe, as large are the ranges of the gravitational and electrical forces.

Gluons, also electrical structures exist in the nucleons and nuclei, and as far back does the strong force.

The range of the weak force is a further 3 orders of magnitude smaller than the strong force. Is it conceivable that it acts only in the framework of the 6-part primary quarks? Then quarks would have to give off neutrinos, which indeed contain two particles decay into structures with 4 particles (tetrahedron?) with integer spin. Since the binding forces in quarks are extremely strong, the registered energy must be very large, but what then leads to severe decay particles, as they have the bosons of the weak force.

Furthermore: Adipoles and gravitons fill all vacuums adopted. They cause the entire al -pervasive interactions. Here it becomes evident that a separability of structures is not possible and that of Honerkamp (6) refused "Diphoton" in connection with EPR and non-locality is an invalid model .

The wave mechanics satisfactorily describes the structure of the atom with orbitals whose shapes are important for the structure of chemical compounds. But why and how the electrons in the atom arrange that? An analogue is the vibrating plate, consisting of a vast network of microscopic particles, vibrations performs in accordance with the boundary conditions. This sand or lycopodium be localized in the known arrangement as Chladni images. Is it conceivable that the large voids are occupied in the structure of the atom with smaller particles that position the electrons in analogy to the grains of sand? Each with its specific energy? In interaction with other particles, the orbital shapes, absorbing energy or - change levy. The new form will settle subdued and make a limited long vibration in the environment and thus trigger a soliton as a focused Adipol-wave.

All this suggests that particles or the individual particles in the composite particles have the same mass density, leading to that estimated above for the core of the black hole. Then the smallest particles would have, as described under "Urteilchen", a diameter of about $1E(-24)$ m (from: Adipol-weight and diameter according to Cowan u.Reines), which must be seen within the range of the falling particle diameter.

Given today's images and models the proposals described here seem strange, but the idea of wormholes, rolled-up dimensions of space, life on branes etc. as well, and the current hikes in previous universes with declining time about the " Big Bounce as interchange station " probably a new commandment of modern cosmology.

Formation of spiral galaxies

Based on the hypothetical model of adipoles can also attempt to explain the spiral galaxies only be regarded as conjecture.

What happens behind the Schwarzschild surface, it can be inferred only from secondary evidence. It was considered that $(g+g^-)$ form where H - particles by reaction with adipoles $(a+a^-)$, which initially condense under the influence of extremely strong gravitational force to gravitons, the reactions with the mass of the SLK. These left the area of SL and disintegrate outside at a lower gravity to mass and gravitational force particles again new. These masses condense, with the application of Newton's preferable meet particles of equal mass and emerge as heavier units. Smaller portions remain as dust on a larger scale, because the hit probability of small equal-sized dust particles decreases in the course of the decrease in density.

Now SL either by passing other heavy masses or by the self-formed satellite phenomena tides will come up (Earth - Moon), which initiates that a particularly large H-particles number is ejected as the emergence of new matter. This corresponds to the fact that spiral and barred galaxy mostly have usually two arms.

A practically similar theory has been set up as 1925 by Bertil Lindblad, but this was discarded because the formation of the required density waves there could not be explained. Now the outlet of the H- particles fixed at directions produces rotation of the SL together with the spirals so that the Lindblad mechanism becomes possible. Cause of the radial distance is the concentration gradient.

Furthermore: Consequently, when the idea of the drifting outward currents of fresh resulting mass is properly due to the concentration gradient, then a relationship between the age of the mass and distance from SLK are proportional.

The distance of the solar system from the center of the Milky Way is estimated at around 30000 LJ, the age of the sun with about 5 billion years. For the previously effected condensation and moving to the actual place against higher gravity because of a lack of knowledge another 5 billion are seen as a time interval. Then follows a drift velocity of about 1 km/s ; rather low for astronomical orders of magnitude.

Then the same law should be valid approximately also for the more distant spiral ends, ie an age of 10 - 15 billion years as age. These values are reached, which are usually ascribes star aging. Beyond this distance, there are only burnt dark stars following their way back according to the law of gravitation into the accretion disk of the hole.

If this cycle is assumed to be stationary, it must be in any sphere enclosing the SLK outside the Schwarzschild radius with the same mass. Then there must be also because of the Newtonian theory of thin shells for each of the SL rotating mass increasing with increasing radius of rotation mass for the central force. Today dark matter is assumed for the constant, radius-independent rotation speed, which certainly so owes its existence.

Very massive stars are in the blue region of the arms, a lot closer to the SL. They are of shorter life spans and are thus faster to become "dark matter ". Mean stars like the sun are in the middle range. All matter drift to the edge of galaxies, where it forms also in older age stellar remnants. This

could be an explanation of why the spiral arms are limited in length. Of course, in all areas supernovae Type I are possible.

<http://de.wikipedia.org/wiki/Spiralgalaxie>

Why are gravitational and electric force so very different ?

The continuation of this "physics with bricks" leads to another surprising result: Two positive and negative charges each are distributed on the four quadrants of the coordinate system. In the case of the electric arrangement of charges is +, -, -, +, according to the usual count of quadrants, for the gravitational force corresponding to +,-,+,-. Thus, two chains of electric force and one for gravitation chain.

Added together, the force of adipolpairs in the x direction and the contribution of the diagonal do not annihilate. Due to charge exchange in Quadrant 3, the difference between the two forces with decreasing distance of the chains decreases to zero. In general, the ratio E / G (electrical power / gravity) with respect to $x \gg y$

$$E/G = (X/Y)^2$$

where x is the distance between the particles in the dipolchain and y as the distance between the chains, which is at least the distance between the two masses in the different chains. In previous chapters x was taken as half the wavelength of the background radiation (1E-3 mm). The distance y between the chains is approximately 10-21 m. Therefore the ratio of the powers is of the order of

$$\text{Gravity / electric force} = 10^{-36}$$

This is a further indication of the accuracy of the model described. If the adipol-components were point particles, then diagonal and chain powers would compensate - a gravitational force would not exist. Further, the size of the chain spacing is again compatible with the values determined in the first table for particle diameters.

Gravitational constant

This balance of power in connection with the Coulomb - and Newton's law allows the following estimation

$$E/G \cdot 10^{-36} = (1/(4 \cdot \pi \cdot \epsilon_0 \cdot \gamma)) \cdot (e/m)^2 \cdot 10^{-36} = 1$$

Where γ is the gravitational constant. The combination of Sommerfelds fine structure constant with the relationship found in the chapter "density" results for adipoles

$$(e/m)^2 = \epsilon_0 \cdot \pi \cdot n^2 / \rho$$

with ρ as the mean adipol density ($m \cdot N$) of the vacuum. Used in the above equation for a quasi-static case and about 10-26 kg/m³ density for the gravitational constant results

$$\gamma = 1/(4 \cdot \rho) \cdot 10^{-36} \approx 5 \cdot 10^{-10} \text{ [m}^3/\text{kg} \cdot \text{s}^2\text{]}$$

This value applies to the "gravitational force" in one string (and deviates from the actual value due to the gross balance of power used for E/G). The number N of strings between two masses is determined by the masses themselves. As path integrals over the electric field strength determine the voltage difference between two charges, the sum of all path integrals over the steady, gravitational field lines now will determine the gravitational force.

The number of "lines" is:

$$N = M1 * M2 / d^2 = (4\pi/3)^2 * s1 * s2 * (r1^3 * r2^3) / d^2 \text{ [(kg/m)}^2\text{]}$$

Where d as the distance between the centroids of the masses and s as the densities

Example: s (earth) = 5.5E3 kg/m³, s(ice ball) = 1000 kg/m³ and radius (earth) = 6.38E6 m and radius ice ball = 0.062 m due to the fact with some curves, a line number:

$$N = 2E10 \text{ [(kg/m)}^2\text{]}$$

Variation of the model:

H- particles leave the SLK and disintegrate on the border of the first SL in g+g-, which condense immediately, and a+a- giving the new material the attribute of mass, but otherwise remain isolated. Only in the presence of other masses and / or electric charges they orient themselves in the manner described to Adipol-chains that always run from charge sources to charge wells. In a vacuum, a+a- organize to cubic lattice and determine the BGR at around 2 mm wavelength.

The paired chains of gravity as described above will now be presented as adipol-chains which always extend from positive point of a neutral mass to the negative point of the second mass electrical sink, and vice versa. Pairs occur because sources and sinks are close together on each mass.

If there were no second mass, so no field existed. A centrally symmetric field is only possible in a spherical capacitor. The rights to subscribe for a centrally symmetric field is only a result of the measurement of the field with a test charge. Only the mass or electric charge of the sample causes the formation of adipole-chains, which then show its strength and its direction.

Both partial charge-systems of a mass which remain isolated can allow mathematical representation of scalar potential fields whose gradients create fields of resulting vectors with equal amounts but opposite directions. However, since both chains maintain a minimum distance due to the spatial dimension of the particles, the additional component found above using the quadrants in a coordinate system of the diagonal force explained by the ratio of gravitational to electrical force applies.

The masses of the Cavendish balance of metal balls could be influenced during the vibration giving them smallest electric charges. But because of the immense force difference how such small charges are portioned?

Ultimately gravity is reduced to electrical forces and the gravitational constant is the result of a certain load distribution which allow the force of gravity appears as a residual component. Exist even between electrically neutral masses "electric field lines" that neutralize to a great extent, but not completely because of the charge distribution g+g- in the solid state. The remaining component is identical to the force of gravity.

Thoughts on the Theory of Relativity

Often the eye is compared with a photo camera. But there are differences. While blink of an eye, the brain perceives the sequence of an event is not interrupted - it adds the missing images automatically, so that a continuous flow is achieved.

However, the camera registers only during the set exposure time. Thus, with proper exposure setting the camera next to the image of the moon also generates some stars. The starlight however has left the star in a very different place many years ago.

The same happens with a receding train that is carrying a green lantern on top, a red at the end. The distant light must be started earlier because it was already on the way to travel along the train. But at that time the train was not so far away, so it is mapped shortened. The light colors are changed imperceptibly due to the Doppler effect.

If in the middle of the train a passenger gives a signal to both ends, and seeing the light two stones are thrown out of the windows a later measuring shows that the train was not compressed.

The image of a shorter train is due to the finite speed of light. If the real length of the train would be the diameter of a sphere, so their image would be an ellipsoid with short axis in the direction of travel.

If the train on the other hand approaches the frame of the observer, the ball is cigar-shaped elongated in the x-axis. In this case, the light was emitted earlier at the end of the train, as the train was even further away.

However, because of the two systems, resting or moving a transformation must transform an ellipsoid into a ball. The speed of light in both systems is the same, the same is true for an expanding spherical wave. This requirement of equality leads, as stated in (8) in detail, to Lorentz transformation.

As early as 1670 certain Olaf Römer measured the speed of light to about 212000 km/sec. Not value and accuracy of the result, but rather the finite speed at that time was interesting. At that time already Römer could have developed the special theory of relativity, independently of the question of a transmitting medium. But the maximum speed of stagecoaches with best two lanterns at the coachman back left and right certainly not suggested to such thoughts. Only the knowledge of electromagnetic waves, invariance transformations etc. asked the questions now posed.

In those equations the ratio v/c (relative to the speed of light) is the characteristic size. With increasing relative velocity v the proper time in the moving system is seen by the observer at rest is changed continuously. But what if c is also a variable? In a region of high adipol-density c goes to zero, the proper time to grow and so is $v = c$ infinite. These are the conditions as they exist in the environment of "black holes" ($v > c$ leads to imaginary time-intervals).

The Lorentz equations mediate between kinematic processes in relatively evenly spaced moving systems. The light transmitting medium initially has no further influence. The invariance $r^2 - c^2 t^2 = 0$ for the spherical wave in both systems is possible only if the moving system from the perspective of the firm to another time is assumed for the same c , because both signals are at the same time by the camera, but in the moving system signal started at different times.

In the moving system itself, however, the time course is the same. From a "meta-view" that speaks for a universal time and uniform over time for a range of constant Adipol-density. Since the speed of light is the same in any system, the same applies to the density of the adipoles. This is also the subject of the principle of relativity, according to which physical processes in inertial systems run in the same way.

But what is a different system? Every visible object. There is always a point of an object closest, another farthest to the eye – so deformed perceived if it moves. However, the effect is not noticeable in our immediate environment at the low local rates.

So it is that a certain object in each system must have the same dimensions and there are the same time intervals like in all other systems as uniform global time. However, any observation of a

task in another system, in particular at extremely high speeds relative to first require a Lorentz transformation before being interpreted in the own system. That was the reason for the introduction of the invariant Minkowski spacetime.

So far, the considerations were only kinematic processes without masses, forces and energies - in contrast to dynamic the assumed adipoles of earlier chapters forms an ether with completely different properties now a coupled with the Adipole-lattice as reference system. Again all matter-free points a far cry from heavy masses are equal.

Moving masses displace adipoles. Only a rest mass m_0 is possible when the body is in a system that is attached to the Adipole-lattice. Then the velocity $v = 0$. Relatively moving masses affect the Adipole-grid but this a non dissipative movement because of anti-gravity. If the particles gains mass, then always existing H-particles decay, enlarge the mass and also gravity of the body.

Normal relative velocities compared to the speed of light are low, even between objects of the galaxies speeds are not greater than 1000 km/s. In such systems the masses of individual bodies differ extremely little from each other. In high energy particle physics, this effect is always to be considered.

In an idle system there maybe two identical copper cubes. The bulk of the rest one is with s_r the density

$$M_r = s_r \cdot dV = s_r \cdot dx \cdot dy \cdot dz$$

The moving one seen from the rest system is

$$M_b = s_b \cdot dV' = s_b \cdot dx' \cdot dy \cdot dz \quad dy=dy'=1 \quad dz=dz'=1 \quad \beta = 1/(1-(v/c)^2)^{1/2}$$

The second may be accelerated to a constant speed. Its expansion in the direction of movement appears shortened. In both cases, the edge in the x direction contains the same number N of copper atoms. Therefore the distances between N^3 atoms must be shorter. Is this possible?. Because moving only in x-direction dy and dz can be of any length. That means a power of compression is proportional to $dy \cdot dz$.

For an observer in the idle system the mass must be the same, because at first he transforms the length dx' using the factor β and gets dx and also the distances of atoms are not changed. Therefore also the specific weight and so the mass. A photo, made with his camera, and the body in reality are different according to SRT.

In the presence of an ether containing containing H-particles reacts with the body in motion. with their decay providing the g+g- of weight gain, a+a- for the increase of the associated gravitational force. However, as is characteristic for the SRT, these effects are taken into account only at very high speeds. In Desy - ring accelerator electrons were accelerated to almost the speed of light. The resulting mass was around the 50,000 times the rest mass. Purely mathematically the particles grew, the number of particles of $1.7 \cdot 10^7$ to about $8 \cdot 10^{11}$, the particle diameter of $2.4 \cdot 10^{-21}$ m to $8.8 \cdot 10^{-20}$ m.

The converse is: If there were no vacuum in the H- particles, so the vacuum would be really empty, so only kinematic shape changes, but which is virtual. Only the existing "ether in the form of H-particles causes the variability of the composition.

Here is helpful, the extensive experiments of Kaufmann among others for determining the mass of electrons (m_0/m) to be regarded as a function of speed in relation to v/c about 100 years ago. Only for $v = 0$ in the "adipolssystem" the rest mass m_0 exists. Every moving body in this system already has, however, a coat of adipoles and thus a larger mass.

In his graph the origin at any v/c and corresponding mass on the graph shows, that until $v/c = 0,3$ values for m is almost unchanged. Further acceleration of this electron requires a greater force. It is proportional to the tangent slope of the graph, which is best described by the " Lorentz -Einstein equation ." But in cosmology as well as in everyday life speeds are much smaller than the speed of light ($v \ll c$).

Here an analogy from everyday life: An airplane (aircraft carrier!) starts against the wind in order to achieve a maximum relative velocity between the wings and the flowing air. Then the necessary buoyancy is reached after a short path in the system of the runway. Could an airplane take off at a relative speed of 100 km/h a stationary observer would see the aircraft as a helicopter. The force F to overcome the air resistance is proportional to v^2 . The observer in the rest frame sees the velocity $v = 0$, for him the push should be zero. Based on the system which is coupled to the airplane, the resistance must already be large. The driving force is for the compensation of the loss against the constantly occurring increasing friction. To accelerate the aircraft, it must, because there is already a large dynamic pressure, be greater than only the compensation force. This depends on wind velocity.

Or: In stormy weather it is difficult to keep a firm footing. If you now start against the wind, a greater force is required than without wind.

In an adipolefeld, otherwise matter-free flat coordinate system mass be m_0 . Moving relative to this system the mass by attaching $g+g$ - larger and the ring of gravitons is equivalent bigger. With masses of the earth, for launching a rocket, the energy demand depending on the direction also is be different: Again, Einstein's principle of relativity is questioned . However, even then you have like the electron v/c greater than 0.3 , an unknown macro body speed .

To determine the equation of motion is a relativistic transformation by means of the representation of the space-time coordinates in Minkowski space. It follows the four-velocity and from this by multiplication by m_0 the four-momentum .

Because to the abscissa $v/c = 0.3$, equivalent speeds by about 100000 km/s, the mass does not change much $m = \text{const}$ can be applied m_0 , which is equivalent to neglecting the already present kinetic energies in slow moving systems towards an adipolesystem.

This leads on the energy - momentum relation to

$$E = m \cdot c^2$$

with

$$m = m_0 / (1 - (v/c)^2)^{1/2} = m_0 \cdot \beta \quad \text{with } \beta = 1 / (1 - (v/c)^2)^{1/2}.$$

From here the mass is generally divided into rest mass m_0 and relativistic mass m and the kinetic energy becomes

$$E_{\text{kin}} = (m - m_0) \cdot c^2.$$

The Newtonian law of motion

$$K = d/dt (m_0 \cdot v) \text{ is then}$$

$$K = d/dt (m \cdot v),$$

where m itself is a function of v as above (7) .

Bucerius / Schneider (8) specify the assignment of β for m_0 arbitrary because "empirically hardly provable". It is the reaction with the H- particles of the ether and a particular case of small particles and high speeds result in heavier masses. But if the rest mass is maintained, a representation of

the equation of motion form-invariance is not possible. The kinetic energy of the SRT must be determined by the ether.

Thinking about the time

The considerations presuppose constant Adipole density in the considered space. But what if the density is variable? Increasing density means greater influence constant and therefore smaller speed of light. A light beam is diffracted. The quantity v/c is greater than or less altered by the speed of light, whereby the operating time of a fast system is varied.

Dividing the universe and mentally taking for each sub-volume another Adipole-density, so apply to them in different light speeds. Two inertial systems in the separate volumes are connected by special Lorentz transformations. Again, in each sub-volume from a metaview there are no different time intervals. The same for the other system pairs. This means the density of the room gravitons determines the lapse of time in this space. Because it varies, one can speak of time running smoothly in the entire universe time as it was for Newton. Instead of a time transformation, the transformation of a time interval is clearer.

The factor v/c leads in adipole-systems with variable v to SRT, with variable c to ART.

According to this idea, the time course in the universe is a function of the local mass distribution, but is uniform because of the constant Adipole-density within the bubbles over wide ranges.

Now there are about in the vast bubbles because of the equal distribution of adipoles resting inertial frames, but overall not fixed (galilei transformation), empty room with a constant time course of the universe.

The adipole areas stretch constantly and the speed of light is steadily increasing. The local low frequency variations in the background radiation thus allow other interpretations. Since the size of v/c in addition the time and length of the SRT transformations spacetime is distorted and thus creates a different metric.

The observation Eddington during a solar eclipse showed a deflection of the light beam, when tangent passing the sun. Thus the Adipole density must be greater in the vicinity of the sun, and the same applies to all masses. However, since the propagation of light is seen as a straight line, the impression of a deformed space, ie the description of the room as in general relativity theory (ART) results. In extreme cases, the mass would have to capture the light, as it happens at the Black Hole.

Assuming - as is obvious - for Adipole a concentration gradient around each mass of, including that of Pössel (9) lightwatch described will measure height dependent, with the orientation to the radius of the sphere mass leads vertically or horizontally to different results, as in radially the concentration is not constant. Which can also be found in the dependence of the speed of light factor γ , which transforms the operating time in the STR.

Considerations about the Hubble diagram

The Hubble diagram combines the results from the Big Bang escape velocity with distance from the observation point. The model described here allows a different interpretation:

By resolution of black holes and emission of H- particles and their subsequent decay in space, new matter and Adipole and thus new bubbles are created.

The resolution of the SL means the formation of a negentropy, so in total an entropic cycle arises, as - for far longer periods of time - as a result of the Hawking - Bekenstein radiation is considered (condition for an eternal existence of the universe) .

Bubbles can only expand. In space, away from the masses, are as a carrier of electromagnetic radiation before only Adipole whose concentration varies surely only slightly depending on the age of the bubble.

The light from a distant visible radiator meets unaffected by matter on the ground-based observation instrument. Here, the beam several bubbles with different Adipole-concentration and thus the speed of light happens in parts.

If one takes for the universe to a Euclidean static space, then the distance to the observed object in time is constant. Then the variation of the sum of all distances must equal zero at a constant distance. This is only possible if new bubbles arise, old ones pass away. And this is possible only if new bubbles grow in the old inside.

It is believed that the different areas show density jump. Leaks from the first and second entry into the bladder were imaginary emission or absorption points. From the analogy between acoustic and light-ether in the chapter "Michelson" followed

$$\Delta n/n1 = (V1 - V2) / (C - C1)$$

Because of the expansion always $V2 > V1$ and so Δn is negative. With respect to the incoming radiation from any bubble emerges red-shifted wavelength. This applies to all subsequent bubbles. Thus, the measured frequency difference is

$$n (\text{measured}) = n (\text{issued}) - \sum (\Delta ni)$$

Δni as a change in frequency of each void. The distance between two points can be arbitrarily small. Thus, the observed redshift is to be interpreted, which thus means no expansion of the universe.

Since it is not assumed that in all directions the same number of bubbles is cut in space, they are also different old, who cannot be "apparent expansion" isotropic and homogeneous.

Another result: Two equally distant from Earth objects can have very different redshifts. They are equal to , if it is almost equally heavy stars, but be very different when an object is very high mass or even a black hole , because in the latter cases occurs in addition to the outlined above redshift because of the extremely large Adipole-density and the associated reduction in the speed of light another $\Delta n/n1$ added . Such a case has been known for years: A heavy object drawn from a lighter weight permanently, making it much more difficult and already is. The redshifts of the objects located close to each other are very different. According to current interpretation different redshift means different escape velocity. Other interpretations are therefore firmly denied (opposition to Halton Arp) .

Conclusion is: Resolution of black holes are the cause for new matter again and again and the formation of new forces, dust clouds and star (maybe even galaxies). But then space and time are - for people well be intangible - the given eternal stage. The sum of the individual redshifts is a measure of distances, not for the escape velocity. However, the signals with increasing distance (deep field) more faint. There is no room for inflation and Big Bang.

What could be even longer exposure times of the Ultra Deep Field program bring? In the case of an infinite expansion of the universe would have (like the Mandelbrot set) repeatedly self-similar images appear. In a finite universe would have a further enlargement lead to black images.

If you ask a pilot and a passenger car driver for the distance between Frankfurt and Rome, then the pilot takes a measuring tape, draws it on between these cities and calculate by means of scale. A car driver, however, uses a road map, adding the information in stages. His nomination would of course be greater, because he would have to take into account the topology of the surface.

Which route selects a photon emitted from an extremely distant galaxy? The large voids reduce its frequency, the denser regions of adipole concentration enlarge its way (analogous to the geodesic ART) into observation instrument, as Eddington showed during a solar eclipse. Even Einstein rings are evidence. Therefore, the light intensity must decrease according to the optics. The Hubble diagram of the corresponding measurement point should be above the line, which, according to current interpretation of an increasing escape velocity and thus expansion rate of the universe means (Perlmutter and others).

About the " magneto- mechanical anomaly of the electron "

The classical quantum theory found for the magnetic moment of the rotating electron by an amount of 2 Bohr magneton . It was the idea that on a rotating sphere, the electric charge is distributed uniformly on rotation provides the necessary circuit current.

The Dirac theory gives as the gyromagnetic ratio (for special effects by photon impact) slightly corrected factor of 2 , and states so that the electron is an indivisible elementary particles with spin $\frac{1}{2}$. In the present model, the electron from the individual particles is fixed in a octahedral structure, which rotates in fixed structure about an axis. The z axis is the axis of rotation for the sake of simplicity.

Although there are only four circular areas with radius $a > 0$, are six angular momenta $l = m * \omega * a^2$ are counted with the argument that the rotation axis soft only minimally from the z- axis decreases and the angular momenta are of the same size, which results in has that the rotational velocities for the particles in the xy plane compared to those of oktaederpics behave like $(\omega_1/\omega_2) = (a_2/a_1)^2$. Consequently, the structure of the particles would be by no means rigid. The question remains to what extent the rotating six particles influence each other.

For each of the six circular areas of the circulating current J amount of charge Q is divided by orbital period T. With $Q = 1/6$ of the elementary charge, $T = 2\pi/\omega$ and the torque of the individual particle $l = m*\omega*a^2$ (total angular momentum $L = 6*l$) and $m = 1/6*m_e$ follows for the magnetic moment of the electron $[(e/6)*\omega/(2\pi)T]$

$$M = 6*(J*a^2*\pi) = 6*[(e/6)*\omega/(2\pi)*a^2*\pi] = (e/(2m))*6*l = (e/2m_e)*L$$

In order to

$$M/L = e/2m_e = m_B$$

($m_B =$ Bohr magneton) , which is not surprising , since now present circular orbits in a composite system for the components. So this picture does not lead to e/m_e , the anomaly is determined for the electron classic for M/L .

With spin $\frac{1}{2}$ then yields the product with the gyromagnetic factor of 2 by the Dirac theory the value 1, an indication that a composite particles. The result according to Dirac, however, requires that a point-like electron contains all the charge and mass, and thus is rigid, which is hard to imagine.

From the classical solution followed that the circumferential velocity of the electron is supposed to be three hundred times the speed of light, which made a rotating electron as a ball doubtful.

The approach of a rotating octahedron appeared interesting because now the table in chapter "Urteilchen" following negative charges can be gradually replaced by positive and thus the moments for quarks are determined, which can be viewed by position changes isomeric particles.

For Higgs

The Heavy Ion Research finds other elements beyond uranium. To this end heavy atoms are ionized in accelerators accelerated up to 20% the speed of light and brought into collision with each other, wherein in addition to the variety of particles are detected as particularly serious compound-particles elements having a higher atomic number. So far this elements have been demonstrated up to atomic number 118 from the group transactinide.

All these elements are unstable and of short service life. However, it is located in the so-called area of the island of stability longer living elements. The stability depends on the number of protons and neutrons in the nucleus. The latter indicates that the nucleons in the nucleus in the form of certain well-ordered structures, an analogy to the electron distribution in the atom, where the noble gases have a stable structure. Criteria in the assessment of the responses are certain conservation laws.

What is the particle model serving as process?

Instead of relativistic mass [$m = m_0/\sqrt{1-(v/c)^2}$] has been added during the acceleration a mass increase due to the fact that the particle in its orbit more impinging H⁻-particle splits, the g⁺g⁻ accumulates and magnifies a⁺a⁻ in the outer space. At constant speed the flow around remains constant.

Similar processes are to be expected when two protons with much greater speed meet: you have won on their traversed path on a large scale in mass and gravitational effects. In analogy to the formation of elements by heavy ion, structures will be built here, which are more durable in certain masses and be seen as new particles. Can the Higgs particles to be declared as a proof of the model? Then should - as in the preparation of new elements - with increasing speed always new particles (islands and stability?) may be possible. Thus, the real existing Higgs should not cause the formation of masses - much more should bring "aether particles or H⁻ particle" the explanation.

It is the layer thickness for g⁺ g⁻ according to the table above 0.002 (in 10⁻²¹ m).

Diameter of the u⁻-quark 2.2 (in 10⁻²¹ m).

A normalizing factor of 0.235 (determined for u) to (radius)³ and mass correlation.

Details of columns 1-4 (and 8 as the mean) from Wikipedia.

Name Mass / MeV/c² Number of Layers, radius D (10⁻²⁴ m), Volume 0.235*D³, mass/MeV/c²

		<u>Masse/MeV/c²</u>	Number of layers	radius D(10 ⁻²⁴ m)	Volume 0,235*D ³	<u>Masse/MeV/c²</u>
Up	u	<u>1,7 bis 3,3</u>	0	2,2	2,5	2,5
Down	d	<u>4,1 bis 5,8</u>	300	2,8	5,15	5
Strange	s	<u>101 + 29/-21</u>	2700	7,6	103,05	101
Charm	c	<u>1270 +70/-90</u>	7500	17,2	1194,47	1270
Bottom	b	<u>4190 + 80/-60</u>	12000	26,2	4221,77	4190
Top	t	<u>172000 ± 1300</u>	44000	90,2	172270,14	172000
			80000	162,2	1001712	???????
Higgs			32000	66,2	68102,71	136205

Explanation of table: After the addition of further g+g- particles, the diameters of the new D(particle) = D (up) * 0.002 + n where n is the number of layers . Column 6 is of a dimension D³ for the particle volume. For the u-quark was set a normalization factor mass and D³. Then, to reach for the other quarks equality of mass numbers with the volume value, the layers have been adjusted.

If there were a fourth generation quarks (penultimate row), then would be the mass of the assumed hypothetical number of layers to 80000 in the order of TeV.

Two top as tt' quarkonium have layers, each with 44000 a total mass of 344GeV, sufficient to decay into Higgs (last line), and other particles.

This includes the answer for the question in Chapter Michelson "What is kinetic energy".

Reflections on a quantum gravity

With the described adipoles and gravitons electric and gravitational field lines are material chains of such particles, they drag when moving in space their field line system with them. Similar to the iron filings on the glass plate are moved magnetically.

When electric field lines move adipoles, because of their polarity also neighbors rotate, which is described by a magnetic field.

Gravitational field lines are compressed adipoles or electric field lines according to the model described above as pairs. They influence due to the structure described by transverse forces are little or not at all, because the four-component-particles are electrically neutral and antigravitative.

If in the two fields field-lines as spatial coordinates, so also have electric fields in the coordinate systems of variable orientation, as it causes locally the type of metric tensor.

In electrodynamics Euclidean coordinates as imaginary frameworks with the charge locations and directions of movement are sufficient to describe all the processes with the Maxwell equations .

In parallel now also gravitational processes in Euclidean spaces are describe when gravitons are the field lines. Several fixed or moving in Euclidean space masses lead by vectorial addition of the local gravitational forces to a total force in front of a Euclidean background.

Such treatment of gravitation could be an approach to quantum gravity. The discussion of the various backgrounds of both theories quantum mechanics and the ART, then ceased to exist in the future.

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The thing with the infinity.

Konrad Lorenz , mutatis mutandis, said: The monkey sees the moon as well as we do, but he will never understand what that is.

Could we say analog about people: see the vastness of the universe, but will never understand what that is?

Why our desire or will, both time and space limit, with each start and end? Stirring, therefore the desired ideas of the Big Bang and the beginning of time? In the Friedmann solution of a cycling universe attractive force is greater than the eternal expansion? If even the Big Bang fixes a beginning, why exactly zero long but defined ahead of time? And when does it end? And yet again some theorists want to penetrate times before the time of the Big Bang or create multiverses beyond the Universe.

The parable of monkey and moon is - it seems - not so far away.

For Kant time and space are categories of thought "a priori". Konrad Lorenz accepted it only after his discoveries about innate behaviors that occur immediately after birth and also are necessary.

Ernst Haeckel defended the thesis that ontogeny, the development of the individual, is a short repetition of phylogeny the evolutionary of all animals. He knew nothing of genetics and disclosure of evolved chromosomes and its presumption would not be accepted as right.

Today it is known that the fertilized egg already contains the "architectural drawing" for the finished individual. And yet the ontogenesis of multicellular creatures is the general way about morula, blastula, gastrula, etc. Just everything at the right time. There must also be a "calendar" of the order of the respective expression of the genes forming part of each step. But then the question arises: When those categories of time and space were created in the embryonic stage?

About Jean Piaget is said that he gained significant insights by carefully observing his children. And these parents can watch while the exhilarating phase of the first years of life of their child.

Immediately after birth, the sight of the eyes wander independently confused around the room, which initially triggers fears. Soon the directions of both eyes are coordinated so that they produce an overall image. As is known, the angle between the directions causes the sensation of depth,

Funny act the abrupt movements of the four limbs that feel physically after the previous narrow now the space. Raises baby already the head so it will start in the prone position to crawl, so learn the xy-plane of Euclidean geometry. Now is the time to watch, because baby has not yet recognized the third dimension and will crash over the edge of the wrapping. Infinitely often the Teddy must be lifted, baby throws out repeatedly over the edge of the stroller. Only when the tablecloth is the climbing rope for the first ascent, baby will perceive the three-dimensional space. Thus, it designs and experiences life. The Hilbert space or the quantenloop-dimensions it does not take as long as it does not want to become a physicist.

Anyone who has ever experienced the tapping on the edge of the bathtub with head submerged, will gain an impression of how baby has heard the heartbeat of the mother, coupled with temporal rhythm. Tachycardia of the mother, often triggered by fear or happiness, baby will also learn and adapt this rhythm, accompanied by oxytocin or adrenaline? Anxious children of anxious mothers?

If you ask about someone in Hamburg after the removal to Munich, he is mentally dissected in routes to Hannover, Kassel etc. If you ask him to the edge of the world, he will adopt a faraway point and then mentally inflict as great a distance and keep repeating. There are results, as they are comparable to the Hilbert hotel or Cantor's Aleph. The latter are not very instructive, but thought as prostheses only.

If you imagine a finite universe, the immediate question will be: And behind it? We understand neither the finite nor infinite. So we must recognize the limitations of our knowledge. And so one can accept as axiomatic the idea of infinite magnitude of space and time as well as Newton. What results will come when you extend the Ultra Deep Field experiment, by again setting a dark spot in these photographs and prolongs the exposure time significantly? However, the redshift is extreme because of the many bubbles to be passed. Otherwise, self-similarity would be likely.

Beginning of space and time with a big bang are wishes to avoid this question, but they are far-fetched for each logical and critical consideration of our ratio.

If one recognizes this, so humility and knowledge of our limited knowledge ultimately is the greatest knowledge. Is the assumption of infinite expanse of space alone so unreal?

And yet we are to recognize this world and to learn to survive. But that can be found throughout the animal kingdom. Even the paramecium flees when after addition of a drop of acid locally into the water the pH value increases. Sensation, here is what we call the sense of taste with us.

Analog things are for the time. Only theology does God reign for ever and ever - an axiomatic belief. But this is not physics.

Our reason wanders around like an ant on a sphere, always on the lookout for a beginning and end, but for a metaview we know about the futility. In such a universe, the model described above finds easily his place.

So what?

While in Chapter Bastelstunde on the basis of partly known facts other models have been developed, in this chapter imaginations are dominant.

It should be remembered that all these statements are based on a hypothetical model. That is satisfactory to create an image and give answers some open questions.

That is always considered as challenge to opens new directions for further questions . But there remains the question of the origin of all matter.

Whether particles or forces, fermions or bosons, all particles are now reduced to the hypothetical H- particle. But how do these fit into the model itself?

As it breaks down into components, it should be placed together or merge into one unit, the binding energy is small. But these particles are separated or do they form a continuum without any interaction? Probably separated, otherwise would arise immediately the question of who or what portions.

The H decays depending on the type of excitation directly into the required components Adipol or graviton. Parallel the $(g+g-)$.

Skips an electron in the atom system, that degrades the neighboring H in adipole and neutrino. The Adipol starts the chain described in order to immediately regress into an H after disclosure of the energy pulse with the neutrino. The transported pulse causes the same operation in the next H, and thus the chain continues. This is done with speed of light.

A n electron emitted from the atom absorbs $(g+g-)$ to the pulse-dependent mass and stores the resulting $(a+a-)$ as gravitation force.

An analogous process is accepted for more than a century ago: In a copper conductor the charge-carrying electrons flow very slowly, with AC in the average not at all. While an electrical pulse is transmitted at the speed of light. The copper conductors only represents the container for the electrons that would otherwise be scattered in space because of their same charge.

A regression occurs in semiconducting hole conductors. Also, there occurs the momentum transfer speed of light. Transferred to the atomic emission this means the formation of a $(g+g-)$, and the atom at the end point, a release of the chain when the $(g+g-)$ collides with another particle.