

$$E_{Ao(GK)}^2 = E_{Ao(EK)}^2 \times (1 - v_{limit}^2 / c^2)^2 \quad R_{o(GK)}^2 = R_{ov(EK)}^2 / (1 - v_{limit}^2 / c^2)^2$$

$$v_{limit} = [c^2 \times (1 - E_{Ao(GK)}^2 / E_{Ao(EK)}^2)]^{1/2} \quad (2.8,36)$$

$$v_{limit} = [c^2 \times (1 - R_{o(EK)}^2 / R_{o(GK)}^2)]^{1/2} \quad (2.8,37)$$

$$r_{limit} = r_{k(EK)} / (1 - E_{Ao(GK)}^2 / E_{Ao(EK)}^2) \quad (2.8,38)$$

$$r_{limit} = r_{k(EK)} / (1 - R_{o(EK)}^2 / R_{o(GK)}^2) \quad (2.8,39)$$

$$E_{wmin} = E_{Bmin} > E_{Ao(GK)} \quad R_{wmax} = R_{Bmax} < R_{o(GK)}$$

after (2.4,46) and (2.4,45) follow:

$$E_{wmax} = \{E_{Ao}^2 \times [v_{limit}^2 / (c^2 - v_{limit}^2)]\}^{1/2} \quad (2.8,40)$$

$$E_{Amax} = \{E_{Ao}^2 / (1 - v_{limit}^2 / c^2)\}^{1/2} \quad (2.8,41)$$

If special cosms with their magnitudes are known like universe (see section 4.5.) from them the limit magnitudes of velocity, maximum contraction of collapsing mass could be calculated and further conclusions of finitenesses of waytimes could be taken. If one will take part at infinity in the eternal universe one must exceed the limit magnitudes especially the limit velocity.

## 2.9. Oscillator-solution (ARCUS, 1986 and 1992)

*Theses:*

The general relativity principle would cause infinite relativity.

*Antitheses:*

We mean this principle even limits the relativity on finiteness.

From this follows: *for coordinate systems following from each other non-continuously both observers live inside of two different worlds in their respective coordinate system.*

This precise interpretation we will use to explain the closed curvature of a spacetime after the principle of cosm oscillation as a closed world how it is possible to think the relationships of physical dimensions working between two worlds to zero. In the last section we showed that the bridging of two worlds is only running over the imaginary number j.

That is valid for electrogravitational matter which is caused on stable particles which also can be derived into unstable states. For the stationary vacuum we don't use the postulate of general relativity principle any more in separating but in connecting way. Exclusively the generally given vacuum can be a magnitude which is getting an object at the outside of a world and which can be continued in relatively external space. This means for example that between the isolated inside of two quantized oscillating black-white holes is not feasible some common external relationship which would make contact between the isolated physical events with exchange of physical magnitudes directly closing movement systems (these laws are valid everywhere in the same way). Shortly: *in the continuous coordinate system of stationary vacuum which is transferring its most general law (of physics) onto all the existing things, independent but completely closed coordinate systems exist with subordinated concrete physical operations after generally valid laws.*

*Theses:*

The general resting mass of a „black hole" would be working into the generally stationary field.

*Antitheses:*

The contracted and isolated rest mass of a black-white hole externally only is working in minimum magnitudes till it will be changed by elongation to come into its packing. Following its coordinate system is moving back under the vacuum sphere which horizon is falling now to the inside after the oscillation. Outside a completely different quality of mass can be noticed namely the oscillation energy of the total sphere  $\Sigma_0$  divided by  $c^2$ .

Present conception of "black holes" in stationary form and of total action of its internal mass into the external spacetime is invalid! Instead of this kind we substitute the matter by a system of hierarchies which are consisting themselves of non-stationary black-white holes living in stationary vacuum. Their insides give information to the outside indirectly:

*The external movement forms the external cosm momentum in which it represents the receptacle movement for all the internal moving matter at the same event, those movements it is hiding before the identifications from the outside. Just electric interactions can inform over isolated movements analogously gravitational features.*

This external cosm momentum determines the externally measurable mass  $m_0$  (cf. (2.6,1)) but all the isolated mass  $M_0$  as expression of static gravitation charges – these are the isolated cosm momenta - and of dynamic gravitation charges (these are wave quanta and elementary magnets) will be closed under the gravitation horizon calculated from the inside!

**You see: all the oscillation mass  $M_0$  is that cause of locking in the course of a general change of qualities!**

If there are two kinds of mass – gravitational resting mass and electromagnetic momentum mass - which together find the locking, though each mass itself works out the total curvature of its intrinsic coordinate system! Every isolated and gravitomagnetic momentum mass takes part at the curvature of its massive coordinate system. The sum of electromagnetic momenta allows a special solution – the radiation cosm solution as one of the Friedman solutions (see section 3.2.3, page 460). One could assume such divergently locked photon cluster which one must see as a magnetic monopole pair with two magnetic charges oscillating themselves in congruence. Such a kind of special light worlds we sign as magon pairs or PK-magon pairs and abbreviate them as magnet-antimagnet.

Alone the movement is able to give a function to the internal as well as to the external with an intrinsic existence. The whole logic shows our objectively idealistic assumption: if a real substance is moved then it draws a real picture which then is becoming to a real importance. Though a closed movement draws a mass into the matter and projects the totally transparent picture of universal movements to the outside while an open movement in our brains is thinking into the inside of matter, into chemical and physical real-processes (materially provable movements), and while the same open movement draws our soul to the outside into the nothing like this non-material state is seen by us (a projection to the outside which is not provable from the inside).

This point of view is radically consistently relativistic. It pulls a completely new judgment of the physical magnitudes within the solution equations of the relativity theory and the "quantum mechanics". In this respect it is the key for unity of the theories and at the same event it is the base of philosophy. On this we will come back especially in section „2.12. Cosm momentum and *magnetic momentum*“.

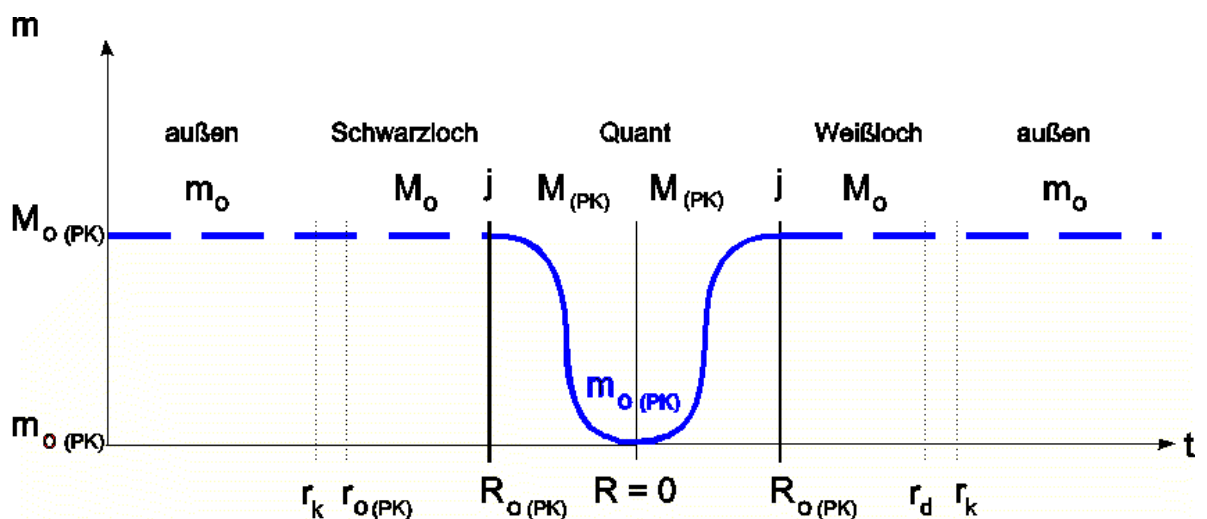
The external mass  $m_0$  which is also the mass  $M_0$  taken to the inside, contracts and starts collapsing at  $r_k$ . Under the divergence horizon  $r_d = r_{o(PK)}$  that mass  $M_0$  is falling on seen from the externally valid coordinate system. After reaching the amplitude  $R_{o(PK)}$  this mass  $M_0$  changes its coordinate system over the imaginary number  $j$ . It becomes to the oscillation mass of quantum  $M_{(PK)} = M_{o(PK)} \times \cos^2 \phi$  which reflects the oscillation to the outside as that external protocosm mass  $m_{o(PK)}$ . Now that adjusted Planck quantum is oscillating half a period  $\frac{1}{2}\tau_{o(PK)}$  in form of *protocosm* into downward elongation  $-dR$  and upward elongation  $+dR$  back to the quantum amplitude  $R_{o(PK)}$ . There the coordinate system changes under special conditions:

1. *Energy shortage*: the internal energy accelerates the subprotocosms justly so as if they would be protocosms of a stable particle. In result the internal mass gets external because of its divergence after which a certain measurement of quantized radiation comes to the outside, but the internal structures don't have enough energy to pass the way out over the collapse radius  $r_k$ . Here we have a black hole which now and then radiates smally in the course of its intrinsic period. Such a building is the PULSAR. Present explanations of the working of a Pulsar we just cannot follow any more in our theory of quantizings.

2. *Energy stalemate*: the internal dilation energy can accelerate the topmost subprotocosms so strongly that they survive the way nearly under the collapse radius  $r_k$  without anticollapsing before. It doesn't require any additional assumptions because it certainly seems to be logical that in universe a complete palette of diversely energetic interactions will have led have to the different celestial bodies. That pulsar will show a higher dose of radiation.

3. *Energy surplus*: it can accelerate the subprotocosms of the topmost cosm sentences so strongly that those periods are dilated until they have exceeded the collapse radius  $r_k$  at least or even far away from this radius. That white hole phase installs the externally known systems of stars and planets like their satellites and their subsatellites. The central black hole system remains there which energy is becoming impoverished during the procreation process of further ranks of protocosmic interactions until it passes over from energy stalemate to energy shortage. Such protocosms having energy surplus was produced in radiation fire. Therefore from their external mass function  $m_{o(PK)}$  will be set free essentially more internal mass  $M_o > M_{o(PK)}$  than it is possible in relationship of stability assumption or in a undamped oscillation after equ. (2.7,1) and (2.7,4). Constant  $d$  isn't valid any more. The variable  $d' > d$  now is valid.

Illustration 2.9;1: The change of coordinate systems between outside and inside



With the above mentioned three points we master the whole universe. Now we want to prove the oscillator inside the stationarity.

I. The observer "I" means the relativistic effects would be able to compensate with his view from the inside against the never reachable end of its receptacle cosm to  $r \rightarrow \infty$ , *practically in the pseudo infinity*. At the same event his elementary cosm seems to rest in vacuum.

II. But if the observer "II" looks at one of his elementary cosms from the outside then he is already separated by the radius  $r_o$  from each of these elementary cosms and their inner worlds. Horizon-like it is already valid:  $t = +\infty$  (Kruskal solution, see section 3.2.2.). In this respect he is not interested in the effects of his elementary cosms describing his receptacle cosm.

Now the observer is allowed to do something which was caused with the general relativity principle from which he wins a new view at the hierarchy of cosms:

For this case he suspends the generally valid relativity; because the spacetime of the observer "I" is not the spacetime of the observer "II". Though every observer has his own relativity relatively his spatial limits being in his own world.

Therefore it is valid:  $r_v = \infty \neq r_t$ .

We distinguish between the pseudo-infinite coordinate  $r_v$  and the finitely determinable coordinate  $r_t$ , which could be measured by the observer at his receptacle cosm or at one of his elementary cosms by exceeding or falling over the horizon limit of pseudo-infinity there at the same event.

Consequently, every observer must define his ways. By reasons of definition of an amplitude  $R_o$  and its amplitude time  $t_o$  (both are equivalent over  $c = R_o/t_o$ ) we give a definition like in equ. (2.8,25):

$$r_t^2 \equiv j^2 R_{o(GQ)}^2 \text{ and } t_t^2 \equiv j^2 t_{o(GQ)}^2, \quad (2.9,1)$$

The relativistic terms disappear because the terms 1 and 3 are different of the external world. The equation (2.8.24) gets the form:

$$ds_1^2 - j^2 R_o^2 \cdot d\phi_1^2 = j^2 R_o^2 \cdot (\sin^2 \phi_1 d\phi_2^2). \quad (2.9,2)$$

Movement of  $R_o$  is determined from the magnitude or spherical coordinate  $\phi_1$ .

Just now we already saw that the observer stays on an x-arbitrary point of an oscillating surface determined by  $\phi_1$ . If there is a coordinate for him then it is a polar coordinate  $\phi_1$ , which says to him that he has arrived a determined elongative height. Above there each position on the spherical surface has the same right. Because of the adjusting for  $ds_1$  follows:

$$\begin{aligned} ds_1^2 &= j^2 R_o^2 \times d\phi_1^2 + j^2 R_o^2 \times d\phi_1^2 = 2j^2 (R_o^2 \times d\phi_1^2) \\ R_o^2 \times d\phi_1^2 &= R_o^2 \times \sin^2 \phi_1 d\phi_2^2. \end{aligned} \quad (2.9,3)$$

We form a  $dR^2$  from the left term of this equation and set  $\phi_1$  as  $\phi$  shortened:

$$dR^2 = R_o^2 \times d\phi^2 \quad \text{or} \quad (2.9,4)$$

$$d\phi = \pm dR / R_o. \quad (2.9,5)$$

Because of (2.3,2) the relation is valid:

$$d\phi = \pm dt / t_o. \quad (2.9,6)$$

We integrate to:

$$\int_0^{2\pi} d\phi = \pm R_o^{-1} \int_0^u dR = \pm u / R_o = \pm \phi_o. \quad (2.9,7)$$

$\phi_o$  is then the maximum magnitude of the phase angle of  $2\pi$  (cf. equ. (3.2.3,13) and (3.2.3,14))

This yields the integrable basic equation:

$$dR^2 = R_o^2 \sin^2 \phi d\phi_2^2. \quad (2.9,8)$$

It is extracted the root to:

$$dR = \pm R_o \sin \phi d\phi_2. \quad (2.9,9)$$

Assuming the phase angles of all oscillation elements of the sphere  $\phi$  determined by  $R_o$  would agree in their common receptacle cosm, what they must, otherwise there wouldn't be any community:

$$\phi = \phi_2 , \quad (2.9,10)$$

we can integrate uncertainly and get four equations analogously to (3.2.3,25). With (2.9,10) the integrals for the unity of waytimes, which reflect the WORLD FORMULA, have taken the form:

$$R_I = + R_o \cos\phi + \text{const}_{(r)} , \quad (2.9,11)$$

$$R_{II} = - R_o \cos\phi + \text{const}_{(r)} , \quad (2.9,12)$$

$$R_{III} = + R_o \cos(-\phi) + \text{const}_{(r)} , \quad (2.9,13)$$

$$R_{IV} = - R_o \cos(-\phi) + \text{const}_{(r)} , \quad (2.9,14)$$

$$t_I = + t_o \cos\phi + \text{const}_{(t)} , \quad (2.9,15)$$

$$t_{II} = - t_o \cos\phi + \text{const}_{(t)} , \quad (2.9,16)$$

$$t_{III} = + t_o \cos(-\phi) + \text{const}_{(t)} , \quad (2.9,17)$$

$$t_{IV} = - t_o \cos(-\phi) + \text{const}_{(t)} . \quad (2.9,18)$$

Each of the involved waytimes oscillate after such a principle that they form a space – the spacetime. Actually, we move us only within the single dimension WAYTIME which one saw as fourth coordinate today, but which is really the first and the only one, because our behavior to reflect coordinates in Euclidean systems was *unrealistic* under inclusion of the time grafted onto. The imaginary number  $j$  is just a sign of interpretation keeping mathematically exactly if a spacetime consisting of its waytimes has to be connected to another spacetime. In this respect the equations seem to be like the correlation result of Schrödinger's  $\psi$ -function, which came near to reality relatively the sky waves. After that basic equation of a three-dimensional oscillation of something oscillating - namely  $\Delta\Psi$  ( $\Psi$  = the anything moved in three-dimensional way and time) – the oscillation of a spacetime was recognized as the product of moved cosms without knowing more. This one is secondary because the primacy of waytime was disregard. We recognized the primacy of matter with the cosmological oscillation of all cosms on orbits which describe areas, but they don't describe orbitals explained spatially. The variety of all areas may form the orbit, but not reversed. Though the objectivity of spatially oscillating particles was mixed up with the wave quanta of moved particles. This means: Schrödinger anticipated the reality. An electron is forming the very first pre-step of a cosm but still no cosm. Only  $7.8 \times 10^{46}$  electrons are able to form a black hole which would correspond to the radius of hydrogen atom. Consequently, the Schrödinger cosm is flat – it is an *interaction area* in which the electron is rotating.

The illustration 2.9;2 at page 367 shows the solution for positive phase angle. For negative matter the negative phase angle is existing. The positive and the negative amplitude pointer  $\pm R_{o(z)}$  is moved by  $+\phi$  into the direction  $\pm R_{o(x)}$  as well as it is also forced for drawing of the helix (P) because of the left rotation of the circle area  $R_{o(x,y)}$  with  $+\phi$ . In total interval of phase angle the running point P describes a closed helix – like the draw of a number 8 in spatial dimension seen from  $r_{(y)}$ . The large axis of each ellipse described this way corresponds to the diagonal of a square  $R_{Go}$  because of the distance of the example  $R_{o(z)}R_{o(y)}$ . Starting from  $\pm R_{o(z)}$  Goedel's radius  $R_{Go}$  moved with angular velocity  $\omega$  is also drawing the rolling of the Friedman circle  $R_{o(x,y)}$ . Friedman radius  $R_o$  is given by projection of a Goedel-radius  $R_{Go}$  onto the x,y-plane. If one project the running point P into this x,y-plane then its point P' is drawing a circle of the radius  $+\frac{1}{2}R_{o(y)}$  (= small half an axis of ellipse) exactly two times with the same right sense within the total interval of  $\phi_o$ .

The radius  $-R_{o(z)}$  moved along is also forming a double circulation with the right-directed rotation over a radius of  $-\frac{1}{2}R_{o(y)}$  with its running point and its projection.

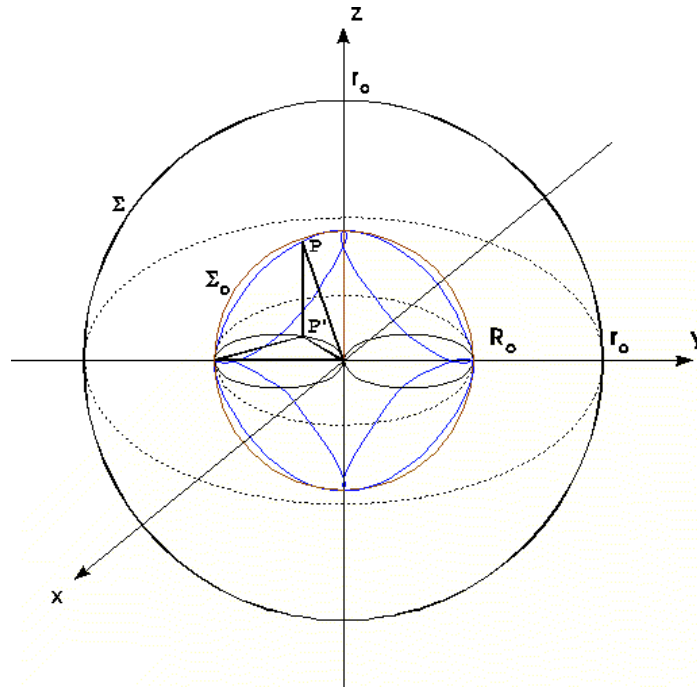
The distance PP' corresponds to the elongation  $\pm R$ . After the law of Thales the running point P' is drawing right triangles of the cathetes OP' and P'R<sub>o(y)</sub> and of the hypotenuse of the amount of

$|R_{o(y)}|$ . This right triangle made by the origin 0 and the points P and P' is congruent to the Thales triangle. Changing angles round the proof off. Therefore the variable triangles consist of the amounts of the cathetes R and  $R_2$  and the hypotenuse  $R_o$ , where always is valid:

$$R_2 = R_o \sin\phi . \quad (2.9,19)$$

That totally isolated event is locked by  $r_o$  or its vacuum sphere  $\Sigma$ . The movement of this right-directed matter (positive gravitation) is exclusively determined by  $+\phi$ . This  $+\phi$  decides about space and time after making  $R_o$ ,  $t_o$  constant! With  $-\phi$  negative gravitation is given.

Illustration 2.9;2: Oscillator solution – the World formula in illustration



We define both circles made by P' draw of the radius  $\pm\frac{1}{2}R_{o(y)}$  which additionally yield the same perimeter like the Friedman circle:

### Parity orbits (PB).

These are idealized arcs. They only appear exactly if the mass density would be stationary and if then an element would be moved from  $R = 0$  till  $R = R_o$  with vacuum light velocity. The way's length would have the magnitude of  $K_o$ . In reality the non-stationary density makes moving in spiral shape. In the beginning the density is extremely high but not infinitely high because of the discontinuity over the central mass negation. Also the orbit curvatures have begun extremely. A parity orbit therefore one has to imagine as spiral smoothed up to the circular arc.

Half a perimeter of the Friedman circle  $u = 2\pi R_o = \lambda_o$  like half an oscillation length or calculated as half a period time we define to  $K_o$ :

$$K_o \equiv \frac{1}{2}u = \frac{1}{2}\lambda_o . \quad (2.9,20)$$

The same rotation direction of both parity orbits (rightly in direction of z-axis  $\equiv$  positive) is to interpret as positive gravitation by yielding to a dipole behavior of force rotating positive gravitation charges on them, reflecting the attraction in the x,y-plane - a cohesion. The left-directed rotation led by the negative phase angle has to be seen as negative gravitation in dipole shape. Such cosmos making negative gravitation hold themselves together - negative attraction. Because equ. (3.2.3,6) also gives the same structure to the electric cosmos, but we know their dipole behavior from Maxwell's theory, we must conclude: *contrary poles of gravitation generally repel each other.*

Because it is valid: if on both parity orbits two charges rotate with the common denominator of electric type in right- or left-directed rotation then their poles of the common denominator of its dipole repel themselves on both sides of x,y-plane. We see the reverse processes which lead to the attraction; but we also know that the *contrary rotation directions are compensating themselves* in mathematical congruence.

Like we have the force defined as result of movement ( $\pm\phi$ ) forces always compensate themselves if **contrary charges** of gravitational and electric origin are standing in the distance of zero or in relative congruence to each other. Mathematical congruence never will be complete (divergent congruence) if the spacetimes shall be moved on the same way into the same direction because their own extension prevents the equality. The perpetual polarization follows from the divergent congruence.

From the compensation of the dynamic magnitudes which externally diverge against zero the vacuum state of the cosmos can be justified. The compensation of dipole forces always then will be reached if below of  $r_0$  the contrary cosmos (cosmos and anticocosmos) their parity orbits compensate their force. Though vacuum cosmos of primary type arise which are consisting of the primary charges of gravitation and electrification.

The vacuum is the absolute space. In it relative spaces are possibly made from movements of cosmos. Is there actually a body given created with the absolute space which physically earned the name "volume"; volume with all its thermodynamic consequences? No, it isn't. In vacuum does not exist some measurement for some volume of a real physical phenomenon "particle" where protocosmos are moving which firstly form out the secondarily relative intrinsic space for special types of cosmos. While a *waytime-like movement of protocosmos matter* in vacuum one cannot speak of a change of volume of vacuum! This is senseless! In this respect neither a universe expansion nor that contraction exist before protocosmos tip out their contents at all!

The apparent amplitudical or the elongative volume  $V_0$  or  $V$  will be installed. It is named:

$$V_0 = 4\pi \times R_0^3 / 3, \quad (2.9,21)$$

$$V = 4\pi \times R^3 / 3 = 4\pi \times (R_0 \times \cos\phi)^3 / 3 .$$

From this the amplitudical or elongative density are able to be calculated:

$$\mu_0 = M_0 / V_0, \quad (2.9,21a)$$

$$\mu = M / V = \mu_0 / \cos\phi; \quad \cos\phi \neq 0, \quad (\text{cf. (4.1,6) till (4.1,10)})$$

$$\mu = k_\mu / R = R_0 \times \mu_0 / R. \quad (2.9,21b)$$

The cosm density is centrally installed and falls to the deepest value  $\mu_0$  with the upward elongation  $R \rightarrow R_0$ . These magnitudes are idealized because this theory only requires that they are related on elongations. But that elongation is running most subtly differentiated for the single elements of matter. There are essentially denser areas where thinner spaces are connected. On average value the density is then  $\mu_0$  if the elongation has reached  $R_0$  de facto by running installation with  $\frac{1}{2}\lambda_0/\pi$ .

Each body installed by its protocosmos consisting of cosmos has its own waytime. After its installation it radiates out and it receives the momentum exchange for making the forces with intermediate electromagnetic and gravitomagnetic radiation. When the complete exchange of electrogravitational radiations has gone it goes off of its installation place again. This means: between the installed bodies, which came from protocosmos themselves and which now take contacts under each other in the installed receptacle cosm by radiation exchange, no spatial times exist but only waytime-like contacts. One cannot take the concept of spacetime primarily. More the waytime is the primacy of formation of spatial contacting of a quantity of such bodies of spatial shape, those insides are only the same product of waytimes again.

In this respect all the theories must lead to mistakes which go up into a higher dimension instead of recognizing the reality of birth of three-dimensional spacetime  $r_{(x,y,z)}$ ,  $t_{(x,y,z)}$  from *one single dimension* and its exceeding of its limits in overcoming of the fourth dimension  $j$ . Because it may not be valid to cover the coordinates  $x$ ,  $y$  and  $z$  being dipoles:

$$ds^2 = dx^2 + dy^2 + dz^2 - dct^2$$

(Minkowski spacetime).

Under such aspects one always discusses separated terminologies like „way-like" and „time-like". With our definition of commonly observed installation waytimes or oscillation waytimes the line element  $ds$  is always three-dimensional. From this the „waytime-like" unity is given:

$$dct^2 = dct_x^2 + dct_y^2 + dct_z^2$$

and

$$dr^2 = dx^2 + dy^2 + dz^2 .$$

Under this condition the waytime  $dr^2 = dct^2$  is equivalent to the three-dimensional „waytime-like" calculation of polar coordinate: the three-dimensional state is a fiction of the one-dimensional state.

By Einstein's spacetime it is better solved relatively Minkowski spacetime. But it was mistaken interpreted in a rudimentary way of present physics under neglecting of coordinates by making dependent a sphere from dilations of local waytime and from contractions of wave-waytime. That sphere is even way and also time itself.

It is only allowed to see the relations between the movements of particles or of particle systems in the total system of all movements in spacetime without losing from the eye that here a unity is given which adjusts their own ways and times on a common synchronized relation: either both have dilation or both have contraction! The way is a vector because the movement direction in vacuum has an essential importance. After the equation

$$\mathbf{E} = \mathbf{F}s ; \quad \mathbf{F} \text{ as force, } s \text{ as way,} \quad (2.9,22)$$

one can give the radial energy with force multiplied with radius:

$$\mathbf{E} = \mathbf{F}R . \quad (/Q 5/, \text{ page } 75) \quad (2.9,23)$$

We can speak of *angular momentum vectors* which quantize their energy magnitudes:

$$\mathbf{E}_{wv} = \mathbf{F}_{wv} \times R_{wv} \quad (2.9,24)$$

(as a reversible dipole),

$$\mathbf{E}_{Aov} = \mathbf{F}_{Aov} \times R_{ov} \quad (2.9,25)$$

(as a irreversible dipole – a monopolar phenomenon).

The *orbital angular momentum*  $I_B$  is equal to the effect in circular way  $u = 2\pi r$ :

$$I_B = \mathbf{m}_A \times r^2 \times \omega \times 2\pi = \mathbf{m}_A \times r^2 \times 4\pi^2 \times f . \quad (\text{cf. } /Q 5/, \text{ page } 328) \quad (2.9,26)$$

In our theory each amount of an orbit radius  $r$  is then equal to a potent wave quantum amplitude  $R_w$  in development of  $n\mathbf{h}$  and  $R_{w(n)}$ ; the rotations radius  $R_{rot(n)}$  of that orbit must be coupled at the relativistic movement mass  $\mathbf{m}_B$ . The electromagnetic momentum of an elementary ring current is with the elementary charge  $e_o$ :



$$\boldsymbol{\mu}_{\frac{1}{2}(n)} \equiv \frac{1}{2} \mathbf{e}_o \times r^2 \times \omega \quad ; \quad \boldsymbol{\mu}_{\frac{1}{2}(n)} / 2\pi = \boldsymbol{\mu}_{\frac{1}{2}(n)} \quad (2.9,27)$$

If  $I_B$  from (2.9,26) corresponds to the wave quantum angular momentum  $I_B$  of the electron  $e^-$  then it is valid

$$I_B = \hbar_{\frac{1}{2}} \text{ or } \boldsymbol{\mu}_{\frac{1}{2}(n)} \cdot$$

Over (2.9,27) one yields the Bohr's electro-magneton  $I_{\frac{1}{2}} = \boldsymbol{\mu}_{\frac{1}{2}}$  by substitution of all the wave quantum relations ( $r^2 \times \omega/n$ ) and of shortening of special relativity:

$$\boldsymbol{\mu}_{\frac{1}{2}} = \mathbf{e}_o \times \frac{1}{2} \hbar / m_{o(e)} \cdot \quad (/Q 11/, \text{ page } 185) \quad (2.9,28)$$

The cosm magnitudes of elementary charge and resting mass of electron remain in vacuum. The e.m. angular momentum  $\boldsymbol{\mu}_{\frac{1}{2}}$  works out the atomic angular momentum of mass  $\frac{1}{2}\hbar$ .

That electromagnetic momentum exists objectively really and it has two sides in our theory – one for the positive and one for the negative charge of waves  $\mu$ . In this respect it is vectorial.

A monopole mass  $m_o$  is effectively just as heavy as the complete effect of wave quantum masses  $|2m_w|$  thus like the effect of the wave quantum mass (dipole mass)  $+|m_w|$  or  $-|m_w|$  because the negative monopole mass also fills up the field but it remains irreversible. The same behavior is valid for monopolar rest energy  $E_{Ao}$  on which one has to calculate two equivalent wave quantum energies  $|2E_w|$ .

Like shown the rotation direction in the direction of the vector is defined after the electric developed Stern-Gerlach knowledge for electrically determined momenta:

clockwise - positive,  
counterclockwise - negative.

$\pm n \times \hbar$  (bosons) or  
 $\pm n \pm \frac{1}{2} \hbar$  (fermions) .

The electromechanic parallelism is always then correct if a mass rotation is coupled with a charge rotation spatially and firmly.

## 2.10. Harmonical oscillation of cosms

*Theses:*

Corpuscles would not oscillate themselves. Nothing indicates till now that they are oscillators.

*Antitheses:*

The till now known formulae to a vibrating system goes smoothly into the construction after which the isolated mass of a black hole is oscillating and by which it is able to be explained fundamentally as a quantized and non-stationary black-white hole. Only then it represents a clock which is able to change its run in relationship to the vacuum. Stable cosms oscillate harmonically undamped, unstable cosms follow the principle of a damped oscillation.

We choose an oscillation equation:

$$\partial^2 R / \partial \lambda^2 = \partial^2 R / v_f^2 \times \partial \tau^2 \quad . \quad (\text{cf. } /Q 7a/, \text{ page } 65) \quad (2.10,1)$$

Here in R is the elongation in a point of oscillation on the oscillation length  $\lambda$  or on its temporal analogon of period time  $\tau$  which yields again the wave length  $\lambda$  over the wave velocity  $v_f$  - here the

vacuum light velocity  $c$ . We take the solutions for the oscillator of the externally single level of  $n = 1$  in the form of

$$R_{(t)}^2 = R_{o(t)}^2 \times \cos^2 \phi \quad (2.10,1a)$$

with a vectorial  $\phi$ -installation (2.10,6). This is the waytime-like formation of the cosm! Four solutions follow from the cosine function (cf. equ. (3.2.3,24) till (3.2.3,27)); here for the way firstly:

$$1./2. \quad R_{I,II} = \pm R_o \times \cos \phi \quad , \quad (2.10,2) \quad (2.10,3)$$

$$3./4. \quad R_{III,IV} = \pm R_o \times \cos(-\phi) \quad , \quad (2.10,4) \quad (2.10,5)$$

If the following magnitudes are given:

- $R_o$  - way-like cosm amplitude = max. elongation,
- $R$  - way-like elongation onto stationary  $r$ ,
- $r$  - general way coordinate in stationary cosm,
- $\phi$  - phase angle (in rad) corresponding (3.2.3,13),
- $\tau_o$  - oscillation time; period time; curved time,
- $f$  - rotation frequency, frequency of a total oscillation,
- $u$  - perimeter way of the unit circle of radius  $R_o$  or
- $\lambda_o$  - oscillation length („wave“-length),  $\lambda_o = u$ ,

then for harmonic oscillations of a field of spherical moved gravity centers the system of equations (2.10,6) till (2.10,19) is valid:

$$\text{with} \quad \phi = \omega \times \tau_o \quad ; \quad (2.10,6)$$

$$\tau_o = 1/f \quad (2.10,7)$$

there  $\omega$  is the angular frequency or the angular velocity how it is effectively given in the Friedman cycloid:

$$\omega = 2\pi \times f \quad . \quad (2.10,8)$$

The radial oscillation velocity  $v_{gr}$  is relatively to the maximum  $v_v = c_v$  which is possible on the passing of the unit circle perimeter  $u$ :

$$v_{gr} = R_o \times \omega \times \sin \phi \quad (2.10,9)$$

(index  $gr$  – group front of gravity centers of elementary cosms in receptacle cosm which maximum takes the amount at crossing zero (limit  $R = 0$ ))

$$c_v = v_{max} = R_o \times \omega \quad . \quad (2.10,10)$$

The oscillation velocity becomes

$$(2.10,11) \quad v_{gr} = c_v \times \sin \phi \quad .$$

Tangential velocity  $v_{ph}$  of reversed movement is calculated:

$$v_{ph} = c_v \times (1 - \sin^2 \phi)^{1/2} = (c^2 - v_{gr}^2)^{1/2} = c_v \times \cos \phi \quad . \quad (2.10,12)$$

$$\text{It is valid:} \quad c = (v_{ph}^2 + v_{gr}^2)^{1/2} \quad .$$

Here the group of outermost protocosms is moving itself with the group or oscillation velocity to a radial maximum relatively to the radius while the phase is expressed by the radial tangential velocity  $v_{ph}$  which takes light velocity  $c_{ph}$  on the amplitude  $R_o$  of cosm tangentially to it. With this process the

perimeter velocity  $v_u$  or  $v_\phi$  isn't yet described an elementary cosm had to be moved along to hold on a circular way of the radius  $R_o$  (cf. (2.20,7)).

For the present acceleration is written

$$a = dv / dt \quad (2.10,13)$$

as a deceleration:

$$a = -R_o \times \omega^2 \times \cos\phi = -c \times \omega \times \cos\phi, \quad (2.10,14)$$

$$a_o = -R_o \times \omega^2 = -c \times \omega \quad \text{as the maximum of } a, \quad (2.10,15)$$

$$a = a_o \times \cos\phi, \quad (2.10,16)$$

$$a = -v_{ph} \times \omega.$$

A further calculation for a cosm resting in vacuum give:

$$\lambda_o = c / f_o = c \times \tau_o, \quad (\text{equivalence of way-like and time-like state}) \quad (2.10,17)$$

$$u = \lambda_o = 2\pi \times R_o = \pi \times r_o. \quad (2.10,18)$$

Protocosms have a temporary vacuum sphere (cf. section 3.2.1.). Their unusual feature insists by forming no ideal but a substructured life. In this respect they don't oscillate harmonically undamped like the cosms, but damped and then they are not harmonical any more. Protocosms only live for half a one period. Their sub phenomena of their arisen life introduce the discontinuity of their oscillation function like it's known by Friedman solution (3.2.3,24). For the perimeter of a protocosm is valid:

$$u_{(PK)} = \lambda_{o(PK)} = 2\pi \times R_{o(PK)} = \pi \times r_{o(PK)}. \quad (2.10,19)$$

Relatively to cosms for anticollapsing and collapsing protocosms follows because of (2.8,7a):

$$\lambda_{o(PK)} = \lambda_{o(K)}, \quad \tau_{o(PK)} = \tau_{o(K)}. \quad (2.10,20)$$

A protocosm only lives  $1\pi$  long. While the Friedman solution (3.2.3,27) adjusts on  $1\pi$  for ideal, harmonical and undamped oscillation, the protocosm now has been opened with its intrinsic phase angle measurement. Usually on the graph of this function (3.2.3,24) between 0 and  $\pi$  the protocosm state decays. But the cosm does not decay, it closes 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 like of a part of the oscillation length  $\lambda_o$  or the perimeter  $u$  of unit circle, too. On the section  $R_o$  of  $\lambda_o$  the **partial time** or the **amplitude time**  $t_o$  is valid corresponding to (2.3,2), (2.10,7) and (2.10,18):

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

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  $\lambda$  and the amplitude time  $\tau$ . Therefore the elongative real way is made from the amplitude  $R = R_o$  to the middle dot  $R = 0$  with the average velocity  $v_r$  during the oscillation velocity  $v_{gr}$ . At the example of cosm are the following equ. valid:

$$\begin{aligned} \frac{1}{4}\lambda_o &= \frac{1}{2}\pi R_o, & \frac{1}{4}\lambda_o / c &= R_o / v_r \\ v_r &= 2 c_v / \pi. \end{aligned} \quad (2.10,21)$$

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

$$v_r = R_o / t_r \quad t_r = 1/4 \tau_o . \quad (2.10,22)$$

Extended with  $c_v$ :

$$c_v t_r = 1/4 c_v \tau_o = 1/4 \lambda_o = 1/2 \pi R_o .$$

$$t_r = \pi \times 1/2 R_o / c_v = 1/2 \pi \times t_o . \quad (2.10,23)$$

The time  $t_r$  has no real importance. It expresses the radial velocity of lifting and sinking the amplitudical sphere  $\Sigma$  of the cosm from ( $\Sigma_o = 4\Sigma$ ) which 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 which well-flattings are not filled but funnel-shaped open. The original building of system orders in universe in our theory is named: **double funnel** (see section 4.10.).

### 2.11. Particle wave connection

Werner Heisenberg (1901-1976) meant to have recognized in 1927 that it isn't possible to determine the location and the momentum of an electron with arbitrary precision (cf. section 2.4.). One called this consequence as *uncertainty relation*. From this one concluded: electrons would have no determined orbits. For this reason one completely did without the broader analysis of the particle character and saw the electron as pure wave which should make a three-dimensional wave after Erwin Schrödinger (1887-1961). The solutions of his 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 by observation an area of a lot of electromagnetic interactions. Because of the low vividness of the model finally one carried the electrons as particles into this wave system again and asserted now that the electrons have to stay in arbitrary areas of the wave spaces with a high probability. The square of wave amplitude would be a measure for the position probability of the electron (Born).

We short the content and number the statements:

*Theses:*

1. Location and momentum of an electron are inaccurate.
2. Electron orbits 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 wave quanta, 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 with the particle concept.

*Antitheses:*

1. The wave amplitude  $R_w = X$  and the wave quantum momentum  $p_A = p_w = p_{(n)}$  of an electron are but inaccurate but connected at the elementary constant  $h$ . The position  $R_{rot}$  of the electron is somewhere, there where it is coupled with the 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 indicate directly because of the relation of the observer moved along and because it can only be indicated over the wave interaction and over the valid relativistic retardation momentum  $\Delta p_A$  for the relatively resting observer after:
  - wave amplitude uncertainty of wave quantum  $\Delta R_w \times \Delta p_A$  or  $\Delta X \times \Delta p$ .
2. Electron orbits exist as circle and ellipse orbits in the radius  $R_{rot}$  like in the classic sense, too.