A particle is in relationship to the other particles of finite quantity in the receptacle cosm. If it takes energy, it is received radiant energy $\Delta E_{(n)}$. In first regard, this event affects the reduction of the velocity of movement $\Delta v_{rot(n)}$ on the orbit of the way with the symbol Δs as on the decreasing kinetic energy ΔE_{kin} or the acceleration work ΔW_{kin}. In second regard, the height of orbit motion $\Delta R_{rot(n)}$ will be larger (the reason is: the smaller the velocity the less the relatively free orbit is curved in the charge-free vacuum, the larger is the orbit radius). From this process results the increase of potential energy ΔE_{pot} or the stroke work ΔW_{pot}.

A particle never moves on a straight line but always in Planck's relationship on Einstein's curved orbit. That radius is R_{rot}. The magnetic field strength is concentrated to the center of the orbit $R_{rot} = 0$. In this respect, the drawing of orbit in every differential dR has a center of force in $R_{rot} = 0$, which is practically the **magnetic center** of a wave mass m_w. At first, it appears in its interactions as if it would be an analogon on the center of gravity of an ordinary particle resting mass m_o. Therefore, there is the untreated mistake of physics to the question of the corpuscular character to this day. So we find that momentum transmissions are only running over these wavequanta. The particle isn't able to scan this way. Facing to the magnetic center – the expression of the wavequantum vertically standing angular momentum or effect – the particle gets a different orbit height R_{rot} at every arbitrary acceleration. The strangeness appears as follows: With the increase of the stroke work, the diminution of the acceleration work of a particle is accompanied at the same time.

> By the fact that an acceleration work ΔW_{kin} is carried out at a particle, it learns the decreasing of the stroke work $-\Delta W_{pot}$ at the same time. Every increasing movement forms the diminution of the potential energy. The energy storage fills in the form of the energy of the wavequantum $+\Delta E_w$ furthermore. Finally, the relativistic energy $+\Delta E_A$ of a particle increases. Its cosm oscillates slower for $\Delta E_{(n)}$. Before this, the particle emits the energy surplus in the shape of radiation $-\Delta E_{(n)}$ as the real radiation energy of a wave.

The energy differences will be changed essentially at the electrogravitational particles into electrical wave-energy, converted to insignificant ratio of the charge to the mass also in gravitational waves energy or by the exchange of wavequanta (photons, fallons) bound at the electric charge-anticharge-vacuum and the electromagnetic magon-antimagon-vacuum as well as transferred at the gravitational particle-antiparticle-vacuum and that gravitomagnetic magon-antimagon-vacuum. The electromagnetic quota of the electrogravitational particles seem superficial since the electrical charge - if it is expressed as a mass - is fundamentally larger than the gravitational mass.

2.4. Relativistic Electrogravitation

Thesis:

> At present, the "Quantum Mechanics" would present the most precise result next to the reality because it is regarded as basis of the expected calibrating field theory for a union of the field theories. There wouldn't be an alternative to this kind of understanding of quanta. It isn't expected either.

Antithesis:

> Since Planck, one speaks about the *quanta,* and these aren't the "quanta" as such anyway, but the **wavequanta**, quite simple effects of the electric and the gravitationally determined magnetic fields!

With the help of the dichotomy, it turns out well in relativistic form to explain the gravitational and electrical matter and to create the conditions to make a roof above Maxwell's electrodynamics by the knowledge of relativistic electrogravitation:

1. Cosms (as primary quanta),
2. Wavequanta (in the present understanding of quanta but secondary quanta)

Planck discovered the radiation law of electromagnetic waves. From the opinion of De Broglie, one is mistaken in the assumption, particles like electrons would be a De-Broglie-wave themselves.

The moving rest mass with its momentum $p = m \times v$ (equation (2.4,2)) didn't change into radiation work with c^2 but the mass difference $\Delta m_{(n)}$ between the rest mass m_{Ao} and the relativistic mass m_A, which is able to radiate! This is content of Hamilton's operator. Moved particle or corpuscles emit an electromagnetic or briefly electrical wave at gravitational energy transitions $n \times h$ on a more down-counting standard into wavequanta. (Remark: it is a terminology problem, either one says electromagnetic or gravitomagnetic wave or electrical wave or electrition wave or gravitational wave although the reality remains equivalent.)

Those *wave splitting* one rashly called "quanta" instead of calling **wavequanta**. One couldn't know that there are actually **primary quanta** in the form of the cosms before these wavequanta. One stopped at the sign movement functions or wave functions would be "oscillators" with the wave-like change of kinetic energy of a particle vibrating in a potential pot, although the real primary oscillator – the particle itself – remained undiscovered until today. Well, the relativistic energy difference is regarded as able to radiate:

$$\Delta \boldsymbol{E}_{(n)} = \Delta \boldsymbol{m}_{(n)} \times c^2. \qquad (2.4,1)$$

Compare the mass defect to this at the relationship in atomic nuclei $\Delta \boldsymbol{m}_{(n)}$ and the change of the relativistic mass of the electrons in the atomic shell becoming explicable to this in a relativistic unit (see section 2.11. and 4.9.).

The velocity v_{rot} plays a *special relativistic role* of matter. It cannot be separated from the radius of curved movement R_{rot} that role is to see as *generally relativistic* (cf. section 1.1.: clock-motion-order and clock-hierarchy-order). In this respect, the unity of rotation velocity and rotation radius is to understand in the wavequantum condition of equation (2.12,8). Actually, the velocity decides about the dimension of relativistic energy E_A at last, which Hamilton part of $\Delta E_{(n)}$ is the indicated radiant energy by the relatively resting observer.

If one seems to arrange the same kinetic energy of a quantity of electrons, they have idealized well the same velocity $v_{rot(n)}$ in their beam. However, nobody can comprehend the taken curvature. Just this bow with the current radius $R_{rot(n)}$ decides about what level n has taken. At first in the space, hardly a condition meets the choice, because every arbitrary position of the curvature shouldn't be carried out.

Every special electron orbit, which is determined by the rotation velocity of electrons $v_{rot(n)}$, by the relativistic electron mass $m_{A(e)}$ and by the electron rotation radius R_{rot}, forms out (in the measurable foreground) an electromagnetic and a gravitomagnetic wavequantum, $\bar{\mu}$ and $\hbar$, which is following Huygens' principle. Therefore one indicates the variety in spatially random distribution at the diffraction of the wavequanta in which their magnetic centers of gravity interact with the indicator and in which that fact leads to the mistake of the "position probability of the particles" (see section 2.11.). Although it is just the *Interaction Probability* of the wavequanta.

We only add a restricted digression into "Quantum Mechanics" terminologically corrected to the *wavequanta theory* now, so, on the one hand, its connection to the real cosms – the particles – is settled, and, on the other hand, its opinion mistakes are removed about "corpuscle character" of light and of the De-Broglie-wave of "particles". Then the "Quantum Electrodynamics" is a ***Wavequantum Electrodynamics, WED***. It is able to connect the our new theory with facts and numbers, but not according to the old terminology. One can see it now as a Wavequantum Gravito-Dynamics, WGD.

With

$$\boldsymbol{m}_A = \boldsymbol{m}_o / W_{SRT} \quad \text{or} \quad \boldsymbol{E}_A = \boldsymbol{E}_{Ao} / W_{SRT} \quad \text{(/Q 12/, page 277)} \qquad (2.4,1a)$$

the symbol $\boldsymbol{m}$ is a vector of the so-called relativistic mass - here it is the decelaration mass - in relations to the other observer masses, also signed with the symbol $\boldsymbol{m}_A$, if it is relativistic energy $\boldsymbol{E}_A$. For the absolute relation in the vacuum, we put the index "v" at its location to be made always sure. In the midst of the matter, we however indicate just relativity and so we could save the index. For observers moved along the reversion of the relativity, its moving mass or its energy of motion is valid in the form:

$$\boldsymbol{E}_B = \boldsymbol{E}_{Ao} \times W_{SRT} \qquad (2.4,1b)$$

The mass $\boldsymbol{m}$ really consists of the part of measured resting mass $\boldsymbol{m}_o$ or differently marked as $\boldsymbol{m}_{Ao}$ and of a relativistic part $\Delta\boldsymbol{m}_{(n)}$, which is the main fact of the real radiation energy $\Delta\boldsymbol{E}_{(n)}$:

$$\boldsymbol{m}_A = \boldsymbol{m}_{Ao} + \Delta\boldsymbol{m}_{(n)} , \qquad (2.4,1c)$$

$$\boldsymbol{E}_A = \boldsymbol{E}_{Ao} + \Delta\boldsymbol{E}_{(n)} , \qquad (2.4,1d)$$

In this case, the relativistic energy E_A can be increased or decreased by increase or decrease of corpuscle velocity within the Hamilton equation (2.4,37), where the wavequantum energy E_w is increased or decreased. While the relative velocity of zero (E_w is going to zero), the same equation but gives a second variant with the decrease or the increase of the usual resting energy E_{Ao} – like the mass defect shows it in the atomic nucleus. Now the relativistic energy $E_A = E_{Ao}$ is decreased from $\Delta E_{(n)}$ to the nucleon energy E_{AN}:

$$\boldsymbol{E}_{AN} = \boldsymbol{E}_{Ao} - \Delta\boldsymbol{E}_{(n)} , \qquad (2.4,1e)$$

This presupposes that the rest energy changes without that there is a movement of the corpuscle opposite the vacuum. Naturally, this statement is wrong, because the particle executes a rotation despite its apparent external rest: the microcosm is delimited from its oscillation sphere. If two microcosms dive into each other, then it surrenders to the **phenomenal rotation**. It says that in the outside no movement can be observed while at the inside the internal masses M_1 and M_2 make a relative rotation to their outer masses m_2 and m_1. Then it gives – as solved in sections 4.6. and 4.9. – the movement dimensions relatively to the vacuum. From this process, the decrease of rest mass arises and also the radiation of the mass defect $\Delta E_{(n)} = c^2\ \Delta m_{(n)}$ with entering into the bonding. At the first time, a uniform explanation of the irradiation of energy is possible here from the change of the speed of the cosm relatively to a second cosm and to the relationship of vacuum at a Planck level of $n < \infty$ down to $n = 1$.

In 1924, De Broglie announced the special character of the moved gravitationally solid corpuscles ("matter waves") after their indication by decelaration. Here the mistake is found: from the beginning of the observation of the discussion about the question "corpuscle or wave?", one made an analogy between the shock of momentum masses m_w of magnet fields and the shock of resting masses m_o. Both should mean the corpuscular character. ***One apparently didn't suspect that a magnetic field is closer to the wave(quantum) than a particle of resting mass to the magnet.*** Therefore, one could not know the necessity to calculate the momentum mass –, which is a wavequantum mass – to the wave instead of covering it with the resting mass together in the concept "corpuscle". Currently, one stands in front of this disaster: that assumed "dual nature of corpuscle and wave" does not exist, but the **Nature of Wavequantum (magnet) and Wave** is the real consequence of logic and *unity*!

De-Broglie-wave is nothing else than the expression of a magnetic field. Every photon and also every fallon represents the spreading of an electromagnetic field or a gravitomagnetic field. We generally described the magnetic fields as dipole character of the wavequantum mass m_w through this the momentum mass m_w is given. The effects nh of momentum masses m_w we collect under the concept of wavequanta $n \times h = m_w \times c \times \lambda_w$.

According to Huygens principle, the hit of a wavequantum forms a variety of elementary waves (wavequanta). We explain this as follows:

Every wave is the extension of a single wavequantum at least or of several wavequanta over vacuumcosm pairs.

A magnet field is transferred in vacuum, where the fields are compensated and able to be magnetized. A single dipole is the so-called "quantum" of the wave. A variety of these dipoles then forms the "quanta" – now called ***wavequanta***. Either, each substance already contains itself for a variety of wavequanta (of magnetic fields) or a variety of charges. If a wavequantum meets a substance, the principle of the inductive causality works. The moved magnetic field induces partially elementary currents at the cargo loads, which are forming new magnet fields – those partially elementary wavequanta. It pushes magnetic systems of charges into a motion by forming of elementary wavequanta again (cf. sections 2.3. and 2.5., pages 307...).

The indication of “matter waves" in the diffraction grating was not an indication of a radiation but the measuring of one of the only dipole, which is already sufficing for this at least, of a single magnet field, of a single wavequantum. That wavequantum energy E_w is bound at Hamilton equation (2.4,37): $E_A^2 = E_{Ao}^2 + E_w^2 = E_{Ao}^2/(1 - v^2/c^2)$. It cannot be the same as the radiation energy $\Delta E_{(n)}$. Consequently, this equation hits only the photons, because in Hamilton equation no resting energy E_{Ao} has to be taken into account of them:

$$E_{A\gamma} = 0 + E_{w\gamma} = \Delta E_{(n)} \quad . \tag{2.4,1f}$$

This is a well-known fact, but now it has not led to the clarification of the terminology chaos in "Quantum Mechanics". The momentum energy $E_{w\gamma}$ of photons immediately is like the radiant energy. Really, they are wavequanta nh, therefore, dipoles and those functions like the wavequantum masse $\pm m_w$, which De Broglie formulated:

$$\lambda_{w(n)} = c / f_{w(n)} = n \times \boldsymbol{h} / \boldsymbol{m}_A \times \boldsymbol{v}_{(n)} = n \times \boldsymbol{h} / \boldsymbol{p}_{(n)} \; . \tag{2.4,2}$$

$$\boldsymbol{E}_{w(n)} = n \times \boldsymbol{h} \times f_{w(n)} \; , \tag{2.4,3}$$

In which are:

$\lambda_{w(n)}$	wavequantum length or “wave length";
$f_{w(n)}$	frequency of wave potency;
$\omega_{w(n)} =$	$2\pi \times f_{w(n)}$ as angular velocity;
$\boldsymbol{v}_{w(n)}$	vectorial magnitude of the vacuum velocity of resting mass; always a rotation velocity v_{rot};
c	amount of the gravitational wave velocity in the vacuum;
$\boldsymbol{m}_A$	relativistic mass or antimass (of antimatter);
$\boldsymbol{E}_{w(n)}$	relativistic wavequantum energy;
$\boldsymbol{p}_{(n)}$	relativistic momentum p_A (wavequantum momentum p_w) and
$\boldsymbol{h}$	Planck’s quantum (Planck’s constant).

Planck’s quantum (Planck’s constant; Planck’s effect quantum) is a natural vector ***h***. If a positive mass (it is also a vector) rotates in an orbit with a positive direction of the velocity (it is a vector, too, curved to the right), they form the positive vector of the amount of h in observer direction seen as curvature to the right. This vector h then forms the direction of the elementary oscillation period.

Neither photons are particles nor they have any particle character. They only form the phenomenon of a wavequantum that naturally can make interference with itself at the dual-slit, too. We see Planck’s quantum as a *vectorial reality*, because it has to be distinguished into ordinary matter as well as to antimatter: (/Q 12/, page 178)

$$h = 2\pi \times \hbar = 6.626176 \cdot 10^{-34} \text{ Js} \; ; \tag{2.4,4}$$

n natural number; n = 1, 2, 3, ... theoretically ∞.

$$\boldsymbol{\hbar}_{(n)} = n \times \boldsymbol{\hbar} \quad . \tag{2.4,5}$$

Further equations are valid:

$$R_{w(n)} = c / \omega_{w(n)} \qquad (2.4,6)$$

$$R_{w(n)} = n \hbar / \boldsymbol{m}_A \times \boldsymbol{v}_{(n)} = n \hbar / \boldsymbol{p}_{(n)} \ . \qquad (2.4,7)$$

$\lambda_{w(n)}$ – the relative wavequantum length between observers moved in vacuum - is the same as the absolute vacuum wavequantum length $\lambda_{w(n,\ vacuum)}$ at the same wavequantum level.

Thus, a special wavequantum length $\lambda_{w(n)}$ or a wavequantum amplitude $R_{w(n)}$ is depended on the level n. The dependence is stipulated by the wavequantum condition that we have explained as wavequantum momenta in this theory. While the rotation radius is valid for the observer moved along with equation (2.4,1b), the wavequantum amplitude is valid for the resting and indicating observer:

$$R_{rot(n)} = n \hbar / \boldsymbol{m}_B \times \boldsymbol{v}_{(n)} = n \hbar / \boldsymbol{p}_{B(n)} \ . \qquad (2.4,7a)$$

In this equation, the magnitudes of moving mass m_B and moving momentum p_B are not measurable directly. The momentum p is always only to understand as a part of the real angular momentum $\boldsymbol{I}$ at which one has forgotten to include the objective curvature of spacetime over the wave amplitude R_w:

$$\boldsymbol{I} = \boldsymbol{m}_A \ \boldsymbol{v}_{(n)} \ R_{w(n)} = \boldsymbol{p}_{(n)} \ R_{w(n)} \ . \qquad (2.4,7b)$$

The velocities of extending effects based on wavequanta are wave velocities. Consequently, they are the same as vacuum light velocity c. The wavequantum velocity $v_{w(n)}$ and the rotation velocity $v_{rot(n)}$ of mass at one single particle are the same to $v_{(n)}$. We put the following principle into the foreground:

Relativa only exist on base of absoluta.

Today physics uses the model of electric or gravitational *charge as a flowing something*, because it distributes the electric elementary charge on the “surface” of the electron thought as statistically spherical (with this, it thinks to distribute an elementary charge just like quantities of them can be added in the course of “Quarks Theory"). There, the charge would rotate and form the electric dipole momentum (the electromagnetic momentum). Such a charge cloud of diffuse and chaotic manner can be shared and enlarged arbitrarily. Model adaptions made it possible to achieve right results.

We think about it as follows:
The real corpuscles indicated by resting masses are the same as the primary and absolute oscillators in the matter, the cosms. They oscillate constantly, ideally, synchronously and harmonically provided that they keep their movement conditions or they rest in that vacuum. Like a pendulum, they only draw in their movement opposite the vacuum (which is their absolute reference system) a wave potency phenomenon E_w – the energy of a magnet - as well as a relativistic wave energy difference $\Delta E_{(n)}$. In this cohesion, the relative motion of a particle yields the absolute value of its own wavequantum to the vacuum like of each other particle, too. In the increasing movement, the particles build up the potency of wave energy in the form of a *wavequantum*, which is almost a static dipole and which is able to overcome its wavequantum level from n = (n - 1) until n = 1.

> The center of the wavequantum with the wave mass m_w (or the wave charge e_w) does not fall together with the center of the producer of the wavequantum respectively with the center of the moved rest mass m_o (e_o)! This difference exactly is the dimension of the wavequantum amplitude $-R_w$ or its equivalent, which is the rotation radius of the particle $+R_{rot}$. The interpretation of Max Born (1882-1970) about the particle position is invalid! Any theoretical models on this building up are dropped with that (see section 2.11.).

In principle, oscillating matter forms the unity as follows:

The isolated matter in a stable particle (which is a receptacle cosm) produces the primacy of harmonic oscillation in a peculiar way. Isolated subparticles (element cosms) are actually in an infinitely high potential pot (v = c), which is a closed spherical wave: a QUANTUM (a primary oscillator, a “clock").

Movements of cosms (of particles) also reflect oscillations but which are working in a finite multiple number of open potential pots (v < c): WAVEQUANTA, which taken together within a closed potential pot (receptacle cosm) are connected in finite relations under each other again (secondary oscillators).

If two protons in vacuum almost had the same velocity and the same movement direction, they almost had the same wavequanta relatively to the absolutum. Those two objective wavequanta are not measurable under each other, because under the given condition both protons are resting relatively. However, there is no interaction and hardly no wave energy difference. Consequently, we measure the wave energy E_w diverging to zero. It is interesting that in this process the dilations τ' of the isolated clocks of oscillating particles are not comparable, too, because they are – relatively to the vacuum – almost the same value.

Remark: the absolutely same velocity and the same movement direction is impossible, because the vacuum has a finite spherical symmetry and therefore it forces each movements onto a curved inverse course. So then, two movements never can be placed on one common course; this is forbidden by Planck’s quantum by quantizing of each movement: parallels do not exist.

In this respect, the corpuscles form out the real cosms of matter – concretely, their **ideal oscillators** in ideal medium vacuum. There are also electric corpuscles, which are not the same as photons. Today, one mixes up the concepts of corpuscle and of wavequantum. A momentum mass seemed to be reason enough to speak about a corpuscle. But we only calculate the corpuscle character to cosms and their charges or their monopolar resting masses. The dipole of the momentum mass we exactly calculate to the wavequanta, by this doing we find the logical **unity of wave and wavequantum** instead of the non-unity without logic of “particle“ and wavequantum!

Ideal oscillators are based on the ideal contrary movement force. Here only two forces are necessary, which are forming the matter in principle as contrary player. More isn’t! We know two universal forces - the electromagnetism (the electrition) and the gravitation (the gravitomagnetism). Using General and Special Relativity Theory, it will be proved that those both forces are forming all the oscillators of matter and that they are giving three world features:

First world feature:	the world of electrical interaction,
Second world feature:	the world of gravitational interaction,
Third world feature:	the world of electrogravitational interaction.
	(Electric effects are captured inside the gravitational receptacles.)

A reversion of the third world feature in the form of a fourth world feature doesn’t exist; these would be electric particles, which would carry a gravitational charge. In our conception, we sign the concept of electromagnetism simply to “Electrition" and we decide then into the following features:

- Electrition (electric as monopolar and electromagnetic as bipolar effects),
- Gravitation (gravitational and gravitomagnetic effects),
- Electrogravitation (electrogravitational and generally magnetic effects).

Some singular elemental force is nowhere! Only the largest amounts of both forces are the same at the inside of each cosm, no matter if it is an electron, a proton, a neutrino or if it is the universe itself or if it is an e. m. elementary charge e_o, especially $F_o = -1.21 \times 10^{44}$ N (see 3.2.3, page 460). The heaviest cosms of gravitational or electric quality, *gravitons or electrogravitons*, correspond to the resting energy calculated into some pair formation temperatures, which can be the highest energy in universe. They only are effective inside the closed particles. In our natural environment, there will never be such a high temperature as naturally inside of protons, electrons and neutrinos. These are typical formation temperatures of subparticles, which we do not contact directly (indirectly by forced sub-pair formations).

After the discovery of Planck in 1900, one interpreted this way: a “photon oscillator" only could stand or it could show that there is one quantum or it could only form integer multiple numbers of one quantum. They found the term “radiation energy is *energy-time-constant* h divided by period time τ_γ of the oscillation in vacuum":

$$\boldsymbol{E}_{w\gamma} = \Delta\boldsymbol{E}_{(n)} = n\boldsymbol{h} / \tau_{\gamma(n)} = n\boldsymbol{h} \times f_{\gamma(n)} \ ; \qquad \text{(/Q 12/, page 280)} \qquad (2.4,8)$$

or

$$\Delta\boldsymbol{E}_{(n)} = \boldsymbol{h}_{(n)} \times f_{\gamma(n)} = \boldsymbol{\hbar}_{(n)} \times \omega_{\gamma(n)} \ ; \qquad (2.4,9)$$

with $\Delta E_{(n)}$ as outer energy quantum of an “oscillator" and f_γ as frequency for an integer extension (2.7,4). In the relativity, we only can observe differences:

$$\Delta\boldsymbol{E}_{(\Delta n)} = \boldsymbol{h}_{(n)} \times \Delta f_{\gamma(n)} \ ; \qquad (2.4,10)$$

for example, a wavequantum leap from n = 3 to n = 2:

$$\Delta E_{(3)} - \Delta E_{(2)} = (3-2)h \ \times \ (f_{\gamma(3)} - f_{\gamma(2)}) \ .$$

PLANCK’s thinking started from the radiation or the *wave energy*. The *insinuation* of an oscillator with the concept "quantum" led to its non-correct using at the real wavequantum. Without ever having discovered the real quantum in the shape of the real cosm (micro and macrocosm), physics searched for the answer on the question of “wave character" of matter in the sense of examination of waves and their “quanta". After this examiniation, in the year 1905, Einstein found that the **electrition waves** (electromagnetic waves) would consist of such a kind of wavequanta – from photons or gamma quanta. **Electric and magnetic oscillators** – the **electrograviton pairs** and **magon pairs** as solid particles with an intrinsic “electric resting mass” (elementary charge) or with an equal magnet monopole, like we discovered them here, - *he did not discover*.

As well, it happened to De Broglie who announced the wavequanta of electron mass (really, without knowing this, he announced the wavequanta of gravitation). But he did not discover the primary oscillator at the electrons! In this respect, “Quantum Mechanics" remained a wavequantum theory and its continuing in mistaken terminology or in its later theories in the features of “Quantum Field Theories". Starting from the infinite variety of the waves, the faith in a chaos of oscillators was nursed from which an epoch determined philosophy of life was led giving the breeding ground of an epoch of error ideologies.

The *ideal oscillator* found by us here has only one basic state of stability in vacuum rest, which is continuously shifting itself by its movement in vacuum in way and time of the oscillation function (Schwarzschild’s solution, Schwarzschild, 1916).

Here we start from this cohesion:

> *The particle has to be the searched* ***quantum as the quantized cosm*** *on the base of locked ideal oscillators!* If it is moved relatively via exchange of radiation, the drawing of *wavequanta* and their *relative space order* is following.

If we start from eq. (2.3,14) and (2.4,2), wavequantum energy in the completeness of all the levels n consists of vacuum from this eq.

$$\boldsymbol{E}_{w(n)} = \boldsymbol{m}_A \ \boldsymbol{v}_{(n)} \, c = \ \boldsymbol{m}_{w(n)} \cdot c^2 \ ,$$

eq. (2.4,29) follows. Like eq. (2.13.2,1) then of wavequantum energy is valid:

$$\boldsymbol{E}_{w(n)} = \boldsymbol{p}_{(n)} \, c = \boldsymbol{p}_{w(n)} \cdot c \ . \qquad (2.4,11)$$

This way, we find the momentum mass m_w of the gravitomagnetic wavequantum – of the **fallon** - connected with the rotation of a relativistically accelarated resting mass m_A. Similar to this, the electromagnetic field forms the real electromagnetic wavequantum - the **photon -** from a rotating electric charge e_A. Only the continuation of the fields in vacuum is connected with mediators without rest mass – with the vacuum quanta. In these things, mass and antimass as well as charge and anticharge are compensated. Practically, an electromagnet or gravitomagnet without rest mass is spreading in the shape of a photon or a fallon over vacuum. Because they aren't particles, there may be no discussion about "Big Bang" anymore from accidental concentrating of energy of vacuum. Such considerations still are based on the mistake of the *particle wave dualism*.

Because of the conservation law of momentum, the radiation momentum of photon/ fallon $\boldsymbol{p}_{A\gamma(n)}$ is able to be calculated into an also radiating change of momentum of electrogravitational cosm $\Delta\boldsymbol{p}_{(n)}$. Reversed, for the momentum is valid: $\boldsymbol{p}_{A\gamma(n)} = \Delta\boldsymbol{p}_{(n)}$. At first, Hamilton equation like (2.4,1f) expects the equality of the radiation momentum $\boldsymbol{p}_{A\gamma(n)}$ and of the wavequantum momentum $\boldsymbol{p}_{w\gamma(n)}$ of photons/ fallons spreading over vacuum:

$$\boldsymbol{p}_{A\gamma(n)} = \boldsymbol{p}_{w\gamma(n)} = \Delta\boldsymbol{p}_{(n)} = \boldsymbol{m}_{A\gamma(n)} \times c = \boldsymbol{m}_{w\gamma(n)} \times c \; . \qquad (2.4,12)$$

Because of the resting mass $\boldsymbol{m}_o$, we have to set the momentum $\boldsymbol{p}_{w\gamma(n)}$ equal to the relativistic momentum $\Delta\boldsymbol{p}_{(n)}$ and then we have to find the wavequantum momentum $\boldsymbol{p}_{w(n)}$ of the rotating mass $\boldsymbol{m}_o$:

$$\Delta\boldsymbol{p}_{(n)} = \boldsymbol{p}_{A(n)} - \boldsymbol{p}_{Ao} = (\boldsymbol{p}_{Ao}^2 + \boldsymbol{p}_{w(n)}^2)^{1/2} - \boldsymbol{p}_{Ao} \; ; \qquad (2.4,13)$$

or expressed of energy with (2.4,1b):

$$\Delta\boldsymbol{E}_{(n)} = \boldsymbol{E}_{A(n)} - \boldsymbol{E}_{Ao} = (\boldsymbol{E}_{Ao}^2 + \boldsymbol{E}_{w(n)}^2)^{1/2} - \boldsymbol{E}_{Ao} = (\boldsymbol{E}_{Ao} / W_{SRT}) - \boldsymbol{E}_{Ao} \; . \qquad (2.4,14)$$

This feature of conservation of momentum or energy is the most important base of giving of movement functions between the elements of gravitational and of electrogravitational matter, which are transferred by electrition waves and gravitation waves (Compton Effect, photo effect as shock effect of magnetic fields, gravitational angular momentum called spin in the result of magnetic momenta)! In this connection, "Quantum Mechanics" has built its theory of photon exchange of electromagnets relatively to reality. Therefore, also **exchange of fallons** exists in the course of gravitomagnetic forces. The results of purely arithmetical manner are right. The terminology and the classification of the created concepts give a wrong conception of the world, because one still describes photons as particles. Therefore, we have to distinguish the concepts of the graviton and of the fallon: the graviton is a particle of the heaviest resting mass (1.859×10^{-9} kg) but the fallon is the wavequantum, which is formed out from the movement of any gravitational particle in relative motion.

Only in connection with the finiteness of the universe, it is to understand why the **upper limit** of all relations of movement passes in the vacuum wave-velocity c. The vacuum contains the cosms in compensated form. From this state, cosm pairs are born (pair forming) by giving wave energy and by connecting electric as gravitational vacuum cosms with each other and by separating the vacuum state.

If even the complete rest mass of a particle should have to be converted into an energetic interaction, then the rest momentum p_{Ao} should be valid for the primary conservation of momentum:

$$\boldsymbol{p}_{Ao} = \boldsymbol{m}_o \times c \; . \qquad (2.4,15)$$

Einstein gave the corresponding and fundamental term of the external magnitudes of rest mass m_o and of rest energy E_{Ao} at which we connect the rest momentum:

$$\boldsymbol{E}_{Ao} = \boldsymbol{m}_o \times c^2 = \boldsymbol{p}_{Ao}\, c \; . \qquad (/Q\ 5/, \text{page } 329 \text{ (At 9)}) \qquad (2.4,16)$$

The rest(ing) momentum p_{Ao} relatively to the vacuum is the ***projection*** of the ***natural oscillation*** *of the cosm* that determines the isolated matter as well as the external states but both in respectively independent way.

Eq. (2.4,16) is valid for the observer at the outside of r_o of the ideal oscillator. With (2.4,2) you can follow the example of n = 1:

$$\lambda_{w(1)} \cdot \boldsymbol{p}_{w(1)} = \boldsymbol{h}_{(1)} = \boldsymbol{E}_{w(1)} \cdot \tau_{w(1)} \qquad \text{or because of (2.4,19)} \qquad (2.4,17)$$

$$R_{w(1)} \cdot \boldsymbol{p}_{w(1)} = \boldsymbol{\hbar}_{(1)} = \boldsymbol{E}_{w(1)} \cdot t_{w(1)} \qquad (2.4,18)$$

Explanation as followes: R_w as wavequantum amplitude (this is not the intensity at the formation of the wavequantum, this is the rotation radius of the forming mass and/ or of the charge),

t_w as amplitude time,
τ_w as wavequantum period time,
$\boldsymbol{E}_w$ as wavequantum energy,
$\boldsymbol{p}_w$ as wavequantum momentum opposite the vacuum, the same as the momentum p of cosm.

Then the terms are valid:

$$R_w = \lambda_w / 2\pi \ , \qquad (2.4,19)$$

$$t_w = \tau_w / 2\pi \ . \qquad (2.4,20)$$

For a wavequantum of an arbitrary n-level, it is valid:

$$R_{w(n)} \cdot \boldsymbol{p}_{w(n)} = \boldsymbol{\hbar}_{(n)} = \boldsymbol{E}_{w(n)} \cdot t_{w(n)} \ . \qquad (2.4,21)$$

Under conditions of equality, never a difference to (2.4,21) is able to reach (analogon on eq. (2.4,25)):

$$\Delta R_w \cdot \Delta \boldsymbol{p}_w \approx \boldsymbol{\hbar} \approx \Delta \boldsymbol{E}_w \cdot \Delta t_w \ . \qquad (2.4,22)$$

While the wavequantum radius, the amplitude, is really able to reflect a rotation radius R_w, for a wavequantum the amplitude R_o of the cosm is drawing a diameter of the rotation of that radius $\frac{1}{2}R_o$; **this drawing is running two times for a complete period!** Graphically, in a complete circle of the radius R_o, two equal circle orbits in the sense of an eight are inscribed with respectively the radius $\frac{1}{2}R_o$. Every half of the “eight orbits" has relations to half of Planck’s quantum then. In the case of a state of **cosm** or of **anti-cosm**, which projection runs onto $n = 2 \times \frac{1}{2} = 1$ where no further n are authorized than n = 1, then it is valid:

$$R_o \times \boldsymbol{p}_o = \boldsymbol{\hbar} = \boldsymbol{E}_{Ao} \times t_o \ . \qquad (2.4,23)$$

Under vacuum conditions there are

R_o - as amplitude of the cosm (cosm radius),
$2R_o = r_o$ as the particle horizon, eq. (2.8,2);

$\boldsymbol{p}_o$ - as the particle momentum in rest,
$\boldsymbol{p}_o = \boldsymbol{m}_o \times c$;

$\boldsymbol{E}_{Ao}$ - as the vacuum energy of the resting particle,
$\boldsymbol{E}_{Ao} = \boldsymbol{m}_o \times c^2$;

t_o - as the amplitude time of the cosm,

$t_o = R_o / c = \tau_o / 2\pi$; (2.4,24)

τ_o as period time of cosm or of particle.

The model of “Quantum Mechanics" lead to Heisenberg’s uncertainty principle at the diffraction gap ΔX in accordance with an approximation calculus:

$$\Delta X \times \Delta p_w \geq \hbar \leq \Delta E_w \times \Delta t_x \qquad \text{(/Q 12/, page 179).} \qquad (2.4,25)$$

Its interpretation was as followed: *The change of the position X and the momentum p_w of a particle (mistaken one said “particle" to a real quantum) are simultaneously measurable only with restricted precision.* The same would be valid for the relations of change of wavequantum energy E_w and of the time t_x. With increasing wavequantum energy the time t_x would become smaller like also its analogon of wavequantum amplitude R_w, which is indicated at the gap as ΔX, while the relativistic momentum p_w is increasing. Here the corpuscle, the particle or the microcosm themselves are not meant but only their wave energy quanta those are indicated. This simply means as follows: The *particle itself will not be indicated,* but only its wavequantum energy is remarked or reflected (see explicitly section 2.11.).

Because of (2.4,10) and (2.4,12), the potential wavequantum mass of the level n is able to calculate:

$$\boldsymbol{m}_{w(n)} = \boldsymbol{h}_{(n)} \times f_{w(n)} / c^2 \,. \qquad (2.4,26)$$

With that fact, we explain the *momentum mass of the wavequantum* as *potential wave mass* m_w, which we know as *photon or fallon mass* (photons and fallons are not particles!), which have no rest mass relatively to the gravitation world.

Since the velocity is a vector, its direction also forms vectorial dimensions: $\boldsymbol{E}_w$, $\boldsymbol{m}_w$, $\boldsymbol{\hbar}_{(n)}$, $\boldsymbol{v}_{w(n)}$ as well as the dipole force $\boldsymbol{F}_w$ and its vectorial acceleration $\boldsymbol{a}$. The movement of the relative rest mass $\boldsymbol{m}_o$ forms a wavequantum dipole $\boldsymbol{m}_w$. That dipole includes the potency of the forming of waves by Hamilton’s equation, if it is changing its movement state by change of its level n.

> In this respect, a wavequantum is a dipole at first that is bipolarly directed in an almost constant position in the field of all the other dipoles and which is directed in this field by its movement. The wavequantum would be indicated by static stability, if it didn’t interact with the other wavequanta moved in the associated field.

The potency of the wavequantum becomes a wave then, if the secondary dipole vector is forced to the interaction with its surroundings or to the acute rotation around its beginning area into relationship with its carrier cosm at the braking efficiency. Its cosm radiates then an electrogravitational wave, which is equivalent to the gravitational and the electric decelaration energy. The wavequantum is indicated by a dynamics, which is bound to the relativity of the cosm oscillation.

The lowest attempt of the rotation means a momentum transmission. Additionally, it means a working performance, because the wavequantum effect represents only the secondary one. The cosm rotates and with it do the electrical charge as well as the outside mass. It allows its vacuum cosm field rotating along (the magnetizing of compensated electric and gravitational cosms and anticosms to vacuum).

A single charge/mass in vacuum seems to be like a kind of vacuum, like a surplus, which is swimming on vacuum and which is not able to go down because of the given parity of already connected pairs of cosms. It is made as quantitative surplus in the finite vacuum of cosms. Therefore, the vacuum is disturbed this way.

With (2.4,26), one finds the fundamental equation of the ascertainment of a wavequantum mass (momentum mass) from the absolute relations in vacuum, which are also able to become a radiation mass under decelerating conditions (of a decrease of speed) and which are built up to a potency of this radiation under accelerating conditions (as a wavequantum):

$$\boldsymbol{m}_{w(n)} = \boldsymbol{m}_o \times \boldsymbol{v}_{(n)} / c \times W_{SRT} = \boldsymbol{m}_A \times \boldsymbol{v}_{(n)} / c \; . \qquad (2.4,27)$$

Some change of the wavequantum is given by a change of velocity, which is also changing the relativistic feature of the rest mass at the same time. This equation is valid for the *formation* of an **electromagnet** like of a **gravitomagnet**, too, in the shape of a **wavequantum**, because this one is only measurable by an observer who is in relations to this wavequantum.

A multiple number of wavequanta (dipoles: electromagnets, gravitomagnets) couple with each other to an order of wavequanta, which represents one of the causes of the phenomena of waves in movement relations. Instead of the relations “wave mass to rest mass", all the physical dimensions can be settled into that relation. In this respect, the fundamental problem between wave and primary oscillator has been solved. Consequently, with (2.4,27) for example, a variable equation with x exists of the dimensions energy, mass, *momentum*, force, acceleration, amplitude and amplitude time:

$$\boldsymbol{x}_{w(n)} = \boldsymbol{x}_A \times \boldsymbol{v}_{(n)} / c \; . \qquad (2.4,28)$$

This means that all the so formed dipole magnitudes each carry a complementary polarized potential on both sides of the rotation area of the possible wave. For example, at an electric coil, it would be calculated how large the electric wavequantum mass m_w (wavequantum charge e_w) could be at the one as well as at the other side of the coil relatively to its electric center in the center of the coil. For a rotating gravitational mass, there would be also such a wavequantum but a gravitational one.

The relativistic mass m_A of (2.4,27) is able to calculate from the amount of the wavequantum mass m_w under the conditions $v \neq 0$ and $m_w \neq 0$ (cf. eq. (1.1,9)):

$$\boldsymbol{m}_A = \boldsymbol{m}_{w(n)} \times c / \boldsymbol{v}_{w(n)} \; . \qquad (2.4,29)$$

We define the wave number of $k_{w(n)}$ as the reciprocal value of the wave amplitude:

$$k_{w(n)} = 1 / R_{w(n)} \; ; \qquad k_{w(n)} \times R_{w(n)} = 1 \; ; \qquad (2.4,30)$$

so as differentials

$$dR_{w(n)} \times dk_{w(n)} \approx 1 \; . \qquad (2.4,31)$$

According to the matrix model of “Quantum Mechanics" would be valid:

$$\Delta X \times \Delta k \approx 1 \quad . \qquad \text{(/Q 12/, page 178)} \qquad (2.4,32)$$

The comparison of both equations shows the natural agreement of the model character of the “Quantum Mechanics" and our wavequantum theory, which is caused on the existence of the absolute reference system of vacuum.

Theses:

Dirac found an equation, which should be explaining the electron spin.

From this explanation, the electron and the positron were two states of the possible wave energy. In this respect, one saw the particles as a pure wave function.

Antitheses:

The interpretation of Hamilton function as expression of electron spin is one of the cardinal uncertainties of the interpretation of physics, generally. Because it rather is the primary polarizing of an electric charge or a gravitational mass, in unity with formation of a wavequantum from which the relativistic mass is becoming its part of its **transmitter or receiver quality**.

We calculate the eq. (2.4,1a) to (2.4,18). Quickly we found Hamilton’s equation:

state decays. But the cosm does not decay, it locks its horizon r_o totally showed by the solution of (3.2.3,27). The measurement R_o as amplitude is the expression of the isolated intensity of elementary cosms as well as of a part of the oscillation length λ_o or the perimeter u of unit circle, too. On the section R_o of λ_o, the **partial time** or the **amplitude time t_o** is valid corresponding to (2.3,2), (2.10,7) and (2.10,18):

$$R_o = c_v \times t_o \qquad R_{o(PK)} = c_v \times t_{o(PK)} .$$

Never a material element is moving to the cosm amplitude R_o during t_o, because all the waytimes are running curved after the oscillation length λ and the amplitude time τ. Therefore, the elongative real way is made from the amplitude $R = R_o$ to the central dot $R = 0$ with the average velocity v_r during the oscillation velocity v_{gr}. For the example of a cosm, the following eq. are valid:

$$¼\lambda_o = ½\pi R_o , \quad ¼\lambda_o /c = R_o /v_r$$

$$v_r = 2\, c_v /\pi \ . \tag{2.10,21}$$

By this means, on the elongation way, a different time is given – the radial time t_r – relatively the part of period time $t_o = \tau_o / 2\pi$:

$$v_r = R_o / t_r \qquad t_r = ¼\tau_o . \tag{2.10,22}$$

Extended with c_v we get with the eq. $\quad c_v t_r = ¼ c_v \tau_o = ¼\lambda_o = ½\pi R_o$.

$$t_r = \pi \times ½R_o /c_v = ½\pi \times t_o . \tag{2.10,23}$$

The time t_r has no real importance. It expresses the radial velocity of lifting and sinking the amplitudical sphere Σ of the cosm from ($\Sigma_o = 4\Sigma$) that does not arise from radial movements but from arc-like movements of elementary cosms, which really do not form a sphere filled with mass but a flat rotation ellipsoid that well-flatting is not filled but funnel-shaped open. The original building of system orders in universe in our theory has the name **Double Funnel** (see section 4.10.)**.**

2.11. Particle Wave Cohesion

Werner Heisenberg (1901-1976) meant to have recognized in 1927 that it would be impossible to determine the location and the momentum of an electron with arbitrary precision (cf. section 2.4.). One called this consequence as *Uncertainty Principle*. From this, one concluded that electrons would have no determined orbits. On this reason, one completely did it without the broader analysis of the particle character and saw the electron as pure wave that should make a three-dimensional wave according to Erwin Schrödinger (1887-1961). The solutions of his spatial wave functions were called **orbitals**. This concept dating from the English implied the thought, on orbits although here actually the orbit of electron has been left an area of a lot of electromagnetic interactions by observation. Because of the low vividness of the model, finally, one carried back the electrons as particles into this wave system and asserted now that the electrons have to stay in arbitrary areas of the wave spaces with high probability. The square of wave amplitude would be a measurement of the position probability of the electron (Max Born). We short the content and number the statements:

Theses:

1. Location and momentum of an electron are inaccurate.
2. Electron paths would not exist.
3. Negation of the particle concept in favor of the wave concept.
4. Successful calculation of wavequantum interactions.

5. Correct determination of the energy levels of the electrons following from this.
6. Illustration of the result by equation of the stay of
   electrons with the effect area of their wavequanta, of their amplitude.
7. The position probability of the electrons would follow from this model.
   Statistically seen, an electron would be pulverized now.
8. Equation of the wave concept bound with the particle concept.

Antitheses:

1. The wave amplitude $R_w = X$ and the wavequantum momentum $p_A = p_w = p_{(n)}$ of an electron are inaccurate but connected at the elementary constant h. The position R_{rot} of the electron is somewhere, just there where it is coupled with Planck's constant h over the movement momentum p_B. Both features are two different sides of the uncertainty:

- local uncertainty relation of the particle $\Delta R_{rot} \times \Delta p_B$, which isn't able to be indicated directly because of the relation of the observer moved along and because it can only be indicated by the wave interaction and by the valid relativistic retardation momentum Δp_A of the relatively resting observer according to:

- wave amplitude uncertainty of wavequantum exactly is $\Delta R_w \times \Delta p_A$ or $\Delta X \times \Delta p$.

2. Electron paths exist as circle and ellipse paths in the radius R_{rot} like in the classic sense, too.
3. If the wave amplitude and the wavequantum momentum are blurred at the interaction of an electron with its associated field, then the electromagnetic property has commonly wave character. The particle concept stands outside this discussion. Discovery of Heisenberg doesn't mean a wave-corpuscle-dualism but simply a wave-amplitude-wave-momentum-unity: wave property is a part of wave property.
4. Recognition of the calculation of wavequantum interactions.
5. From it, the exact calculation of energy levels E_w of electrons by differences of wave energies respectively determined wave amplitudes R_w are following.
6. The opinion model is intolerable. That wave amplitude $-R_w$ cannot vectorially set equal to the rotation radius $+R_{rot}$ of the electron on its path, because the vectors are contrary and relativistically different. Though, one has united the interactions of wavequanta of electrons with the electrons themselves and produced the "electron powder" that does not exist at all.
7. Eliminating this mistake from "position probability of the electrons", we get the true interaction probability of wavequanta, which are sent or received between the electrons and their environment transferring those effects.
8. Now, our wave concept is separated from the particle concept again and a dialectical view is opened on the system particle/wave-transmission/wave-receiver.

The areas of the interaction of the magnetic wavequanta, which one describes as orbitals don't exist themselves, because they are not equal to the real paths of the electrons. Rather the electromagnetic effects of electron paths couple with each other over the exchange of e. m. and g. m. wavequanta. The calculation models have confirmed themselves to the "Quantum Dynamics" in this. Also we consider the orbital model as incorrect and favor the illustration by a model of the magnetic vacuum coupling where Niels Bohr's opinions of quanta and the electrostatic repulsion of the electrons have received their roll.

That's why we haven't worked any modern quantum-mechanical theories into the structure of the universe. We start with the cause of the elementary electromagnet at the electron, neutron and proton don't lay in the rotation of a charge distributed spherically diffusely at a physical mass. This is proved by the existence of the magnetic moment into itself at the neutron. A cosm rather copies nothing else than a mass point to the outside. On the whole, its rotation is senseless that its ineffective volume would have to concern its mass point. The movements of the inner charge and the charges lead to the concerning elementary magnets independent on the outer charge movement. A movement on an orbit of the cosm then yields the corresponding orbital magnetic momentum.

We interpret the equations (2.4,1) to (2.4,60). A particle represents an ideal oscillator, a CLOCK almost resting or moving in the stationary vacuum that behaves according to the relativity what means that it

is moved faster in the vacuum, then it goes more slowly. For memory: there relativity only can be in the finite, closed and oscillating spacetime by which their dilation or contraction are possible in the shape of the shift of finite magnitudes, period time and wave length. Infinite magnitudes aren't able to shift finite dimensions (see section 2.19.). Under which circumstances does the particle send its radiation quanta? For explanation, the fundamental equation is valid (2.13.1,8) $n\hbar = m_B \times v_{rot} \times R_{rot} = p_B \times R_{rot}$ for the observer, which is moved along: the faster the particle is moved, the more the outer mass m_B decreases about $-\Delta m$ because the internal oscillation has been dilated according to the waytime. For the relatively resting observer, the change of resting mass m_o into movement mass m_B is not valid, but the change of rest mass with the difference $+\Delta m$ onto the relativistic mass m_A, which is transformed to the radiation energy $\Delta E_{(n)}$ as indication or retardation mass. This happens by the rotation of a charged protocosm (PK^+ or PK^-), which reflects the oscillation change of its receptacle cosm $\pm\Delta m$ and changes them into e. m. radiation quanta. We get the following cases if the given rest mass m_o remains equal from which the masses m_B and m_A follow:

1. The rotation velocity v_{rot} decreases while the rotation radius R_{rot} is changed smaller (ideally seen: remains constant): this case we find at retardation ray (breaking radiation). The movement direction of the particle hardly changes almost. The movement has apparently left unchanged its curvature radius. Planck's levels go down by determination by velocity from n = unknown to n = 1. Reversed, at acceleration on a definite curvature, one has to supply energy.

2. The rotation radius decreases while the angular velocity of some is changed (ideally seen: remains constant): this is the case at the quantum leap radiation. In stronger measure as the velocity the movement radius changes. Also through this event, the Planck levels fall down to n = 1. Reversed, in movement to a smaller curvature, one has to supply energy.

3. The rotation radius decreases while the rotation velocity increases or reversed: this is not clear because of the different magnitudes of conditions. If they cancel each other out, no quantum changes.

4. The rotation radius and the angular velocity increase: the system takes radiant energy because now the Planck levels are going upward. Reversed, the particle radiates.

The change of the conditions of the relativistic unit by the velocity - as the clock-motion-order - and by space curvature - as the clock-hierarchy-order - give the readiness of the cosm to receive the radiation (spectral resorption) or to transmit radiation (spectral emission) of the energy $\pm\Delta E_{(n)}$ (cf. (2.4,1)). Though, the clock or the oscillator remove its *potency of transmission or receiving* in the shape of a *arched world way* with the radius R_{rot} and the velocity v_{rot} (cf. section 2.4.). Mark that these are and remain external magnitudes of the relativistic alteration of the cosm into relationship to its partners, which externally exist, too! The clock or the oscillator get a gravitational and an electrical angular momentum of both charge-features m_o and e_o. A surplus of the electrical charge e_o rotates at least inside the electrogravitational receptacle particle. In this rotating complex of movements, the particle saves the *orbital angular momentum* I_{B1} as effect-equivalent ($m_B \times v_{rot} \times R_{rot}$). In this respect, the particle can never be a wave but always only a potent *transmitter or a receiver of a wave consisting of wavequanta* – just like an oscillation generator or an oscillation receiver.

The electrodynamics calculates the magnetic field strength H at the straight conductor with eq. (2.5,45). We reduce the electric current **I** on the movement of a single electric elementary charge e_o in time. According to the non-relativistically classical theory, it will be moved absolutely straightly. The field strength is indirectly proportional to the separation between the test point on an adopted line of force that surrounds the charge circularly. In this respect, the field strength here is related to the perimeter of an arbitrary circle of the radius r with eq. $H = \mathbf{I}/ 2\pi r$ according to eq. (2.5,45). This means then that the field strength H at the straight conductor is the largest with r running to infinite sizes by immediate proximity of the moved charge (it would diverge to infinite if the charge were dot-like). Bohr's interpretation seems to be right after which the interaction with a charged particle would be the same as the interaction with that wavequantum – that magnet. This opinion leads to the question after the "position probability" of the particle like also after the "interaction probability" of the wavequantum in a local area (Heisenberg's uncertainty principle). This thinking seems to be the best,

assuming the beam of particles presupposed straight lines in connection with ignorance of General Relativity Theory and with attention of classic experience that some compact body of mass m is forming the momentum $p_A = m_A \times v_w = m_w \times c = p_w$ according to eq. (2.4,12). One could not indicate a spatial difference between the position of the body and the position of the interaction of momenta. This body consists of microcosms, which resting mass of each m_o form the wavequantum momentum p_w with their velocity being added to the intensity of microcosms. Assuming all particles of that body would only move a little, then their orbit would be almost straight in its differential. The wavequantum effect by constant h would lay above their amplitude R_w within the compact mass m itself. If we observe one particle of that body, then the effect h with R_w is outsides the particle with its radius R_o.

If we ask for the absolute straight line of a conductor in the epoch of Einstein's theories then we already got the answer with the general relativity: *Each geodetic lines are curved!* In this respect, the classic momentum is displaced by the quantized and relativistic momentum. Bohr's assumption stands by the arrangement.

What good has such an idealizing of straight conductor in "quantum mechanics"? Does a curved conductor change the situation essentially? Yes, it does! Each curvature increases the interaction density with the electromagnetic and the gravitomagnetic field within the area of concave curvature: towards the center of the curvature circle the field strength H increases! There some feature of **center of wavequantum** is formed out with the bipolar wavequantum charge $\pm e_w$ or the wavequantum mass $\pm m_w$ analogously it is valid for the rest charge $+e_o/-e_o$ or the rest mass $m_o/\cancel{+}m_o$ as monopole. The particle momentum therefore is expressed as a wavequantum momentum. Never a particle interact by itself at its intrinsic gravitational center as a position of gravity (this is pure gravitation), but by its wavequantum that position develops by different circumstances of quantizing of waves and that position is far away of the gravitational center of that particle.

This is called in the parable: **Where a particle's gravitational center A of the mass m_B is rotating to the right, the path radius $R_{rot(n)}$ is described.** This radius has to be seen as a lever arm that is located in the center of rotation. In this respect, the rotation radius $R_{rot(n)}$ represents a positive vector that rotation direction shows to the moved particle position: $+R_{rot(n)}$. In the starting point or in the lock point **B** now is the effect center of the electromagnet $R_{rot(n)} = 0$. The strength of the magnetic field is not concentrated on the moved particle and not on the current of charges, but on the electromagnetic and gravitomagnetic field center in B. Simply: a magnet will be moved into the center of the inductance but it does not be moved into the direction of winding coil! The electromagnetic center is in its center looking like concentration of magnetic field lines. It is bipolar relatively to the gravitational and to the electric center, which are monopolar.

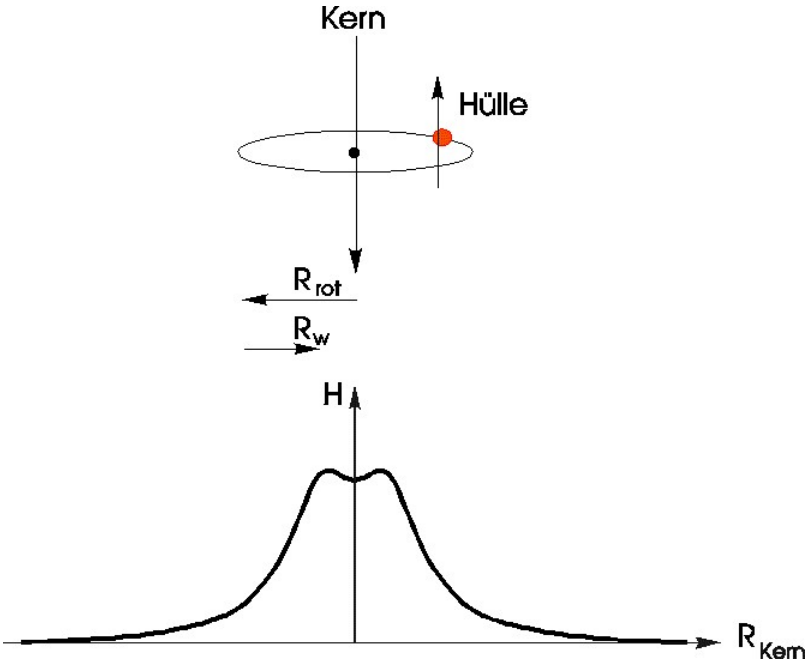
If one brakes now the particle in its intrinsic center of gravity A then the movement radius R_{rot} is acting like it was an inertial lever arm: it comes out from its location in B with reversed rotation direction (now to the left). For the indicating observer, it becomes to the wave amplitude $R_{w(n)}$ with eq. (2.12,8) and (2.12,8a) and with the reversed direction to the rotation radius $R_{rot(n)}$. The particle stops in A. But the e. m. wavequantum (the energetic field center in B at $R_{rot(n)} = 0$) collides now on the indicator. In this moment, it initiates the interaction with the indicator in relativistic distance $\overline{AB}$ as the same $R_{w(n)}$ but in reversed sense of that vector (left orientation of movement). Since Max Born's interpretation of "position probability of a particle " in "amplitude square", one thinks to make an equality of the radial position of the particle on its path with the hit of its interaction of its wavequantum formally, because the amounts are almost the same at low velocities: $|R_{w(n)}| \approx |R_{rot(n)}|$.

They say, the indication would be the hit of a particle. No, at non-relativistic movements, the amounts are never the same but negligibly different. Now one meant to explain the differences of both metrics with the "blurring" of particle path. What has one done? One simply has put out the wavequantum interaction, located in the center of the atom nucleus and its vector sign $-\Delta R_{w(n)}$ ($-\Delta X$) pointing there, onto the path of the electron that vector $+\Delta R_{rot(n)}$ shows into the reversed direction. This mathematically made "electron bubble" from "electron powder", as an interpretation mistake honored with Nobel price, corresponds to the following concave mirror projection. Now the interaction hits were splashed and projected into the paths (seemable orbitals) and set equal with the electrons although they are not there at all.

In illustration 2.11;1 we explained the electron's "orbit" (electron shell) with its elementary magnet (arrow) around the atom nucleus where the nucleus magnet is neglected relatively the orbit magnet (largest arrow). Its tininess cannot be scaled drawn. Under it, the frequency distribution H of interactions is scaled that actually corresponds only to the field strength H without fortuity if there would not be some interaction. It is ordered to the way $R_{nucleus}$. This part of illustration had to be seen as rotation area. The higher the electron's velocity increases, the smaller is the amplitude of wavequantum R_w although the rotation radius R_{rot} hasn't become smaller. A curve with a rounded arch gets then a decreasing and two rotational maxima like shown in illustration.

An ideal circle has the gravitomagnetic and the electromagnetic center of 1h in the middle dot while at an ellipse, the same center of gravity of the quantum 1h is given with two rectified quanta 2 × ½h that are concentrated in the fire points of the ellipse. Here the rotating coordinate system would yield two bell-shaped curves next to each other but that don't go to zero in the middle. The partitioning of the effects has immense meaning for the reality of the chemical relationship.

Illustration 2.11;1: Contrasts of the Vectors in the Electron Path and in the Interaction Probability H



Explanations from German: Kern = Nucleus, Hülle = Shell.

The indication is made by the wavequantum hit with the distance $-R_w$ (-X) to the resting mass at $R_w = 0$ that does not interact itself. We ascribe the energy transfer to the wavequanta of any interactions. They convey the relations to the rest masses and rest charges under each other. Every relativity depends on the velocity in vacuum. It is the same in all cases: $\boldsymbol{v_{rot(n)} = v_{w(n)} \equiv v_{(n)}}$. . For the resting observer and the observer moved along eq. (2.12,8) and (2.12,8a) the terms are valid in vector form:

$$\boldsymbol{\hbar_{(n)} = m_B \times v_{(n)} \times R_{rot(n)} = m_A \times v_{(n)} \times R_{w(n)} = p_B \times R_{rot(n)} = p_A \times R_{w(n)}} \quad (2.11,1)$$

Corpuscular observation: the particle is rotating

Wave potency $\hbar_{(n)} \leq -\Delta m_{B(n)} \times \Delta v_{(n)} \times [+\Delta R_{rot(n)}]$ (2.11,2)

Wave opinion: The particle interacts by wavequanta

Interaction $\hbar_{(n)} \leq +\Delta m_{A(n)} \times \Delta v_{(n)} \times [-\Delta R_{w(n)}]$. (2.11,3)

In R_{rot} the particle rotates; in R_w the wavequantum amplitude X is drawn. The direction of both positions is reversed. The effect of the wavequantum always is on the opposite point B of the amplitudical distance where the particle draws the point A stopping or limited on its path (cf. section 4.6.).

In that wavequantum order the wave momentum $p_w = m_w c$ is the same as the retardation momentum of the curved moved particle $p_A = m_A v$. With the wavequantum amplitude R_w or X, one just finds the relativistic and vectorial inversion of the rotation radius R_{rot} of the particle.

Comparing, we produce an electron beam that has a velocity of 500 m/s. Each electron got in the "middle" as it is said nicely the kinetic energy of 7.1071×10^{-7} eV and also the radiation energy of 7.1077×10^{-7} eV and the wavequantum energy of 0.85226 eV. Of course, we don't take care what curvature path every electron has located into this, because we haven't given them. The circumstances are working causally that we cannot comprehend in the single case: different velocities and radii are adjusted. In this respect, a multiple number of adjusted Planck levels are given in n = 1, 2,.... n. The wavequantum vectors of this beam do not lay in the infinity. Their interaction must reflect all possibilities of n at the diffraction. Consequently, the particles are not indicated after diffraction but those diverse positions of the elementary wavequanta according to Huygens principle in the shape of their radiation energy stopping the electrons. The wave length of an interacting radiation quantum $\Delta\lambda_{(n)}$ or that amplitude $\Delta R_{(n)}$ is larger or equal the wavequantum length $\lambda_{w(n)}$ or its amplitude $R_{w(n)}$ of the radiation potency. For example, its minimum relation at an non-diffracted wavequantum in the level of n = 1: the rotation of the electron in n = 1 leads to the wavequantum with the wavelength of $\lambda_{w(1)} = 1.45$ µm at v = 500 m/s. If the electron of n = 1 is totally stopped, then it must give the radiation energy $\Delta E_{(n)}$ that corresponds to the total wave potency $\Delta\lambda_{(1)} = 1.45$ µm. Only little energy leaps like the interaction at the gap lead to larger wave length and then to larger distances from the moved particle of which we don't know what level n it has. The new curvature makes the interaction on the indicator but also the reflected drawing of that n, which we don't know. But the electron itself hasn't hardly changed its path.

The angular velocity and the rotation radius of a charged mass remain contrarily variable conserving Planck's constant in 1ħ for example. If the electron should extend its rotation radius to expense of its angular velocity in the atom shell then this operation represents an oscillation, which is modulated above the ideal rotation – the rotation radius must fall again after it and the rotation velocity has to increase. In this respect, one can imagine the electron path was an ideal circle orbit acc. to Bohr's opinion that doesn't allow some deviation, because this effect must be equalized immediately after its appearance. Every deviation of it represents a stagnant wave on this orbit. Each position calculated from this state of the center R_w of the wavequantum in $R_{rot} = 0$ must lead to the radial maximum that is reached at the ideal circle of Bohr's free of oscillations.

If an electron deviates in v_{rot} and R_{rot}, it must equalize this deviation inside of ***the single*** *circulation in the path*, which corresponds to the perimeter u as wave length λ. Inside of the single Planck quantum, one equalized fluctuation up and down is allowed. This thought may not be changed with the so-called "uncertainty" for the products of momentum amplitude $\Delta p \times \Delta X$ and the energy period time $\Delta E \times \Delta t_x$ analogously (2.11,1). This blurring does not correspond to the real deviations of the orbits but the different positions of the wave amplitude R_w (like we named it) over the amplitude difference ΔX (like it is named since Heisenberg) and of the wave period time τ_w over the time difference Δt_x. With the interaction wavequanta are exchanged: give me a wavequantum, and I give you back another wavequantum! (cf. Lucas 6,38). A one-way quantum transfer would have caused the change of the orbit. Though it has left like it was without changing the working force, however.

By reversed illustrating the solutions of wave mechanics instead of a **rotation area**, in which is the circular or elliptical orbit probably but in a flat orbit, a probability **orbital** as a space was created.

Albert Einstein: *"The present generation of physicists [...] means in accordance to the present form of the quantum theory that the state of a system cannot directly but only indirectly characterized by giving of statistics of the measurement results achievable at the system; the conviction is predominant that the experimentally protected dual nature (corpuscular and wave structure) was only achievable by such an reduction of reality concept. I think that such a far-reaching theoretical renunciation is not*

caused in the meantime by our real knowledge and that one shall not let stop himself to think the way of relativistic field theory to its final." (/Q 3/, page 127)

Einstein was nevertheless mislead of dual nature of wave and corpuscle. He could not extend his thoughts, because he didn't recognize that this phenomenon is just a unity of wave and magnet and that the corpuscle never was indicated. It was a "high" theory built on a brittle fundament! Where however is the orbit (path, train, track) radius of the electron? We have calculated below. The electron itself only can fluctuate one times in **1s-area** on a clear elliptic path of small eccentricity in 1λ at 1$\hbar$ between almost infinite and almost zero if at the same process the changed velocity of rotation and its radius are changing themselves in such a kind that the quantity 1$\hbar$ is not falling or exceeding. Each exceed of the condition n$\hbar$ in eq. (2.12,8) that includes Bohr's quantum condition according to our theory in principle, is taken back by an underrun. Such a movement always shows an ellipse. But without some changes of the rotation radius and the rotation velocity, the special kind of ellipse – the circle – follows from that state.

Now one has to ask himself, why should the electron change its path? The answer of chaos theorists is given by the assumption, the particle could do all the things we haven't expected from its own chaotic will – just the accident. Our answer is: the accident does not exist without any arbitrariness of a subject, who is able for arbitrariness! The electron doesn't throw its own way! What chaos already *plans* the repurchase of its first step in its second step? The chaos in the head of human being shows it: individual reflection of mistakes and revocation trial with new components of mistakes. But if the law n$\hbar$ is valid, then the compensation of each change of the path of each body, maybe it's a planet or an electron or a nucleon, is a **scheduled consequence**! The coordinates of an electron are determined by the surrounding fields of charges, masses and magnets, which transfer Planck's quanta. Then the quanta change the path for a short time after which the quantum has got an answer and the path was corrected again, unless it would have got a change at chemical bonding over a radiation of quanta, for example.

If Planck's constant nh and the rotating mass m remain constant, then the product $v_{rot} \times u_K$ at the rotation perimeter $u_K = 2\pi R_{rot}$ of the circle is given as constant:

$$nh = m_B \times v_{rot} \times u_K \; . \qquad (2.11,4)$$

The perimeter u_E of the ellipse corresponds to the perimeter of the circle u_K that middle velocity $\bar{v}_{rot}$ corresponds to the constant rotation velocity v_{rot} on the perimeter of the circle.

Every ellipse that is changed compensating itself, by non-relativistic conditions it has the same area A_E like the circle with A_K on which these changes don't appear at all. Relativistically seen, the ellipse describes a rosette orbit (General Relativity Theory). The connecting line between ever a fire point 1 or 2 to the elliptically moved body forms the changing radius R_1 or R_2. If the distance 1-2 of both fire points is 2e (linear eccentricity) and the intersection point of the small half an axis b has been bend on the ellipse with the one of its fire points over its large half an axis a then are valid:

$$b^2 = a^2 - e^2 \qquad 2a = R_1 + R_2 \qquad (2.11,5)$$

$$A_E = \tfrac{1}{4}\pi \times a \times b \qquad A_K = \tfrac{1}{4}\pi \times R_K^2 \qquad (2.11,6)$$

$$A_E = A_K \; ; \qquad u_E = u_K \; . \qquad (2.11,7)$$

The extents also are like themselves. Well, a banal conversion of the elliptical area into a circular area is able to solve the problem where the particle rotates then. Therefore, every arbitrary ellipse of the condition n$\hbar$ can be put down to the circle of the same condition.

This is actually the magic of Schrödinger's stationary wave. If the particle would alone be raised on a higher track, the conservation of energy like the conservation of momentum would be disturbed. But though inside of a single track circulation of an arbitrary particle like the electron around its atom nucleus to **every increase of the "orbit"** and its **guiding increase of velocity** must be a **decrease**

of the "orbit" level with reduction of velocity from which it will be possible to equalize the momentum difference Δp and also the amplitude difference ΔR in its product
$\hbar = (-\Delta p+\Delta p) \times (-\Delta R+\Delta R) = 0$
the first for the momentum, the second for the frequency of the "emitted" wave:

$$p_{w(\text{stagnant wave})} = p_{above} + p_{below} = 0 \qquad R_{w(\text{stagnant wave})} = R_{above} + R_{below} = 0$$

$$p_{above} = m_A \times (-\Delta v) = -m_w c \qquad p_{below} = m_A \times (+\Delta v) = +m_w c \qquad (2.11,8)$$

This particle does not radiate because it hasn't left its wavequantum nh!

A swarm of particles shows a quantity of different wavequanta. So, the radiation law of Planck is confirmed (3.2.3,28) that always reflects a spectrum of frequencies to the highest frequency. Every wave energy is dependent on the rotation velocity v of a particle on its corresponding rotation path R_{rot} then also it is corresponding to the kinetic gas theory with a spectrum of velocities of particles. This means: if 10 particles should be almost united into one ideal beam and only the localization of the rotation track would separate the beamed plane into 10 parts of each 36°, then the interactions would appear around the beam in an interaction tunnel by 10 indications. All the particles would have flown through the middle of the tunnel. Because practically, the curvatures and the positions of the curved paths can be very different, the interactions appear in the shape of indications within unpredictable radii and angles to each other. Only a probable maximum of the highest velocities at minimum radii is noticed after time. Nevertheless all particles were flown through the center of the indicator!

The less the orbit of the particle is curved with its rotation radius R_{rot} diverging to infinite, if their velocity v diverges to light velocity c, the more the wave energy E_w increases relativistically and the wave radius (the wave amplitude) of the indications R_w is falling to zero although the movement radius R_{rot} remained unchanged large. The indication reaches the nearness of the particle mass itself.

The vibration generator was called *oscillator*. Being a particle, it shall now stand for the **ideal donator** or the **ideal acceptor** of radiation energy $\Delta E_{(n)}$. Equivalent giving and taking of radiation energy means an equilibrium of universal forces. Equilibria only had to exist in cosm for a moment exchanging radiation quanta or inside a Planck level nh. Such a state of one moment would only be actual at analogous signal events. Every quantizing makes a difference. Only inside the same quantizing, one can postulate the state of one moment, because the possibilities consisting below them don't make leading another material measurement. The particle fluctuates inside its relatively narrow **movement area** around its coordinates with the condition to compensate each plus of wave energy by a minus of wave energy. A quantity of particles forms its **movement corridor** over its own movement areas.

A cosm oscillator carries an intrinsic frequency f_B with eq. (2.4,49). If it is forced to oscillate relativistically slower by increasing velocity, then its intrinsic frequency is decreasing and with it its intrinsic energy $E_{Ao(EK)}$ to $E_{B(EK)} = E_{Ao(EK)} \times (1 - v^2/c^2)^{1/2}$ is diverging to the smaller energy of the receptacle cosm $E_{Ao(GK)}$ (cf. section 2.19.). After deceleration and retardation radiation, the oscillator vibrates faster relatively its reference system – its receptacle cosm. These are inner functions coupled with the outside by storing and transmitting of radiation energy from the cosm (Hamilton equation, see in section 2.4. equations 2.4,36a and 2.4,38).

Our theory makes an end with that opinion that a particle would be a probability wave itself. The start conditions velocity v and curvature radius R_{rot} of particle movement determine the concrete position R_w from that the wavequantum is radiated by the particle if the wavequantum of that particle will be diffracted and the wavequantum of a particle finally will be stopped at an indicator.

> Consequently, the indicator does not indicate the "position probability of particles" but the **interaction variety of working wavequanta** (of the working magnets), which are formed by the moved particles and react with the multiple number of wavequanta of particles of their environment (Huygens). Then the result looks like statistically measurable and could now get the name: **interaction probability**. Every single particle removes only one single interaction

in the distance of the wave amplitude R_w, which position in R_{rot} is not predictable if it flies on a path without being able to indicate.

Though, the effect of braked wavequantum center $R_{rot(n)} = 0$ will be finally indicated on different wavequanta of the other moved particles. The reason of the terminology chaos is to find in crazy particle concept of "Quantum Mechanics". We say: Every microcosm meets the indicator centrally but in only low spread. Every particle takes its definable track (path in orbit). It cannot be directly indicated, because its orbit magnetic vector transfers the energy. One surely can conclude from indication where the particle could have been probably as it started its interaction with the other particles by their special multiple numbers of the amplitudes R_w. Therefore, the indication cannot be identical with the position of the particle at the diffraction. Flying in a beam, all particles surely are never located at one common line point, because they have to carry a dimension of its microcosm by which only smallest phenomena of drift appear.

When a microcosmic particle hits an indicator, the wave potency converts itself together with the rest energy into a spectrum of retardation ray, which then is misunderstood as "particle wave", because the particle sends -, which never was a wave and which never will be a wave itself – in that moment of total braking e.g. its whole relativistic energy as radiation energy $\Delta E_{(n)}$. It produces new waves at the indicator particles wavequanta and becomes relatively resting particle itself again of corresponding rest energy E_{Ao} or of absolute vacuum rest energy E_{Aov}! This particle itself never was a wave. The wording "*position and momentum of a particle*" wouldn't be able to indicate with equal high precision covers the total problem. It must be cleared superficially:

> **The *wave amplitude* R_w and the *momentum* p_w of *that wavequantum* of a particle that is not able to be indicated are connected to a *constant quantum of oscillation* and therefore they aren't able to be indicated with the same high precision.**

With this wording, we decide on philosophies of physics! Relatively to the section 2.4., one could save the whole problem of the discussion about the particle hits, because with the words of "Quantum Mechanics" anyway the real particle as cosm isn't meant but its wavequantum working in this moment of the hit. This means that the electrons are moved very well around the atomic nucleus in Bohr's orbits (tracks, paths)... But Bohr's shell model of orbits does not consider the electromagnetic variables of rotation velocity v_{rot} and of rotation radius R_{rot}, which are related on $\bar{\mu}$ but it leads the gravitomagnetic radius referred on ħ of an ideal circular orbit. Nobody can check the classic result after that the charge and the mass of the electron adjust this orbit radius at first. Therefore, this cognition didn't advance. Calculations only permit the interaction of the wavequanta. So, we want to stay with them and we don't want to describe the magnets as particles anyway!

We assume an electron e^- would fall with the distance of R_{rot} to … the atomic nucleus p^+. Its initial velocity v_{rot} would diverge to zero just like the acceleration a_{el} there

$$a_{el} = \chi / (m_{gq} \times R_{rot}^2) \qquad \text{acc. to (2.5,6)} \qquad (2.11,9)$$

like $$a_{gr} = G \times m_{gq} / R_{rot}^2 \qquad \text{acc. to (2.19,1).} \qquad (2.11,10)$$

In curved coordinates of our cosm, the electron will reflect a relativistic state reaching the nucleus, which is dependent on the divergence of velocity $v_{(n)}$ to light velocity c, of rotation radius R_{rot} to proton radius R_p and of electric acceleration a_{el} to infinite. It should pass the nucleus with these dimensions in the end. If we define like it is possible in microcosmic areas that the orbit always reflects one single Planck quantum h as $1ħ = m \times v_{rot} \times R_{rot}$ then the change of relationship v_{rot} to R_{rot} does not mean the negation of Planck's condition. It cannot be fallen below although the velocity v_{rot} changes and with it its momentum p and the acceleration a_{el} of the particle do so. After passing of the nucleus, the particle must rise up on the initial coordinates in completion of its total orbit again. An extremely stretched elliptical orbit arises. If one calculates each of such an ellipse, of which there would be theoretically infinite possibilities, into a circular orbit one always gets the ideal Bohr's radius of the ideal circular

orbit. I's fact that in nature never ideal circular orbits may be expected because of the variety of interactions in multi-body problem but always **ellipses** approximately to a circular orbit in relativistic area of velocities.

Each electron is moved on an elliptical orbit that is almost a circular orbit in the special case.

Bohr's quantum condition isn't gripped well from the air. Provided that the particle isn't stopped completely at 1ħ to convert just exactly this 1ħ again, it is moved without radiation in curved orbits of the stagnant wave shape. This means: it doesn't give its effect 1ħ, because it isn't divisible: that particle climbs higher one times; then it must come deeper another times – that's an ellipse in which the fire point is the atomic nucleus [this reminds very much to the first law of Johannes Kepler (1571-1630)]. The first extension on 2ħ would also give an ellipse on the total amount of 2ħ. Only the decrease of 1ħ from 2ħ to 1ħ would radiate that difference while the ellipse of 2ħ would have been changed into the ellipse of 1 ħ. A real elliptical orbit has been changed there! Because of its immeasurable state, it is Schrödinger's turn now: the change fluctuations draw a non-measurable orbit with the character of a stationary wave by wavequantum. Yes, virtually, without some real change if no bonding energy has been radiated!

The superconductivity was explained as compensation of the spins – then of the wavequantum vectors (see section 2.3., page 307). Forming an electrical circuit by one electric charge being electromagnetically free of interactions undoing, some work $W_w = n \times h \times f$ superconductivity keeps standing on. An electrical circuit consisting of just one single Planck quantum 1 ħ only can work one times $\Delta W_w = 1\hbar \times \omega$ (but it can have worked at itself made by the other work n ħ). The current doesn't flow anymore.

The wave energy $E_w = 1h \times f$ is totally converted into work ΔW_w. In this respect, the orbit of a particle represents a feature of superconductivity from that a radiation quantum can follow only from the converting of one integer effect nħ. The state without radiation of such a movement around the atomic nucleus well, you don't have to explain particularly. It already is a fact with Planck and Bohr.

Inside of a Planck quantum 1ħ, the orbit can virtually vary. The larger the rotation radius R_{rot}, the larger is the wavequantum length λ_w and the smaller is the wavequantum frequency f_w. From this, the wavequantum energy E_w (or the work for installation of wave potency W_w) can have different magnitudes inside this Planck level with eq. (2.4,28), without in

$$\pm\Delta E_A = m_A \times \pm\Delta v \times c = h \times \pm\Delta f = h \times c / \pm\Delta\lambda$$

$$\pm\Delta E_B = m_B \times \pm\Delta v \times c = h \times c / \pm\Delta u_{rot} = \hbar \times c / \pm\Delta R_{rot}$$

it would have sent a wave or received it if all the changes $\pm\Delta E,v,u,R$ are compensating themselves against each other! The velocity and the rotation radius decide about the amount of wave energy potency, which has to be equalized in the context of the stationary wave! Unconcerned of this equation, the electron rotates without radiation from its orbit, because Planck's quantum 1h remains unchanged referred on the wavequantum length λ_w what means the rotation perimeter u_{rot}.

All the non-relativistic systems like also in microcosms work according to Kepler's laws:

"1. The planets move on ellipses, the Sun stands into the a fire point."
(/Q 5/, page 5)
The electrons move on ellipses, the atomic nucleus stands into the a fire point. …

"2. The driving ray sun-planet paints the same areas over within the same times (area rule: A/t is constant).

3. The squares of the periods behave like the 3rd potencies of the middle distances of the Sun: $T_1^2 : T_2^2 = r_1^3 : r_2^3$" (/Q 5/, page 95)

According to the second Kepler's law is valid now:

$$A_1 / t_1 = A_2 / t_2 = k_{(A,t)} \; . \qquad (2.11,11)$$

This function can be differentiated to: $k_{(A,t)} = dA / dt$ or

$$dA_1 / dt_1 = dA_2 / dt_2 = k_{(A,t)} \qquad . \qquad (2.11,12)$$

Integrated the differences are valid: $k_{(A,t)} = (A_2 - A_1) / (t_2 - t_1)$.

If the time change is small enough, one can regard the respective area as half an area dA of a parallelogram also into approximation where ds_a is the increasing bow and dR is the radius change in differential term:

$$dA = ds_a \times dR / 2 \; . \qquad (2.11,13)$$

The velocity changing on the bend ds_a is $dv = ds_a/dt$. We substitute ds_a in (2.11,11):

$$dA = dv \times dt \times \tfrac{1}{2} dR \; . \qquad (2.11,14)$$

For the relationship of two partial areas dA_1 to dA_2 we divide the equations:

$$dA_1 / dA_2 = (dv_1 / dv_2) \times (dt_1 / dt_2) \times (dR_1 / dR_2) \; .$$

In agreement to Kepler, the constancy (2.11,11) is valid from which is following:

$$1 = (dv_1 / dv_2) \times (dR_1 / dR_2) \; , \qquad (2.11,15)$$

Now here is the comparison with the wavequantum condition (2.12,8) $n\hbar = m \times dv \times dR$ that two relativa we divide for equal n:

$$n \hbar_1 / n \hbar_2 = (m_{B1} / m_{B2}) \times (dv_1 / dv_2) \times (dR_1 / dR_2) \; . \qquad (2.11,16)$$

Inside of this single and concrete Planck level determined by n, the constant quotients $n\hbar_1 / n\hbar_2$ behave to each other as you can see below, under ignoring of relativistic corrections of both resting masses m_1 / m_1, but which are differently dilated on m_{B1} and m_{B2} ($m_{B1} \approx m_{B2}$), or at velocities of small relativity:

$$\mathbf{k_{(h)} = (dv_1 / dv_2) \times (dR_1 / dR_2) = 1} \; . \qquad (2.11,17)$$

Conclusion: Kepler discovered the quantization of the gravitation in non-relativistic form without being able to declare this to his time! Every planet moves under ignoring of the non-relativistic corrections with its velocity on its wavequantum orbit, which is drawn by $n\hbar$. So each wavequantum leap (jump) also means the irradiation or the reception of gravitational wavequanta and the change of the elliptical orbit into a new wavequantum orbit $(n-x)\hbar$. But n has reached colossal extents, if we calculate the Earth:

$$n = m_E \times v_E \times R_E / \hbar \approx 5.9742 \times 10^{27} \text{ kg} \times 29780 \text{ m/s} \times 1.4959787 \times 10^{11} \text{ m} / 1.05458866 \times 10^{-34} \text{ Js}$$

$$n \approx 2.5237527 \times 10^{77} \; . \qquad (2.11,18)$$

dimensions (sizes, cf. Q 4/, page 92).

Relativistic deviations move in dilation dimensions of about 5×10^{-9} because of the dilated mass. Because of the weak working relativity of movement – also with small velocities – corrections are given that Einstein could bring into physics.

We push the Earth. It must take a new orbit, naturally again an elliptical orbit. In thank of the high number n of more than 10^{77}, almost analogous signal transitions have shown. This is quite different on the orbit of the electron with n = 1. Every momentum itself is quantized. A quarter momentum varying the ellipse of the electron does not exist, because of $p = m \times v = hf/c$. Then the change of the electron orbit becomes to a **binary** decision: *either being or being no longer*. This is the whole joke of the integer jumps in the context of the Planck's constant!

We don't discuss the 3rd Kepler's law, which represents a coarse approximation closer.

Relativistic observation of the real electron orbit

According to Niels Bohr (1885-1962) who calculated in 1913 the orbit radii $R_{(n)}$ of electron e^- in hydrogen atom ^1H worked with atomic reference dimensions in his classic model, we state:

Bohr's hydrogen radius $R_{(1)}$ with the constant $\in^2$

$$R_{(1)} = \hbar^2 / (m_e \times \in^2) \qquad \in^2 \equiv e_o^2 / (4\pi\, \varepsilon_o) \qquad (2.11,19)$$

With eq. (4.6,9) and (2.6,2) we get:

$$\varepsilon_o = M_{gq} \times m_{gq} / (2 \times k_q^2 \times h \times c) \text{ and } \qquad m_e = \hbar / c\, R_e\,, \qquad (2.11,20)$$

which lead to the coupling constant α_q:

$$\alpha_q = m_{gq} / M_{gq} = 2 \times h \times c \times \varepsilon_o / e_o^2 \qquad (2.11,21)$$

Bohr's reference energy $2E_{(1)}$ is then:

$$2E_{(1)} = - \in^2 / R_{(1)} \qquad (2.11,22)$$

$$\mathbf{E_{(1)} = -13.6058\ eV\ .}$$

Intrinsic values of the Schrödinger equation of the energy in that levels n and *l* give the result:

$$E_{(n)} = E_{(1)} / (n + l + 1)^2 = E_{(1)} / n^2\,. \qquad \text{(/Q 12/, page 183)} \qquad (2.11,23)$$

Because of the coupling constant α_q, we get the non-relativistic radius $R_{(1)}$ and the velocity $v_{(1)}$ ordered to it:

$$R_{(1)} = R_e / \alpha_q \qquad v_{(1)} = c\, \alpha_q \qquad (2.11,24)$$

$$R_{(1)} = 5.291772 \times 10^{-11}\ \text{m}.$$

$$v_{(1)} = e_o^2 / 2\, h\, \varepsilon_o = c\, \alpha_q = 2.187691 \times 10^6\ \text{m/s} \quad \text{with} \quad \alpha_q = 1/137{,}0360. \qquad (2.11,25)$$

The energy $E_{(1)}$ is expressed as Rydberg frequency $R_{f\infty} = 3.289842 \times 10^{15}$ Hz or as Rydberg constant $R_\infty = 10973731\ m^{-1}$, which represent the reciprocal wave length $\lambda_\infty = 9.112671 \times 10^{-8}$ m. It has -13.6058 eV. (/Q 12/, page 183f)

The mass of the rotating proton along has to be taken into account and gives the Rydberg constant R_H of hydrogen:

$$R_H = R_\infty / (1 + m_e / m_p) = R_\infty\, m_p / (m_e + m_p)\,. \qquad \text{(/Q 12/, page 183f)} \qquad (2.11,26)$$

$m_p = 1836.1525 \times m_e$,

$R_H = R_\infty /(1 + 1 /1836.1525) = R_\infty / f_H$, expressed by wave lengths:

$\lambda_H = \lambda_\infty \times f_H$; (2.11,27)

$f_H = (1 + 1 /1836.1525) = 1.000544617$. (2.11,28)

With our results of the electron resting mass m_e and the proton rest mass m_p in contrast to the used literature (there 10967769 m^{-1}) the corrected value becomes to

$R_H = 10967758\ m^{-1}$; $\lambda_H = 9.117634 \times 10^{-8}$ m

with the reduced energy: **$E_{A(1)} = 13.5984$ eV** .

That energy $E_{A(1)}$ shall have met the reality. The amount can be determined as well of "Quantum Mechanics". A clear way with relativistic conditions till now one couldn't go. Our trial is here:

The given magnitudes of the radius $R_{(1)}$ and of the velocity $v_{(1)}$ mean a veiling of special relativity of mass. If we reduce the rest mass around f_H and the velocity has been adjusted from $v_{(1)}$ on $v_{(1)}$, then the radius must increase now.

Two positive charges lay in the proton close to each other. The negative protocosm is in opposite side. In this relation, the proton shows the electron its positive face, the electron has only a negative face. The particles would face with facing by face. Both sides give the distance to the gravity center of their masses in the magnitude of their intrinsic amplitude including the vacuum spheres $2R_p$ and $2R_e$. In this cohesion, each distance of charges on their orbit is dependent on the amplitudes of the moved particles. The larger the rotation radius $R_{rot(1)}$ relatively the Bohr's radius $R_{(1)}$ the smaller is the circulation velocity $v_{(1)}$, which is determining the relativistic mass difference $\Delta m_{A(1)}$ that corresponds to the real energy level $\Delta E_{(1)} < E_{(1)}$. The equation (2.11,26), which above is given with the masses, here is becoming clearly to (doubling factor is shortened) that way:

$$R_H = R_\infty R_e /(R_e + R_p) = R_\infty / f_H. \quad (2.11,29)$$

With the equation (2.11,1), the energies of the levels can be converted into rotation radii. They give an image of the real orbit of the electron.

Because now for the rotation radius is valid: $R_{rot(1)} > R_{(1)}$, the mass reduction has to be taken into account to make the equations (2.11,19) and (2.11,20):

$m_{e(1)} = m_e / f_H$ with $f_H = 1.000544617$. (/Q 12/, page 184) (2.11,30)

If one calculates with the eq. (2.11,1), all the rotation radii of the hydrogen atom on n = 1 dependent on velocity v with the rest mass m_e, then one gets the minimum distance in the shape of the double electron amplitude $2R_e = 7.7232 \times 10^{-13}$ m (see section 4.5.) with the velocity of $v = 2.120 \times 10^8$ m/s. It corresponds to the coupling constant α_1 between the electron and a certain middle dot of proton mass. The electron forms with the distance of $2R_e$ both the amplitude and the vacuum sphere. Both spheres together give the horizon of the particle. Now it touches the middle dot of its rotation. If one now takes into account the extension of proton mass like we know it in the shape of its amplitude R_p, which is 1836.15 times smaller than the electron amplitude, then the distance must be made larger with 1/1836.15 of the electron horizon $2R_e$ and the rotation masse has to decrease with the same factor:

$$R_m = 2R_e + 2R_p = 2R_e (1 + 1 /1836.1525) = 2R_e \times f_H. \quad (2.11,31)$$

If the deepest deviation of the orbit, this correction of all orbits must follow this change. With the reduced mass, we really find the minimum distance of $R_m = 7.72739 \times 10^{-13}$ m with the velocity $v_{rot} = 2.120 \times 10^8$ m/s. Exactly this relative increase of the distance with (2.11,19) means the decrease of the theoretical energy level $E_{(1)}$ onto the real level $\Delta E_{(1)}$.

We connect Bohr's magnitudes in term 1 to Planck's condition and set them equal to our relativistic conditions for these two points of view of observers – moved along in term 2, relatively resting, or indicating in term 3:

$$1\hbar = m_e \times v_{(1)} \times R_{(1)} = m_{eB(1)} \times v_{rot(1)} \times R_{rot(1)} = m_{eA(1)} \times v_{rot(1)} \times R_{w(1)} , \qquad (2.11,32)$$

term 1 term 2 term 3

$$1\hbar = m_e \times v_{(1)} \times R_{(1)} = m_e \times W_{SRT} \times v_{rot(1)} \times R_{rot(1)} = m_e \times v_{rot(1)} \times R_{w(1)} / W_{SRT} .$$

The first term covers the special relativity $W_{SRT} = (1 - v_{rot}^2/c^2)^{½}$ in the product of velocity $v_{(1)}$ with radius $R_{(1)}$.

That mistake can be seen at the calculation of the relativistic mass or energy difference $\Delta E_{(1)}$ with the velocity $v_{(1)}$, which does not hit the real $v_{rot(1)}$. It deviates with -5×10^{-4} eV from -13.6058 eV:

$$f_{SRT} = 1/W_{SRT} \approx 1.0000266267 \qquad \Delta E_{(1)} \approx -13.6063 \text{ eV } /c^2. \qquad (2.11,33)$$

Consequently, the apparent non-relativistic product term, which is giving the realistic value $E_{A(1)}$ after mass correction, has to be corrected into three features: 1st on the really working mass $m_{e(1)}$, 2nd on the real velocity $v_{rot(1)}$ and 3rd on the real radius of wave amplitude $R_{w(1)}$. Because of the tree times unknown $v_{rot(1)}$, $R_{rot(1)}$ and $R_{w(1)}$ we firstly show the working tendency:

$$m_{e(1)} \times v_{(1)} \times R_{(1)} = m_{e(1)} \times v_{rot(1)} \times R_{w(1)} / W_{SRT} = m_{eA(1)} \times v_{rot(1)} \times R_{w(1)} ; \qquad (2.11,34)$$

$$v_{rot(1)} < v_{(1)} \qquad R_{w(1)} < R_{(1)} < R_{rot(1)} \qquad m_{eA(1)} > m_{e(1)} ;$$

$$\Delta R_{w(1)} = R_{(1)} - R_{w(1)} \qquad \Delta R_{rot(1)} = R_{rot(1)} - R_{(1)} \qquad \Delta R_{w(1)} < \Delta R_{rot(1)} .$$

Corresponding to the thought of balanced oscillation, R and v could be diverge arbitrarily out of each other. Because of Bohr's force condition on an orbit, there cannot be such a state of electron movement made chaotic and continued to the infinity. The relativity remained unconsidered has to be included now by relating of velocity by the relativity root itself. This can be calculated from the kinetic energy:

$$E_{kin(1)} = \chi / 2R_{(1)} = m_e \times v_{(1)}^2 / 2 = m_{eA} \times v_{rot(1)}^2 / 2 \qquad (2.11,35)$$

$$v_{rot(1)} = v_{(1)} / (f_{SRT})^{½} \qquad \text{with} \qquad m_{eA} = m_e \times f_{SRT} . \qquad (2.11,36)$$

Since the relativity of the new velocity isn't known yet, but it will be deviating only a small value, we approximately multiply with the relativity factor f_{SRT} of the velocity $v_{(1)}$ and we get:

$$v_{rv(1)} = v_{(1)} / 1.000013313 = 2187662 \text{ m /s.}$$

With that velocity the reduced electron mass $m_{e(1)}$ is moving on its orbit. If we set the product $v_{rot(1)} \times 1.0000133$ into eq. (2.11,34) for $v_{(1)}$ then the mass m_e can be extended with the factor 1.0000133:

$$m'_{er(1)} = m_e \times 1.000013313 / f_H = 510731.7 \text{ eV}/c^2 .$$

That mass $m'_{er(1)}$ has been remained non-relativistically. If it would be the relativistically increased indication mass of the type m_A, like expected, which would consist of $m_o \times f_{SRT}$, we had to divide by the relativistic factor f_{SRT} for setting free the real rest mass $m_{er(1)}$:

$$m_{er(1)} = m'_{er(1)} / f_{SRT} = 510718.1 \text{ eV}/c^2 .$$

The relativistic difference of masses $\Delta m_{er(1)}$ leads to the emitted mass (energy) after deceleration:

$$\Delta m_{er(1)} = m_{er(1)} - m_{er(1)} \times f_{SRT(1)} \qquad (2.11,37)$$

$$\Delta m_{er(1)} = m_{er(1)} (1 - f_{SRT(1)}) = -510718.1 \text{ eV}/c^2 \times 0.000026626$$

$$\mathbf{\Delta m_{er(1)} = 13.5984 \text{ eV}/c^2 .}$$

It agrees with the corrected Rydberg constants conversion (2.11,28). The rotation radius $R_{rot(1)}$ one can calculate from the wavequantum amplitude $R_{w(1)}$ and the square of the relativity root W_{SRT}, which is caused on the velocity $v_{rot(1)}$:

$$R_{rot(1)} = R_{w(1)} / W^2_{SRT} . \qquad (2.11,38)$$

Conclusion: in the hydrogen atom the electron is really running on the orbit with the coordinates:

$v_{rot(1)} = 2187662 \text{ m/s}$ $\qquad$ $m_{er(1)} = 510718.1 \text{ eV}/c^2 = 9.10445 \times 10^{-31} \text{ kg}$

$m_{erB(1)} = 510704.5 \text{ eV}/c^2$ $\qquad$ $m_{erA(1)} = 510731.7 \text{ eV}/c^2$

$R_{rot(1)} = 5{,}294936 \times 10^{-11} \text{ m}$ $\qquad$ $R_{w(1)} = 5{,}294654 \times 10^{-11} \text{ m}$;

$1\hbar = m_{erB(1)} \times v_{rot(1)} \times R_{rot(1)}$ $\qquad$ $1\hbar = m_{erA(1)} \times v_{rot(1)} \times R_{w(1)}$

An energy difference can generally be represented without consideration of the supplementary spin term in the Hamilton operator as:

$$\Delta E_{(n)} = E_{Ao(e)} [1 - 1/(1 - v^2_{rot(n)}/c^2)^{1/2}] \qquad (2.11,39)$$

or

$$\Delta E_{(n)} = E_{Ao(e)} - E_{A(n)} . \qquad (2.11,40)$$

n means: from n = 1 to the proximity of the nucleus to the quantized level at the height of the receptacle cosm. We therefore see the energy differences, which have been sent or received, in another light:

The taken energy difference of $\Delta E_{(1)}$ between n = 1 and n to "infinite" (receptacle cosm) can be explained as a *relativistic magnitude of relative adjusting of the resting position of the micro-cosm*.

Vice versa, the taken energy difference of $\Delta E_{(1)} = -13.5984$ eV represents the relativistic magnitude of relative movement of electron cosm between n to "infinite" and n = 1. Each step n between them that is also dependent on the steps of charge adjusting over the e. m. momentum $\bar{\mu}$, also can be seen as a relativistic effect. Each partial step to the relative rest is one step of quantizing of $n\hbar$. The same happens in the atomic nucleus (cf. section 4.9.) and in a cosm with its protocosms (cf. sections 4.1. to 4.3.).

The classic procedure uses the potential energy W_{pot}. Now we want to see like one can set in the given base with the help of our magnitudes.

The potential energy is reached in its maximum, if the electron is elevated up on a far position from the proximity of the atomic nucleus. At first, we elevate it from the nucleus into the proximity of the receptacle cosm radius $R_{o(GK)}$ with the elementary distance $R_{o(EK)}$:

$$W_{pot} = \chi \int_{R_{o(EK)}}^{R_{o(GK)}} dR / R^2 \qquad \chi = k_o e_o^2 = 2.3071144 \times 10^{-28}\ Nm^2. \qquad (2.11,41)$$

We need the smallest distance $R_{o(EK)}$ of both charges at the start of the elevation. In electron, the charge is rotating on half the amplitude $½R_e$ like also in proton on $½R_p$. Our theory derived the oscillation sphere. It represents the shortest separation of two coupling cosms. The electron mustn't dive into the proton, otherwise the coupling already would be valid with α_3. Therefore, the oscillation spheres touch themselves. The charge of the electron reaches down on the maximum of the distance of the oscillation sphere R_e while the charge of proton just shows the distance of its intrinsic oscillation sphere R_p. In this respect, one had to add both oscillation spheres: $R_V = R_e + R_p$. Then the shortest distance of charge centers has the value of $R_{o(EK)} = R_V = 3.8637 \times 10^{-13}$ m. The largest distance could be reached on the amplitude of universe R_U: $R_{o(GK)} = R_U = 5.303683 \times 10^{25}$ m. We get:

$$W_{pot(0...\infty)} = \chi / R_V - \chi / R_U = 3{,}726.94\ eV - 2.7 \times 10^{-35}\ eV = 3{,}726.94\ eV.$$

The wave potency, which must be like the De Broglie energy should express itself in this. The finiteness therefore lets itself be seen in our theory here! We raise the electron up to the amplitude now (we don't raise it up to the rotation radius):

$$W_{pot(0...1)} = \chi / R_V - \chi / R_{w(1)} = 3{,}726.94\ eV - 27.1968\ eV = 3{,}699.7432\ eV;$$

Bohr's theory decreases from the level of infinite R_∞ to n = 1, because it doesn't know the universe amplitude and gets the value of $W_{pot(\infty...1)} = -27.1968$ eV. The relativistically kinetic energy has to be added to this:

$$W_{kin(1)} = m_{erA(1)}\, v^2_{rot(1)} / 2 = 13.5982\ eV\ ;$$

$$\Delta E_{(n)} = W_{pot(0...1)} + W_{kin(1)} = \mathbf{-13.5986\ eV}.$$

This confirms our following way of thinking. Inside the cosm, a rest mass or a rest charge cannot emit its relativistic change, which it got by motion changing. Their primary wavequanta do not allow some distinction or any indication. An electric charge of the supernumerary protocosm rotates along the oscillation and forms the magnetizing of vacuum. If the e. m. effect is asymmetric, it can work to the outside and there it can exactly project the inner change of mass oscillation to the outside electromagnetically. Here, the rotation relationships have to be taken in account like the gyromagnetic momentum of the electron and the rotation of the proton with its charge (multiple protocosms).

Well, if a charge and also a magnetic field are balanced, nothing then can work to the outside. Whenever the charges are compensated and when only the magnetic field works additionally, then there is already an e. m. projection of those charges in vacuum. That change will be answered exactly with the change of the e. m. wave energy like at an open charge.

Well, the rotating charge and the magnetic field transfer the analogon of the mass change as e. m. radiation from level to level changing the cosm movement:

$$\Delta m_{(n)} = m_o \left[1 / \sqrt{(1 - v^2_{1(n)} / c^2)} - 1 / \sqrt{(1 - v^2_{2(n)} / c^2)}\right]. \qquad (2.11,41)$$

In this respect, the rotation of electron charge in electron cosm becomes to an oscillation movement during its circular movement, which up and down doesn't run chaotically but exactly and controlled. That oscillation is flat and not spatial like Schrödinger expected. Well, we don't come onto orbitals model imaginations but onto areas of paths (tracks, circular ways, planes) anymore.

Our considerations should prove that the calculation of the wave energies is possible without a spatial and statistical modeling of the orbital. The chemistry has let the model get to an essential pillar to the illustration of its bonding in the meantime since its mathematical basis is correct, however. Our thesis presented at the beginning connects the model imagination of electron repulsion especially electron pair repulsion with the model adopted by us of the magnetic coupling of the electron orbits. We favor the coupling of the wavequanta and their magnetic properties in the plane.

Two electrons are then able to stay together, if they are coupled by their wavequanta with each other. Nothing runs by themselves because of their repulsion. Activation energy only couple both things. Why is no common orbit be formed on which the electron pair is orbited into one approximately? The planes of the ellipses interact over their half the magnets in the fire points. At this, they push their two atomic nuclei into two other remote fire points. The electrons just go on repulsive distant orbits.

In the obvious fire point, the planes couple by the locally incomplete compensation of their half the orbit magnets being there and by the following radiation of light quanta (the repulsion of gravitomagnetic vectors works to the complete congruence of the electromagnetic forces). This event corresponds to the annihilation of particles/ antiparticles like wavequanta and their relative complementary states. Fermi-spin escapes both into a wavequantum vacuum. At their place, the addition of amounts leads to both wavequanta to be emitted. The remaining half the spins provide now even the cause of the reduced affinity of such types of bonding, because they have compensated both contrary effects in wide surroundings when the difference of electronegativity according to Pauling law goes to zero. Such an orbit is given in hydrogen molecule. Hydrogen molecules are less affine than atomic hydrogen. If an electron pair however had circulated in the same direction on a common orbit, the orbit momentum ought to have appeared doubled unlike the reality.

The helium atom can be valid as eloquent example of the theory of the noble gas configuration in the shell levels. A characteristic may not be overlooked: every orbit s, p, d, f can only be filled with the maximum of two electrons in contrary spin:
$1s^2$, $2s^2$, $2p_{-1}^2$, $2p_o^2$, $2p_{+1}^2$, $3s^2$, $3p_{-1}^2$, $3p_o^2$, $3p_{+1}^2$, $4s^2$, $3d_{-2}^2$ .... The electrons strive for accepting the configuration of helium atom, if they only were singles. But this aim they never can reach, because their atomic nuclei cannot be united. Consequently, the expedient of hydrogen molecule remains.

Even in an ion bonding like in sodium chloride after losing the electron, the sodium has now five energy levels ($1s^2$, $2s^2$, $2p_{-1}^2$, $2p_o^2$, $2p_{+1}^2$, $3s^0$) that are similar to the shell of the hydrogen molecule. The electron lost from sodium atom fills up the shell of chlorine to the ninth analogon of the helium atom ($1s^2$, $2s^2$, $2p_{-1}^2$, $2p_o^2$, $2p_{+1}^2$, $3s^2$, $3p_{-1}^2$, $3p_o^2$, $3p_{+1}^2$). In accordance, the electrostatic forces of ions are working. We had to conclude:

> Every chemical covalence appears as an analogon of the electron shell of the hydrogen molecule. With increasing polarity of the substance, this kind of shell strives to the analogon of the shell of the helium atom. It finally has reached it in the ion bonding.

Well, a pair rule is rather valid here how we recognized it at the construction of protocosm orbits in receptacle cosm. We find the same legitimacies in the electron shell. An atom is certainly the illustration of an incomplete and open microcosm. Electrons charged positively (which are not objectively given in this world; there are only antimatter electrons charged positively) and the property of anticollapse are missing.

Well, two orbits lay in one plane. Each orbit will be pressed to the ellipse by repulsion of its electron. Each in one fire point of both ellipses, helium nucleus is placed. Both ellipses press after a radial difference of their orbit radii, because of their electron repulsion. In the same measurement, the velocity is varied to keep the wavequantum. The orbit vectors lay contrarily and additionally like the spins to the magnetic field circle. This causes the contrary rotation of both electrons on ellipses. Such a system of magnetic vacuum coupling is almost perfect.

Illustration 2.11;2: Helium shell

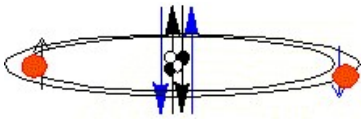
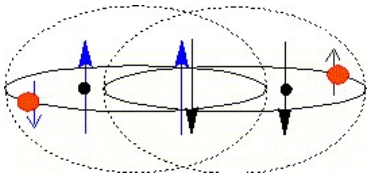


Illustration 2.11;3: Shell of the molecular hydrogen



The following difference between helium and molecular hydrogen is working: the atom nuclei don't lay in one common fire point but in those fire points far away of the ellipse orbits. Every electron orbit works repulsively no matter if it is a single or a pair. Therefore it isn't erroneous to refer the present knowledge of hybridization of "orbitals" on the *bonding areas* in similar feature. At this, the energies of the areas shall be brought into line.

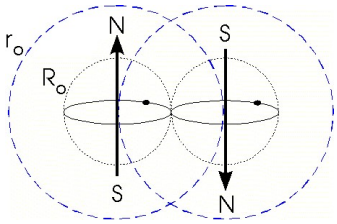
There are three elliptical ranges at the carbon in the ordinary case: $2s^2$ looks like helium. Both of $2p^1$ areas lay contrarily vertically. If now one animated 2s-electron leaps into the third 2p-area, then there are four elliptical orbits. Here the first step of hybrid formation seems to be made named promotion. Though we assume because of magnetic working that only these three 2p-levels will hybridize while the 2s-level will be kept. According to our opinion, these three elliptic p-areas yield a magnetic circle. It is disturbed by the electrostatic field of the 2s-electron. In this respect, a repulsion tetrahedron is conceited. It has an equilateral triangular base where these three 2p-areas close their magnetism. That 2s-area stretches out and gets free degrees of rotation. Only then if this carbon state goes bonding at first, the magnetically open and therefore more affine 2s-levels will couple even with each other to ethane $H_3C\text{-}CH_3$. Here the relationship is freely rotatable, because the binding area co-rotates.

If the carbon ties the hydrogen to its area $2s^1$, then a further hydrogen atom has to brake the magnetic circle of these three 2p-levels at one position. Than it has happened: the intermediate product is radically reactive. The bonding with the last two 2p-levels must be completed to methane CH_4.

If we start for explanation of ethene $H_2C{=}CH_2$ from the fourfold splitting of the electrons into the tetrahedron, then we can lead together both C-atoms over a σ-bonding of s-areas. Each two electrons remain for bonding with four hydrogen atoms in a σ-bonding and two magnetic fields to the π-bonding, but which is spatially given into a larger distance as this was possible at the first bonding between both C-atoms. So it actually becomes the special bonding. Well, the second coupling is actually slack like chemists say. If at a C-C-bonding only two hydrogen atoms would bond to ethine $HC{\equiv}CH$ (C_2H_2) then the magnetic circle of 2p-electrons is broken. They have to couple with each other in the π-bonding.

If three ethine molecules have been bond, then their inner angles are adjusted on more than 120° and the coupling force of their π-bonding represents the benzene molecule C_6H_6. It was said the orbital model only could explain the benzene ring. Here is our model: in the course of the representing of benzene from ethine at each second bonding, we find s-s-σ-bonding. Between them we find three times the p-p-σ-bonding. How Kekulé (1829-1896) showed, each second C-atom now would be coupled by a double bond (134 pm). In reality, the six remaining 2p-ellipses form a magnetic circle, which is pressed into the center of the hexagon by the attraction (139 pm; simple bonding: 154 pm). The electrons will rotate so that they escape the highest repulsion. A double bond can be assigned to none of the mutual bonding in the real sense here, because they immediately are bonding with two adjacent orbit magnets again. In this respect, the benzene bonding is a special bonding, which isn't comparable with the π-bonding at ethene or ethine. One could compare this kind of π-bonding with the feature of "half the bonding", because they have to be divided magnetically. In the meanwhile, those electron pairs of bound six hydrogen atoms push to the outside. Illustration of complete and regular hexagon will be rather real, now. When p-electrons come into the magnetic circle, they let shift them by magnets sensitively, and then they generate a relatively electric current on both sides of the binding area.

Illustration 2.11;4 : Apparent Spherical Coupling of Wavequanta of Both Electron Orbits



Schrödinger's model gave real values of hydrogen. However, he had accidentally found an anticipation at the coupling of real cosms. If the wavequanta would be such spherical cosms of their amplitudes, the coupling looked like illustration 2.11;4. The distance of the nuclei would be two times of 53 pm, these are 106 pm. Really, the measurement is at 74 pm. Wavequanta don't still close the interaction cosm. Consequently, we can leave out the sphere r_o.

Those spheres R_o, which are amplitudes R_w now, are coupling as if they would be analogously to event horizons r_o. They try to dive into each other until the center is reached. We found 53 pm. But the repulsion of the nuclei works against this state. That building will be elliptically distorted like seen in illustration 2.11;3.

2.12. Cosm Momentum and Magnetic Momentum

Each cosm oscillation reflects Planck's constant h with integer 1 × h during two consecutive pulses of spacetime, which corresponds to the oscillation length λ_o. Reflections of this double pulse behavior of the cosms with an integer Planck constant prove then half the number state as a wavequantum of electric feature: on a gravitationally single primary pulse, which corresponds to half a period and to ±½h, a charge is rotating while forming an electromagnet calculated into half a spin of magnetic momentum ±½μ. Wavequanta are fundamentally connected by arbitrary integer numbers of n × h. The integer and real number n grafts onto the amount of h its vectorial character additionally. Objectively, cosm's and wavequantum's momenta are already the *natural* vectors $\boldsymbol{h}$ and $\boldsymbol{\mu}$.

Because of (2.4,24), the equation (2.9,26) can be described into:

$$n \times \boldsymbol{h} = \boldsymbol{h}_{(n)} = 2\pi \times R_{w(n)}{}^2 \times \boldsymbol{m}_{w(n)} \times 2\pi \times f_{w(n)} \ . \qquad (2.12,1)$$

With the converting of wave length (2.10,19) now, here is the vectorially formed equation:

$$\boldsymbol{h}_{(n)} = \lambda_{w(n)} \times \boldsymbol{m}_{w(n)} \times c_{w(n)} \ . \qquad (2.12,2)$$

The vectorial wave length or the wavequantum arc λ_w is also the same like the circle way that has an orientation by the direction in the sense of a perimeter u, which the moving mass or antimass $\boldsymbol{m}$ takes writing the wavequantum of its wave mass $\boldsymbol{m}_w$. The direction of this circular current is forming the vector. If one divides this equation by 2π then this procedure leads to the amplitudical function $\boldsymbol{\hbar}$ with the wave amplitude or the wavequantum radius R_w :

$$\boldsymbol{\hbar}_{(n)} = R_{w(n)} \times \boldsymbol{m}_{w(n)} \times c_{w(n)} \ . \qquad (2.12,3)$$

THE COSM MOMENTUM

For $n = 1 \equiv n_{(1)}$ the cosm momentum follows:

$$1\boldsymbol{h} \equiv \boldsymbol{h}_{(1)} = \boldsymbol{m}_o \times \boldsymbol{c}_v \times \lambda_o \ : \qquad \textbf{cosm spin}. \qquad (2.12,4)$$