in the shape of the respective mass differences Δm_i between the protocosm rest masses $m_{oPK1\text{-}u)}$ of different levels:

$$\Delta m_i = m_{o(PKu)} - m_{o(PKu\text{-}1)} \cdot \qquad (2.13.1,31)$$

Differently given they decide about the type of cosm. Particles of nearly the same mass and charge are only then members of the same type if they are totally identical with their inside structure – this means genetically identical. This only hits that condition if it is the same type of programming over the shape of protocosms – like the type of baryons derived by the proton or the type of leptons derived by the shown with those conservation laws. Protons and electrons seems to be the copies of one single type of particles of this species.

If similarities should appear because of a temporary agreement in the charge and the mass, then we cannot interpret it as a type-relationship. The divergence of energies at a quantity of different particles does not lead then to one common „primeval particle" as an apparently "initial unit of structure" but only to a multiple number of unstable particle states which are similar but in these things the types (species) remain totally identical because they are structurally independently programmed:

> In the high-energetic initial unit the particle types as agreed are divergently similar with properties, but they have never been one common object.

This cognition has legal value. It is able for generalization. And it may have importance and correcting influence for observation of the so-called „evolution" of life.

2.13.2. Quantum numbers

From almost every section of our theory we see the problem of spin. Here we want to try to connect the fathoms to one road junction. We define:

The **SPIN** serves as an equivalent concept for the intrinsic **angular momentum** or for the **effect** of a particle. It is led from the existence of *magnetic momentum* of the particle. After our theory we have the **electromagnetic momentum** or the **gravitomagnetic momentum.**

The spin is always caused by relative **orbit magnetic momentum** $\boldsymbol{l}_B$ of an electric charge e or a gravitational mass m within its receptacle cosm. That orbit magnetic momentum is part of a hierarchic order of orbit angular momenta. Each projection of a sub-effect onto a higher hierarchical plane is named as „intrinsic momentum" or as „intrinsic angular momentum" if it ever exist as such a one.

Our theory knows gravitational and electric effects like explained in section 2.7. We therefore can divide the spin into two cause fields:

1st the **gravitomagnetic effect quantum** $\hbar = 1.05458866 \times 10^{-34}$ Js as *gravitomagnetic spin* (g.m. spin or g-spin or Planck's effect quantum);

2nd the **electromagnetic effect quantum** $\mu = 9.08773171 \times 10^{-45}$ Am² as *electromagnetic spin* (e.m. spin or q-spin).

Mathematically we understand the spin as a quantized magnitude:

$h = m\ v\ u$	$\hbar = m\ v\ R$	$u = 2\pi R$
$\mu = e\ v\ u$	$\mu = e\ v\ R$	(cf. section 2.12., equ. (2.12,8-14)).

If its movement magnitude like the amplitude R or the wave length u = λ will be *cut off* the angular momentum than one gets the gravitomagnetic or the electromagnetic **momentum of the wave quantum**:

$$p_{g.m.} = m\ v \qquad p_{e.m.} = e\ v \qquad \text{(cf. equ. (2.4,11))}. \qquad (2.13.2,1)$$

Well, momentum analyses are subject to the spin-opinion.

Projecting a cosm by the integer spin n = 1 then we call it a **primary spin**. If the spin in multiple numbers results from the movement of an elementary cosm inside its receptacle cosm below the vacuum light velocity then we classify it as ***secondary spin***.

The coupling of g.m. and e.m. effect quanta cannot fundamentally be seen parallelly like proved in equ. (3.2.1,20). **Electromechanic parallelism** seems to be a remnant of classical physics which was caused most on empirical values. Macroscopic observation of electromechanic parallelism of effects led to such an experience: a charged body rotates producing the angular momentum and also the magnetic field with inseparable necessity at the same time. This observation is caused with the small difference of the integer number n relatively to the g.m. spin of about $n = 10^{50}$ till 10^{80} in relationship to the e.m. spin of about $n = 10^{70}$ till 10^{100}. The transitions of the energy steps are felt therefore as apparently analogous signals in the macroscopic associated field.

In the proximity of 1ħ for example in the movement of the electron already 10^{21} μ can be created. Here the g.m. effect quantum ħ gives the clearly discreet character of the signal while the e.m. effect quantum μ makes possible the adaption of apparent analogous signal transitions. Deviations of the classical parallelism are working which here are:

- gyromagnetic momenta from the electron till the nucleons;
- adjusting of spectral levels in the electron shells of atoms;
- adjusting of spectral levels of the strong force in the spheres of nuclei.

Solutions of high precision were given today by the statistical “quantum theories” of electromagnetism beginning with Schrödinger, extending with Dirac and completing with the “quantum electrodynamics, QED”.

Corresponding to the distinction of fields given here with electromagnetism and gravitomagnetism we must lead back the problem area of ***movement*** of *rotation* and the problem of *rotation* onto the general concept of *angular momentum* while we divide it into two features:

1. Primary angular momentum I_p = cosm spin

(cf. (2.12,4), (2.12,6) and (2.12,19))
It is created from the projection of the external oscillating movement of the receptacle cosm. The oscillation certainly is a function of isolated relationships. But this influence doesn’t work concretely to the outside. Generally only the fact is externally acting: there a spacetime is oscillating and forming then a new single Planck quantum $h_{(1)}$ to reflect this effect.

That cosm spin is a *relativistic dipole* because cosm oscillation is running with vacuum light velocity. Correspondingly it connects all the other cosms standing besides it ideally indissolubly. The cosm spin therefore is forming the positive or negative charge of a cosm in gravitational or also electric feature. An observer can see it from all sides, but he cannot change the *primary connections* of finitely high forces of cosms - invincibly by limit values - over the connections of the vacuum bodies also invincibly bound. The sum of cosm spin means the external compact mass of all cosms taking part: $\Sigma\ \boldsymbol{I}_p \Rightarrow m_{compact}$. All cosm spins are forming the primary field and its invincible direction in vacuum. Each movement changes that mass magnitude relatively.

In this respect the **cosm spin** remains a **monopolar spin** for the observer. This also means that the present specifications made by physics of the apparent „general spin" as cosm spin in positive or negative order were arbitrary because of the electromagnetic order mistake (such a kind of arbitrariness like one could say to our type of matter antimatter instead of coinomatter, later we would

change the name from antimatter into coinomatter). Physics really means the wave quantum spin in the form of a really electric property of particles without that it would be able to tell the cause for it consisting in the absolute reference system of cosms – in stationary vacuum.

Cosm spin is divided into the gravitational primary spin at purely gravitational cosms (g-spin) and into the electric primary spin at purely electric cosms – the free charges - (q-spin). All cosms of gravitational as well as electric origin have the primary boson spin in $|\hbar| \times s_p = \hbar_{(1)}$ measured (s_p as primary spin quantum number; $s_p = \pm 1$: boson). For the primary q-spin the calculation can be referred on $|\mu| \times s_p$. Electrogravitational cosms have the gravitational primary spin but no electric primary spin but then an electric secondary spin l_s which is a wave quantum spin.

2. Secondary angular momentum l_B = wave quantum spin

(cf. (2.12,7), (2.12,8) and (2.12,16))
These are all *external momenta* which come from a curved movement. Describing a subordinated orbit they are *orbit angular momenta* l_B in principle also in the shape of intrinsic rotations. „Pulverized " charges don't exist really. They are only the object of statistics.

When an electrogravitational cosm gets a momentum Δp_w then it moves on a new curved orbit. During this event its gravitational primary spin l_p like also its gravitational orbit spin l_B as well as its electrogravitational orbit spin complex l_B – because it carries an electromagnetic charge – are adjusted onto the field directions of its environment.

Remark: the concept of the momentum causes the idea of an uncompleted something which claim of existence seems to be doubtful: the wave energy includes the momentum $E_w = p \times c$. If we see the angular momentum than the momentum isn't able to be described as such a one but a completely new physical magnitude which includes the momentum: $h = p \times 2\pi \times R_w$. In our theory the momentum always merges in rotation movements.

Each external adjusting of velocity works out also the isolated conditions of protocosmic movements over the vacuum. An all over isotropic delivering of protocosms from the main emphasis of the receptacle cosm is just possible in rest to the vacuum. Each external movement change forces the isolated spatial shape of spherical oscillation to take a contrary deformation to the movement direction of the cosm which maximally can diverge to the horizon $r_{o(GK)}$ of the receptacle cosm, because the receptacle cosm also diverges only to vacuum light velocity with its intrinsic velocity. In the cosm a return of protocosms to the origin is possible after an extremely dilated movement in such a divergent situation. So the oscillation of the cosm is dilated or decelerated. Therefore the special relativity is shown in the outside. And this way, too, it is shown that the isolated mass is transported by the external mass. An unbelievable phenomenon: an externally light mass m with its outer momentum (3.2.4,1) transports an internally gigantic mass M with that inner momentum (3.2.4,2) at the same time.

The force couplings of wave quantum spins l_B are reversible and able to separate into both sides of those poles with their non-relativistic dipole behavior. That wave quantum spin is measured in $\pm\hbar \times \mathbf{n}$ or also calculated for electric wave quanta in $\pm\mu \times \mathbf{n}$ (**n** as *main quantum number*; integer number). From $\mathbf{n} = 2$ the *secondary quantum number* **l** and the *magnetic quantum number* **m** appear (today without having a solution for gravitation single-sided seen as *electromagnetic quantum number* m, but now also the *gravitomagnetic quantum number*). Because of the suborder of magnetic momenta they are to add vectorially. Here physics adjusted the *inner quantum number* **j** for coupling of e.m. spin and orbit spin. Instead of wave quantum spin and *orbit angular momentum* we use the shorter concept *orbit spin* in the following text. We distinguish the quantum numbers:

1st Primary spin quantum number $\mathbf{s_P} = \pm 1$ as absolutum being of subordinate importance for the isolated quantizing but essential for the sum of electric and gravitational rest masses in quantity ***m***, ***Q*** (**quantum numbers**: **g**, **q**). Here is the additional grafting onto vectorial character.

2nd Secondary spin quantum number **s** as orbit spin quantum number for electromagnetic momenta $\not\mu_B$ of a particle which is made most as half-number components of an integer number: $\mathbf{s} = \pm ½$ ..., the gravitomagnetic momentum $I_t = ½\not h$ is behaving analogously (***wave quantum number*** **s**, Pauli principle). This is the additional grafting onto of the vector character!

2a. Main quantum number **n**, (main orbit)
2b. Secondary quantum number **l**, (secondary orbit, orbit order)

2c. Magnetic quantum number **m**,

(Remark: between 1st and 2nd one has tried to make a connection after Stern-Gerlach experiment and Hamilton's function which seems to be unreal.)

$\mathbf{s_p}$ -- Primary spin $\mathbf{s_p} = \pm 1$
for electrocosms and for gravitocosms and those order $\mu_{(1)}$ and $h_{(1)}$,

s -- Secondary spin $\mathbf{s} = 0, \pm ½, \pm 1, \pm 3/2, \ldots$ extreme
for the electromagnetic order (electromagnetic momentum $\not\mu_{½}$ of the particle itself);

t -- Tertiary spin $\mathbf{t} = 0, \pm ½,$
the tertiary spin causes the **gravitomagnetic order** in $\not h_{½}$,

n -- Number of main level: $\mathbf{n} = 1, 2, 3, 4, \ldots, n$
for electromagnetic and for gravitomagnetic order,

l -- Number of secondary level: $\mathbf{l} = 0, 1, 2, 3, \ldots, (\mathbf{n} - 1)$
for electromagnetic and for gravitomagnetic order,

j -- Inner quantum number for coupling of e.m. secondary spin and e.m. orbit spin as well as the following g.m. tertiary spin and the g.m. orbit spin: $\mathbf{j} = \mathbf{s} + \mathbf{l}$
for electromagnetic and for gravitomagnetic order,

m -- Spatial position of orbit: $\mathbf{m} = -\mathbf{l}, \ldots, -3, -2, -1, 0, +1, +2, +3, \ldots, +\mathbf{l}.$ (2.13.2,2)
for electromagnetic and for gravitomagnetic order,

Number of the spatial positions for each **l**: $\mathbf{m'} = (2 \times \mathbf{l} + 1)$
(2.13.2,3)

A rotation system which vectors lay in its rotation center, for example with electron shells of atoms, has got the term:

$$\mathbf{m} = \mathbf{l} \times \cos(\boldsymbol{B}, \boldsymbol{l}) = \mathbf{l} \times \cos\zeta. \qquad (2.13.2,4)$$

ζ is the angle between the vector of the main level wave quantum („main field direction" ***B***) and the respective vector of the second level wave quantum (orbit angular momentum ***l***):

$$\zeta = \arccos(\mathbf{m}/\mathbf{l}) ; \qquad \mathbf{l} \neq 0 . \qquad (2.13.2,5)$$

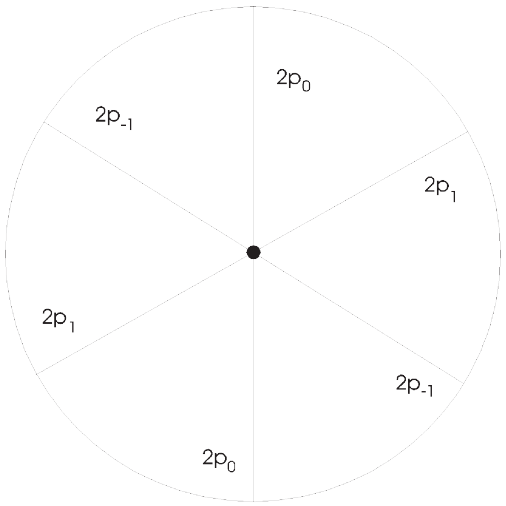
For $l = 0$ the angle is not able to define. We therefore think that there is no angle. In this respect we define all the levels which value gets $l = 0$ positioned in the same plane. These are for example 1s, 2s, $2p_0$, 3s, $3p_0$, $3d_0$ etc.

In opposite of the present opinion of the distribution over spatial angles we noticed:

In our system of protocosms magnets of parity orbits are turning themselves on the perimeter of a tube line thought as being circular. At a cosm the tube radius amounts amplitudically $\frac{1}{2}R_o$. Its perimeter on the middle line takes πR_o. In a protocosm the divergence is valid therefore $>\frac{1}{2}R_{o(PK)}$ or also $> \pi R_{o(PK)}$. Ideally seen the protocosmic orbits of a common mass level distribute themselves uniformly in the course of the compensation of repulsive and attractive e.m. forces. For example they take about the angles of 60° in the six 2p-orbits.

The symmetry systems 2+2 will be supported of the electric force. Alone the asymmetry systems 2+1 and 1+0 form the unusual feature. While the 2 are attracting themselves contrarily and then they can run just like on a circular arc, the 1 is moving itself in the electromagnetically neutral state. In this respect it ejects especially into spiral arc. In this result protocosms are opened asymmetrically, too. The simple system 1 has one systematic inclination of the equator to the orbit of more than 22,5° in the state of transformation. We guess at the start of about 23° which are increasing while running away by repulsion. One should compare here the inclinations of the four planets Neptune, Saturn, Mars and Earth in section 4.10.3. The double systems 2 take multiple numbers of inclination angles dependent on their rotation around their common gravity center and revolved till the countermove of rotation.

Illustration 2.13.2;1: The orbit areas in 2p



Those spins $\mathbf{s}_p$ or **s** and **t** are qualitative axioms although their magnitudes, the rest mass m_o like the rest charge Q as primary spin or wave masse m_w as well as the wave charge e_w, naturally are quantized magnitudes. In this respect we mean to fill the Pauli principle setting different quantities of mass for each spin repetitions. The newly appearing of the primary spins **g** in the next cosm sentence is connected to the bigger mass of the protocosms rotating there.

Inside of one single level **n** the number N_{PK} of positions is calculated in the electrogravitational cosm sentence:

$$N_{PK} = 4\,\mathbf{n}^2. \qquad (2.13.2,6)$$

If anticharges bound at charge-carrying masses are missing like in electron shell a cosm sentence only can be filled with half the position numbers:

$$N_e = 2\,\mathbf{n}^2. \qquad (2.13.2,7)$$

We must add calculating the total number Z_{PK} of all protocosms in a receptacle cosm:

$$Z_{PK} = 4\,(1^2 + 2^2 + 3^3 + 4^2 + ... + \mathbf{n}^2) \qquad (2.13.2,8)$$

$$Z_e = 2\,(1^2 + 2^2 + 3^3 + 4^2 + ... + \mathbf{n}^2)\ .$$

Till now spin orders were chosen for observer's point of view which are senseless for the primary orientation in primary field. Only in secondary field wave quantum orientations to each other have importance. We define in addition for primary momenta:

Gravitation:	Electrition:
g = + gravitational	q = + e_o
~~g~~ = - gravitational	~~q~~ = - e_o .

The rotation of cosm (as a primary dipole, primary quantum, apparent monopole) is forming the wave quantum (secondary dipole):

1st When a **positive one rotates to the right** then a positive one follows to the front into observer direction and a negative one to behind (dipole): that vector shows into observer direction; but it consists of two vectors of equal magnitude in natural sum on one effect line.

2nd When a **negative one rotates to the left** then a positive one follows to the front and a negative one to behind: this vector shows into observer direction, too; it also consists of two vectors of equal magnitude in their natural sum on one effect line.

Connecting the movement of gravitational charge (g-load) and of electric charge (q-load) the *electromechanic parallelism* (now as **electrogravitational parallelism**) because it was historically created this way, always then when both get a forcing cause for common movement:

The g-spin and the q-spin have the same sign in the same relationship.

The force coupling of g-wave quanta or g-spins forms a parallel state (symmetry); the coupling of q-wave quanta or q-spins forms an antiparallel state (antisymmetry). Referred conservation of momentum and *angular momentum as orbit angular momentum* the consequences follow:

I. Coinomass against coinomass (positive gravitation):

Two particles are pushed to each other.

shock + antishock or	turn + antiturn
$\rightarrow\leftarrow$	
+p + (-p) = 0;	$\hbar_{(n)} - \hbar_{(n)} = 0$

II. Antimass against antimass (negative gravitation):

Two antiparticles are pushed to each other.

antiantishock + antishock or (shock)	antiantiturn + antiturn (turn)
$\rightarrow\leftarrow$	
+p + (-p) = 0;	$\hbar_{(n)} - \hbar_{(n)} = 0$

The left turned to the left is equal to the right turned to the right.

III. Coinomass against antimass:

a) A particle hits an antiparticle (base of momentum doubling).

shock + antiantishock orturn + antiantiturn

$\rightarrow\rightarrow$

$+p + p = 2p;$ $\qquad\qquad +\hbar_{(n)} + \hbar_{(n)} = 2\hbar_{(n)}$