

Inertia only exists why a matter phenomenon is forced to go a determined curved world way in a limited number of further phenomena coupling with it into a spacetime-like environment dependent on just these couplings.

Additionally, the inertia now can be thought if the universe has the shape of that cosm. So the observation of inertia already causes the existence of a cosm like this. The finite universe can be proved when mass-radii-relationships can be measured: for mathematical preparation we use the equation (2.8,3) in the term of the equation (2.15,8):

$$M_o = R_o \times K_{PI}$$

From this term direct proportionality is derived for every cosm amplitude R_o and its isolated mass M_o :

$$M_{o1} / M_{o2} = R_{o1} / R_{o2} \quad . \quad (2.18,8)$$

Half the cosm radius (or cosm amplitude) we have to compare makes half the isolated mass of a comparable cosm. The finite universe is determined of a linear relationship. **It is one-dimensional.** Mass is way; and way is time.

In contrary opinion the chaos theory of big bang and following theories favors infinity. After our opinion it's impossible to separate an infinite magnitude into finite parts even making vivid calculations with them.

Universe ways = infinite
 average mass density = const. ? --- this is impossible.
 We think of an finite volume:

$$\mu_{\text{big bang}} = M / V = M / (\text{const.} \times R^3); \quad \text{this means:}$$

$$\mu_{\text{cosm 1}} = k \times M_1 / R_1^3 \quad \text{and} \quad \mu_{\text{cosm 2}} = k \times M_2 / R_2^3,$$

from which the terms will follow:

$$M_1 / R_1^3 = M_2 / R_2^3. \quad (2.18,9)$$

In cubic universe the decrease of radius to one half of it would mean the decrease of isolated mass on $1/8$ of its original amount. Such an infinite universe would be simply determined by a cubic relation. This apparent picture will be stimulated deceitfully by the accepted rectilinear view into the past of cosm although we have shown with our cosm solution that the radiation ways are extremely curved and that there isn't any simultaneity. The infinite universe contradicts the correct relativity theory. Our solution shows that red shifts which come from the change of matter density or of pressure only are localized inside of determined central areas of the cosm. The essential red shift of primary spectrum is caused cosmogonically.

2.19. Special relativity theory in cosms

That observer relatively moved to vacuum objectively gets his intrinsic idleness time τ_b and his idleness way $K_b = c \times \tau_b$ in his receptacle cosm. The magnitude of his cosm measured in amplitudical coordinates (polar coordinates) $R_{o(GK)}, t_{o(GK)}$ of its oscillation length and of its period time $1/2 \lambda_{o(GK)}, 1/2 \tau_{o(GK)}$ is important then because he cannot be moved above it because of the total curvature of his geodetic coordinates. Under each other some observers recognize the differences of their intrinsic idleness waytimes $dK_b, d\tau_b$. From the view of one observer 1 (relatively to the observer 2) which is moving together with his clock, his idleness waytime K_{1b}, τ_{1b} is shortened to K_{2b}, τ_{2b} because his installation waytime K_{11}, τ_{11} (dilated movement magnitudes 1) has got relatively longer to K_{12}, τ_{12} (slower clock 2): the observer 1 has approached the oscillating waytime of the receptacle cosm more strongly than the observer 2.

The given theory explains the special relativity theory as a natural limit law. For observers in receptacle cosm it must be possible to calculate the objectively placed limits of their movement. Unfortunately every step of relativity calculation means for them just an approximation to the objective facts connected with a turn of necessary corrections.

One recognized that the magnitudes of mass, energy, force and acceleration diverge against infinite for intention to move a body up to light velocity. We live in a cosm. Therefore our theses is:

The special relativity theory is working inside of each cosm.

General relativity theory tried to respect this theses. The correction value of spacetime magnitudes is determined after equ. (2.8,3) of the nearness to the electrogravitation radius r_o while running from the outside (collapse). This event only runs at forming and decay of protocosms. One should be able to conclude that it is not allowed us living here in a cosm to overcome the locked gravitation horizon r_o from the inside. Theoretically we had to change and to take the complete cosm energy for escape after relativistic solution of inertia. Firstly, it is impossible, and the special relativity theory shows this. Secondly, we saw already that the mass M_o or its energy are concentrated under r_o up to $\frac{1}{2}r_o = R_o$ and that they are oscillating there so that the isolated special relativity will give us the limits at R_o what we still will see here.

We now calculate with the term of amplitudical magnitudes for total magnitude of a complete oscillation although it would be really more understandable to set on one amplitude movement just exactly $\frac{1}{4}$ of one complete oscillation. Even the reference to $\phi = 1$ would remain unopposed. We would get the same symbolic result of mathematics. With (2.3,2), (2.6,1), (2.7,1) and (3.2.3,51) the isolated mass M_o will be calculated of amplitudical magnitudes:

$$M_o = -R_o \times F_o / c^2 = -E_o / c^2 ,$$

$$M_o = -t_o \times F_o / c . \quad (2.19,1)$$

The period time τ_o as primacy of *curvature magnitude* represents the part of itself by the amplitude time t_o : $\tau_o = \phi_o \times t_o$. Every magnitude dependent on ϕ will reach:

$$t_\phi = \tau = \phi \times t_o . \quad (2.19,2)$$

In relationship of amplitude R_o to the oscillation length λ_o or to the perimeter of unit circle u the curvature force F_ϕ can be calculated that part is the amplitudical force F_o :

$$F_\phi = \phi \times F_o . \quad (2.19,3)$$

In principle at amplitudical perimeter $K_o = 2R_o \pi/2$ of the cosm is valid: $v_{(K_o)} = c$. Consequently equation (2.19,1) can only be filled with the form extended by ϕ :

$$M_\phi = \tau \times F_\phi / c \quad (2.19,4)$$

$$M_\phi = \phi^2 \times M_o . \quad (2.19,5)$$

The same term is then valid for energy E_ϕ because of equ. (2.4,16):

$$E_\phi = \phi^2 \times E_o = M_\phi \times c^2 . \quad (2.19,6)$$

We extend (3.2.3,9) with c and get an equation which explains the Einstein parameter T_E also as a velocity v_ϕ :

$$v_\phi = \phi \times c = T_E \times c^2 \quad , \quad \phi = v_\phi / c \quad . \quad (2.19,7)$$

This velocity v_ϕ is running from zero till $\phi_o \times c$. Its magnitude is caused by waytime constantly determined by c . Such a velocity is just then an assumption if the observer thinks he could overcome the amplitude R_o during the time t_o with the velocity c . But then an observer in a circular way had to run with the oscillation length $\frac{1}{4}\lambda_o$ and with the velocity of v_ϕ . Referring to the equations (2.4,4), (2.4,19), (2.4,20), (2.9,27), (2.10,6), (2.10,7), (2.10,8), (2.10,19), (2.19,5), (2.19,6) and (3.2.3,14) the following *curvature magnitudes* are existing:

$$\begin{aligned} \pm\phi &= R_\phi / R_o = (M_\phi / M_o)^{1/2} = F_\phi / F_o = (E_\phi / E_o)^{1/2} = t_\phi / t_o \\ \pm\phi &= \omega_\phi / f = v_\phi / c = a_\phi / a_o = h_\phi / h = \mu_\phi / \mu \quad ; \end{aligned} \quad (2.19,8)$$

$$R_\phi = \phi \times \lambda_o \quad , \quad \text{way on the oscillation length.}$$

This equation is able to be differentiated to:

$$\begin{aligned} \pm d\phi &= d\lambda / R_o = dM_\phi / 2M_o = dF_\phi / F_o = dE_\phi / 2E_o = dt_\phi / t_o \\ \pm d\phi &= d\omega_\phi / f = dv_\phi / c = da_\phi / a_o = dh_\phi / h = d\mu_\phi / \mu \quad . \end{aligned} \quad (2.19,9)$$

Such differentials were already given in (3.2.3,13), (3.2.3,35), (2.9,5) and (2.9,6). The squared function values W of waytime-like oscillation (3.2.3,24-27) and (2.10,2-5)

$$R = R_o - r_3 = R_o \cos\phi \quad \text{and} \quad R^2 / R_o^2 = \cos^2\phi$$

take the following abstract shape:

$$W^2 = \cos^2\phi \quad . \quad (2.19,10)$$

Just one of the oscillator solutions can be abstracted to this idealized and shortened form:

$$R = \pm R_o \cos\phi + \text{const}_{(r)} \quad . \quad (2.19,11)$$

$$R^2 - (2R \times \text{const.} - \text{const.}^2) = R_o^2 \cos^2\phi \quad . \quad (2.19,12)$$

There the subtrahend – the anything moved (we notice materially zero; we do not indicate it) – on which base the system is oscillating can be neglected and a function can be formed

$$\frac{R^2}{R_o^2} = \cos^2\phi = W^2 \quad . \quad (2.19,13)$$

Equation (2.19,13) will be extracted the root under attention of the positive and negative phase course to:

$$W_I = + \cos\phi \quad , \quad (2.19,14)$$

$$W_{II} = - \cos\phi \quad , \quad (2.19,15)$$

$$W_{III} = + \cos(-\phi) \quad , \quad (2.19,16)$$

$$W_{IV} = - \cos(-\phi) \quad . \quad (2.19,17)$$

There the magnitudes are ordered:

$$\begin{aligned} \pm W &= R / R_o = (M / M_o)^{1/2} = F / F_o = (E / E_o)^{1/2} = t / t_o \\ \pm W &= f_t / f = v_v / c = a / a_o = h_t / h = \mu_t / \mu . \end{aligned} \quad (2.19,18)$$

In differentiated form they are called:

$$\begin{aligned} \pm dW &= dR / R_o = dM / 2M_o = dF / F_o = dE / 2E_o = dt / t_o \\ \pm dW &= df_t / f = dv_v / c = da / a_o = dh_t / h = d\mu_t / \mu . \end{aligned} \quad (2.19,19)$$

Finally the function (2.19,13) has to be differentiated as

$$\phi' = d\phi/dW .$$

We need the function (2.19,13) changed on the arcus cosine :

$$+\phi = + \arccos W_I , \quad (2.19,20)$$

$$+\phi = - \arccos W_{II} , \quad (2.19,21)$$

$$-\phi = + \arccos W_{III} , \quad (2.19,22)$$

$$-\phi = - \arccos W_{IV} ; \quad (2.19,23)$$

in differentiated form

$$\phi' = - 1 / (1 - W_I^2)^{1/2} , \quad (2.19,24)$$

$$\phi' = +1 / (1 - W_{II}^2)^{1/2} , \quad (2.19,25)$$

$$-\phi' = - 1 / (1 - W_{III}^2)^{1/2} , \quad (2.19,26)$$

$$-\phi' = +1 / (1 - W_{IV}^2)^{1/2} . \quad (2.19,27)$$

Because of the multipliers of -1 equ. (2.19,26) is the mirror of equ. (2.19,25), and equ. (2.19,27) is the reflection of (2.19,24). Passing we distinguish that working of special relativity in the coinworld and antiworld of cosms. Additionally we already have learned that the movement direction of the same charges decides about their secondary positive or negative reaction.

On the one hand we find so the complex of solutions of the **complete special relativity theory in cosms** in fulfillment of the equations (2.19,9), (2.19,19) and (2.19,24) till (2.19,27):

These are the corrections of the way, the mass, the force, the energy, the time, the frequency, the velocity, the gravitational and the electric wave quantum momentum.

On the second hand the squares of function values in root term (2.19,24-27) doesn't only show the dependence of the well-known velocity relationship but also the limit values of all the radial magnitudes which show the observer what he can never reach. From the multiple number of solutions we take the example of waytime dilation for demonstration; (2.19,25) in solved form:

$$\pm dt_\phi / dt = (t_o / t_o) / (1 - v_v^2 / c^2)^{1/2} , \quad (2.19,28)$$

or

$$d\tau = \pm dt / W_{SRT} ; \quad (cf. (1.1,6)) \quad (2.19,29)$$

$$\pm dR_\phi / dR = (R_o / R_o) / (1 - v_v^2 / c^2)^{1/2} , \quad (2.19,30)$$

$$dR_\phi = \pm dR / W_{SRT} . \quad (cf. (1.1,8)) \quad (2.19,31)$$

This doesn't mean something else than explained with the modified Schwarzschild solution, Term 1: one oscillation step is dilated in its phenomenon as a waytime step of dR_ϕ, dt_ϕ ! That oscillation step only can be seen inside the given waytime of R_o, t_o or inside the receptacle cosm.

The relativistic expression of the root of velocity terms in this solution can also be calculated with each physical magnitudes also with the waytime relation R/R_o or t/t_o itself:

$$\pm dR_\phi / dR = 1 / (1 - R^2 / R_o^2)^{1/2} . \quad (2.19,32)$$

This result show into the same direction like the already calculated limit values of finiteness: nobody can be faster than the objective waytime.

Since we live in an irreversible world function the theoretical adjusting of a sign is superfluous which shows that the matter in principle has a character of two poles: coinomatter and antimatter.

A waytime differential means a waytime difference. Without integration it cannot be understood.

Therefore that dilation of waytime in term 1 of modified Schwarzschild solution asks for a decrease of the number of waytime pattern per given receptacle cosm. The moved elementary cosm strides against the oscillation of the receptacle with its intrinsic oscillation. From this a contraction of installation waytime $ds_i = c d\tau_i$ results.

During the increasing waytime step dR_ϕ, dt_ϕ at the movement $v_v \rightarrow c_v$ in movement direction of the elementary cosm the remaining waytime step $ds_i, d\tau_i$ is also decreasing, remaining for the world's internal structures, measured at the objective magnitudes of the receptacle cosm λ_o and τ_o which half is forming each a cosm pulse of two on a period: K_o and $1/2\tau_o$.

For two material observers 1 and 2 the term is valid under each other over their relative velocity without direct reference to vacuum:

$$dR_\phi = dR / (1 - v_E^2 / c^2)^{1/2}$$

v_E as Einstein terms (addition theorem (1.1,4)).

If two observers have the same vectorial movement state in vacuum, what is impossible because of the dimensions of cosms, then they have the same waytime contractions relatively to vacuum, by which they would notice no difference under each other – then quasi they would indicate the *equal state of waytime* (which is also impossible).

That fact is essential that the number one in the counter of the relativity formula is only given by shortening of the absolute cosm references. Such an absolute consequence was covered with Einstein's relativity although there the vacuum light velocity were shortened, too. But here we recognized that such a relativity can only exist if it is referred on the oscillation magnitudes inside the **absolute measurements** of an arbitrary cosm. The velocity in vacuum is one of the given absoluta for calculating relativa.

The prove of the general relativity theory here is given in itself - in the unity of the new theory of solutions:

Our universe has the well-known qualities because it is constructed after the laws of the isolated cosm.

This knowledge are the premise of our opinion of spin. Converting equ. (2.19,29) we get:

$$dt = d\tau \times (1 - v^2 / c^2)^{1/2} .$$

We integrate to:

$$\Delta t = t_2 - t_1 = [\tau_{o(2)} - \tau_{o(1)}] \times (1 - v^2 / c^2)^{1/2} \quad (2.19,33)$$

$$\Delta t \rightarrow 0, \text{ if } v \rightarrow c.$$

This means: the differences of two moved systems 1 and 2 are fading in the nearness of light velocity. That way the contraction of a compact body has to be explained: the dimensions come near and near.

One can conclude that each elementary cosm itself makes its oscillation time $\tau_{o(EK)}$ against zero in divergence against light velocity for a relatively resting and indicating observer:

$$t_{EK} = \tau_{o(EK)} \times (1 - v^2/c^2)^{1/2}.$$

An indicator can notice the diverging oscillation against zero decelerating that system. This means for a signal frequency that its energy diverges against infinity.

Reversed the observer moved along with the system does not notice that indication but the dilation – the extending – of the oscillation time:

$$\tau_{o'(EK)} = \tau_{o(EK)} / (1 - v^2/c^2)^{1/2} \quad . \quad (2.19,34)$$

The light velocity c represents a constant which exists alone because of the oscillation of the receptacle cosm GK. Every elementary cosm EK is subordinated the movement principle (cf. section 3.2.3., 4.3. and 4.4.).

The total isolated energy of receptacle cosm cannot be changed by isolated processes into an acceleration energy for one single purpose (it's impossible to make a perpetuum mobile of first type or second type from that given perpetuum mobile of zero type by isolated manipulating with isolated matter). Consequently, an element taking part at inertia (death and rebirth) from the start of the movement in a cosm cannot get older than the cosm itself. In this respect the dilated oscillation of the element cannot exceed the oscillation of the receptacle cosm. The decision is making collapse or anticollapse.

2.20. Summary

Three problems remained suppressed:

- 1st the phase angle ϕ ,
- 2nd the imaginary number j ,
- 3rd the integration constant $\text{const}_{(r; t)}$, movement.

We find out: only that movement projects the concept of „matter" and with it the concepts like „force, energy, mass etc.".

Every movement system of matter made as an area of new adjusting of coordinates is separated totally mathematically signed by the imaginary number j .

If anything is moved that substance character we cannot explain because that is not a spacetime-like apparent substance but it is a given condition, then this **primary moved anything firstly makes the phase angle** and **secondly the imaginary number**. Both magnitudes are ideal non-spacetime-like coordinates. With the premise of a firstly spacetime coordinate R_o and t_o moved by velocity c which is a product of real infinity like ϕ and j , we find in $\text{const}_{(r; t)}$ from equations (2.9,11) and (2.9,15) that the receptacle cosm is oscillating on the base of elementary cosms. Consequently, the term „ $\text{const}_{(r; t)}$ " is forming the measurement of an elementary cosm amplitude R_o' or the measurement of the amplitude time t_o' .

$\text{Const}_{(r; t)}$ is an arbitrary measurement as long as we haven't a relative measurement. The first measurement of all measurements remains arbitrarily – the anything moved. But then the anything moved has formed something moved defined by us physically – also something moved – but known