Theory of everything - relation to the theory of relativity and quantum theory

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Abstract

Newton's law of gravitation gives very accurate results for the radii r and velocities v of an orbit, but they do not give any indication of the diameter of celestial bodies or the masses of elementary particles. In contrast, the TOE is based on the simplest possible law for the energy $E = 2^r i^t$ and the torque for an observer and two objects. A common constant can be derived from h, G and c.

$$hG\, c^5\, s^8 / m^{10} \sqrt{(pi^4 - pi^2 - 1/pi - 1/pi^3)} = 0.999991$$

For the system of sun, earth and moon, a formula for c results from the radius of the earth and day alone:

$$r = \sqrt{(pi/2\, c\, m\, Tag)} = 6378626\, m$$

Numerous calculations on the planetary system and elementary particles are given. For example, the exact calculation of the proton mass in relation to the electron mass.

$$(2\mathrm{pi})^4 + (2\mathrm{pi})^3 + (2\mathrm{pi})^2 - (2\mathrm{pi})^1 - 1 - 2 - 2/pi - 2/pi^6 + 4/pi^8 + 4/pi^{10} + 4/pi^{12} - 8/pi^{13}(1 - 1/pi)$$

The TOE gives the result 1836.15267343 m_e

Introduction

Newton's law of gravitation gives no indication of the diameter of celestial bodies. In this respect, it is fundamental to reconsider the formula for distance laws $F \propto e_1 e_2 / r^a$. This also means putting all the fundamental physical principles to the test, such as the theory of action at a distance, the inertial frame, isotropic space, vacuum, the importance of constants and dimensions in the universe, the difference between matter and antimatter. Basically, a distinction must be made between how nature works and what we, on the other hand, recognize and interpret as nature in a 3-dimensional space. This leads to a TOE with a distance law purely by mathematics, with no constants.

Our idea of nature is conditioned by evolution: A 3-dimensional space. Since the theory of relativity, however, this has been understood as a 4-dimensional space-time. This is ultimately a consequence of Newton's theory of gravitation. Since Newton, every object is associated with a mass in kg and a center of gravity. Almost all of mathematical physics is built on this notion, with calculations based on gravity. The gravitational constant has the units m^3/kg/s^2. This alone shows that the gravitation only leads to the finally observable measurements in m over several steps.

Criticism of the theory of gravity:

What is a mass and its center of gravity? An object's centroid is an idealized idea of its center as a point. According to quantum theory, however, the center of gravity cannot be precisely located. The center of gravity of an object can at most be a quantum. What is the mass of a celestial body even though all the particles inside it are ultimately weightless? The theory of gravitation is definitely wrong, as entangled quantum phenomena show.

Criticism of the theory of action at a distance:

The formulation of the quantum field theory with the constant c contradicts itself. The interactions of particles is symmetrical. A theory of action at a distance is theoretically conceivable, but for physical calculations this is only possible over infinite series. is that a photon? The idea that a photon is a single particle is not tenable simply by its wave nature beginning and ending in the direction of time. A photon has exactly the properties of an electron paired with an antielectron.

Altogether this means: An efficient physical calculation is only possible with the assumption of a universal time. Inertial systems are characterized by the fact that all objects in a system have a common center of gravity. This in turn means that classical physics is the basis for all phenomena. The speed of light is only relevant for the observer. Each interaction between 2 objects, on the other hand, always requires double the time.

Formulation of the TOE

In the TOE there is a single type of particle, which differs from all other particles by a different location. This means that this elementary particle cannot be divided, neither can it collide directly with another particle. The electron is a suitable name for this particle. That is, a photon is made up of an electron and an anti-electron. In the TOE, all bosons are composed of even particle numbers.

An important consideration is what raw data is nature based on? Time, multiple spatial dimensions, or energy? Time with a dimension is essential. Physics without natural numbers is also essential, as are ratios with rational numbers. This allows all conceivable models for the universe to be simulated. A theory of whatever kind for the universe has to be digitally verified with it. It is therefore not expedient to assume pi in a physical theory for the laws of nature. Integers are also the basis of atomic theory and quantum theory. **The simplest model for calculations in physics is a single dimension (time), a single type of particle with a universal speed and a single law of nature, and this relates to the energy** $E=2^r i^t$ **as the most compact information.** All particles move with a constant speed pic in the form of a spiral around the geodesic line as described with GRT. The endlessness of the universe is beyond any possible realization and results in kind of a fractal.

For calculations in physics, all the particles in a system must be assigned a single number. This is part of the universe. The natural numbers result in cohesion and thus replace gravity. A system of multiple objects built from particles does not require a vacuum. It's a whole. Every natural number has a particle. The structure of the system is given by dual, alternating states, matching a series of 1,1,-1,1,-1,-1. This results in an integer, binary number. The series of particles, regardless of whether it is an atom or the solar system, begins with a center and can reach as far as our horizon of knowledge. The maximum number of this system is the total energy. An object is a divider of this system.

The **law of nature** is based on the simplest possible law of energy:

$$E=2^r i^t \qquad r\in\mathbb{R}, t\in\mathbb{N} \qquad (1)$$

In contrast, **our idea of the world** is one with 3 isotropic dimensions x, y and z. A comparison of x, y and z is physically very problematic. Each ruler is flipped over for comparison and subject to the Coriolis force. The TOE, on the other hand, uses polar coordinates. If one calls r the large radius, xy the small radius and z the deviation, there are only ratios like $r/z=n/m \quad xy/z=l/m \quad n>l>|m|>0 \quad n,l,m\in\mathbb{N}$. r, xy and z cannot be the same, just like in a Turing machine each variable has a defined storage space. n, l and m refers to the ratio of the round trip times. 2pi is the appropriate conversion factor from the radius r to the circumference and the orbital period UZ. The polynomial

$$E_{(Objekt,Oberfläche)}=(r+(2\mathrm{pi})xy+(2\mathrm{pi})^2 z) \qquad (2)$$

is the summary of the 3 dimensions of an object. Starting from the center, there is a clear order according to the sizes r > xy > z. This is already cheaper than 3 isotropic dimensions x, y, z. This makes Heisenberg's inequality obsolete. Polynomials can be treated mathematically like orthograde vectors. Schrödinger's wave theory is based on $\Psi=A\,e^{-i/\hbar(Et+r\,dr/dt)}=A\,e^{-i(wt+r/\lambda)}$. Through the mathematical transformation with $e^{(r\ln(2\mathrm{pi}))}:=2\mathrm{pi}^r$ and the assumed digital time with the only values of 1 and -1, Ψ can be converted to

$$r_{Orbit}=A(2\mathrm{pi})^{-iwt}(2\mathrm{pi})^{r/\lambda}=\pm R_{Zentrum}(w)(2\mathrm{pi})^{r(0)+n l/\lambda} \qquad (3)$$

In this way, the apoapsis and periapsis of celestial bodies can be calculated (see below). I.e. the **TOE contains the quantum theory**.

Pi is just a tool for distinguishing between inside and outside. It's just a question of the number system. Nature works in binary. For our understanding of space, the base is 2pi for one complete revolution. Here 2pi is the circumference of an idealized electron. The barrier from one object to another object is a circle. Either the object is inside or outside, matter or antimatter, in the time before or in the time after. Exactly on the circle the energy would be zero. No matter how epicycles are built from circles, the barrier remains. It doesn't matter whether physics consists of 3 spatial dimensions or 11 dimensions, the length of the polynomials is man-made, from our idea of space.

Photons consist of an electron and an anti-electron. In nature, these are two immediately adjacent particles. They cannot be separated and observed except for emission or absorption, or with a 3rd object for pairing. The pair formation shows the consequence of the decay and leads to an electron towards the center and an anti-electron in the opposite direction.

A photon has exactly the properties of an electron paired with an antielectron.

$spin\,1 = spin\,½ + spin\,½ \quad E_{ges} = E_{Elektron} + E_{Antielektron} \quad N_{Elektron} = -N_{Antielektron} = 1 \quad E_{Elektron} > 0$
$E_{Antielektron} < 0$ .Bosons consist of an even number of particles, fermions of an odd number. The speed $pi\,c$ see below allows the interaction between 2 entangled photons, solely via the angular momentum. This applies to all entangled objects.

For calculations in physics, an observer and two objects N_B , N_1 and N_2 , with the respective particle numbers, and1 are essential. Basically, physical laws result from the respective conditions, the torques and a corresponding formula for the time or frequencies

$$N_B / r_B = N_1 / r_1 = N_2 / r_2 \quad (5) \qquad N_B / w_B = N_1 / w_1 = N_2 / w_2 \quad (6)$$

The same laws apply to celestial bodies as to an atom. Elementary particles are also made up of one or more particles. A ground state is only reached when the minimum energy of a system with integer ratios n, l, m is balanced, with no higher frequencies that could still be radiated. Every celestial body and ultimately every object has a **conversion factor of 2pi per revolution** $2\mathrm{pi}\, r \propto w$ for each of the 3 spatial dimensions. **Every object has the same information in the radii** $r_{Objekt} = r_1 + 2\mathrm{pi}\, xy_1 + 4\mathrm{pi}^2 z_1$ **as in the frequencies w, if w is a complex number.**

There is a focal point for 3 objects. The lever laws of classical physics apply as follows:

$$M_{1,2,\,pot} = N_1(r_1 + 2\mathrm{pi}\, xy_1 + 4\mathrm{pi}^2 z_1) + N_2(r_2 + 2\,pi\,xy_2 + 4\,pi^2 z_2) + N_B(r_B + 2\mathrm{pi}\, xy_B + 4\mathrm{pi}^2 z_B) = 0 \quad (7)$$

$$L_{1,2,\,kin} = N_1 w_1 + N_2 w_2 + N_B w_B = 0 \quad (8)$$

Torque M and angular momentum L is appropriate for these formulas with N particles. According to Gauss' integral theorem, it doesn't matter what's inside an object, whether it's a solid body or a complex system of center and satellites. According to classical mechanics, the center of gravity is M = 0 and L = 0. According to quantum mechanics, the energy can only be calculated when 3 objects interact with the same, smallest center of gravity = Q. Q stands for a single quantum N = 1.

$$N_1/N_B(r_1/r_B + xy_1/xy_B + z_1/z_B) + N_2/N_B(r_2/r_B + xy_2/xy_B + z_2/z_B) = -1 \pm pi \pm pi^2 \pm pi^3 \quad \text{(9) mit (1)}$$

$$(r_1^2/r_B^2 + xy_1^2/xy_B^2 + z_1^2/z_B^2) + (r_2^2/r_B^2 + xy_2^2/xy_B^2 + z_2^2/z_B^2) = -1 \pm pi \pm pi^2 \pm pi^3$$

$$E_{1,2} = (r_1 v_{1,r} + xy_1 v_{1,xy} + z_1 v_{1,z})c + (r_2 v_{2,r} + xy_2 v_{1,xy} + z_2 v_{1,z})c = \sqrt{(-1 \pm pi \pm pi^2 \pm pi^3)}\,c^2 \quad (10)$$

$$Q^2 = -1 \pm pi \pm pi^2 \pm pi^3 \quad (11) \quad \text{s.u.}$$

$$E_{(1,2)} = E_1 + E_2 + E_W = Q\,c^2$$

The summands pi^a in Q are the connections to other members of a larger system. This means that 2 chains can be combined into a larger system using these 2 end links.

Usually the energy for 2 objects is divided by the masses m, impulses p and c with the respective relative velocities and leads to the square of the length of the four-impulse:

$E^2 = x^2 p_x^2 c^2 + y^2 p_y^2 c^2 + z^2 p_z^2 c^2 - m^2 c^4$ **Correct and simpler is to include the observer's measurement. The measurement takes over the recoil.** The mass m naturally has no unit, it's just a ratio. The masses result from the interaction or the torque of three bodies. Simply by assuming a particle number > 2, the mass is superfluous. With and $N_1 w_1 + N_2 w_2 + N_B w_B = 0$ applies to each system:

$$N_1 w_1/(N_B w_B) + N_2 w_2/(N_B w_B) = -1$$

$$N_1^2 - N_2^2 = N_B^2 \quad w_1^2/w_B^2 + w_2^2/w_B^2 = -1 \quad w_1^2 + w_2^2 = -w_B^2 \quad (12)$$

What is the importance of an object's frequency in quantum mechanics and TOE?

3 polar coordinates are summarized in the TOE: $r_{Objekt} = (r + (2\mathrm{pi})\,xy + (2\mathrm{pi})^2 z)$

The mean dimension corresponds to the transverse plane of rotation and applies to all objects in a system.

The longitudinal direction of propagation is given by the ratio of r/z. The properties of a photon can only be determined in relation to a third body. w is not the frequency f that is usually assigned to an elementary particle. f is the frequency of recoil after emission or absorption and depends on the detector, observer and ultimately the mass of the earth.

The interaction $E_W = pi^2 c = h f$ can be included in the square root $Q/c^2 = \sqrt{(-1 \pm pi \pm pi^2 \pm pi^3)}$ at the position of pi^2. Only when 2 objects no longer emit energy, regardless of particles, electromagnetic waves or gravitational waves, is a basic state reached in the entire system:

$$Q/c^2 = \sqrt{(\pm 1 \pm pi \pm pi^3)} \qquad (13)$$

Gravitational constant

With the product G h the mass is eliminated and can only be calculated as a single unit. In 3 dimensions the volume is limited to a particle $V_e = pi^2 c^3$. N particles have a volume of $V_r = N r^3$. No single particle will occupy the same position after a complete revolution of the complete system $\sqrt{(1 \pm pi \pm pi^3)}$ and thus the relation $V_N = N\, pi^2 c^3$ (14) results. $Q/c^2 = \sqrt{(\pm 1 \pm pi \pm pi^3)}$

$G h c^3 pi^2 Quantum = G h c^5 pi^2 \sqrt{(\pm 1 \pm pi \pm pi^3)} \approx \pm 1$. All quanta have a charge as an electron or anti-electron. Gravity is the difference between the smallest possible distance between two quanta. Two quanta result in a graviton. The cohesion corresponds to the interaction of a photon. The ratio of the 2 quanta results from the direct sequence in the series $1/pi^3 + 1/pi + 0*1 + 0*pi + pi^2 + pi^4$. The polynomial $0*1 + 0*pi$ is again part of the interaction between the 2 quanta

$Graviton = \sqrt{(1 + pi\,(pi + pi^3) - (1 + 1/pi + 1/pi^3))} = \sqrt{(pi^4 + pi^2 + 1/pi + 1/pi^3)}$ This results in:

$$hG c^5 s^8/m^{10} \sqrt{(pi^4 - pi^2 - 1/pi - 1/pi^3)} = 0.999991 \qquad (15)$$

h, G and c form a unit and are **defined by this formula**. The units meter and second are mandatory in this formula. 3 Objects can be used as standard units of measure if at least two measures are specified, orbital period, diameter and/or particle count.

The value of G is known only to the fifth digit. In this respect, the result can be assumed to be 1. h and c are already exactly defined. The only parameter that is still determined by a measurement is G. The orbitantly precise calculations of the G-factor of the electron with the quantum field theory, accurate to 10 digits, is due to the unit of $h G c^5$. It is a tautology, a mathematical self-reference of particles or electrons to another electron.

The factor $pi^4 - pi^2 - 1/pi - 1/pi^3$ is a function of dimensions. pi is only conditioned by our view of the world as a 3-dimensional space with spheres of circumference pi^d of diameter. Nothing can penetrate inside a particle. This means that the number of particles is independent of the dimensions and the particles are lined up like in a one-dimensional chain. The connection from space to time is ultimately one-dimensional. The only force holding the world together are the natural numbers and they show up as centrifugal and centripetal forces. 2 objects with 3 dimensions need 3^2 parameters plus the total number of particles and equals 10 equations. Formula (1) corresponds to the ART with 16 equations, of which also only 10 are independent. **I.e. the TOE contains the ART and the QM.**

H0 and gravitational constant

The equation for gravitation $hG c^5 s^8/m^{10} \sqrt{(pi^4 - pi^2 - 1/pi - 1/pi^3)} = 0.999991$ can also be formulated differently by dividing the volume by the number of particles $V_N = N\, pi^2 c^3$:

$G_{Universum}/V_N = hG c^5 s^8/m^{10} \sqrt{(pi^4 - pi^2 - 1/pi - 1/pi^3)}/pi^2/c^3 = hG c^2 s^5/m^7 \sqrt{(1 - 1/pi^2 \ldots.)}$

If you multiply $G_{Universum}/V_N$ by twice the speed of light c, you get the orthograde component, the speed of light c and this is the expansion of the universe H0.

$hG c^3 2 \sqrt{(1 - 2/pi^2)} s^5/m^8 = 2.13 \cdot 10^{-18}/s$ (16) Measurements: $H0 = 2.19\, 10^{-18}/s$ (17)

The universe has a radius of $45\, billion\, LJ = 45 \cdot 9{,}46 \cdot 10^{21}\, km = 4{,}25 \cdot 10^{23}\, km$ with a volume increase by

the Hubble constant H0 with 71 (mean 68 to 74) km/s/Mpc. $Mpc = 3.1\,10^{19}\,km$. $H0 = 2.19\,10^{-18}/s$.
The radius of the universe thus takes about $4.25\,10^{23}\,km \cdot 2.19\,10^{-18}/s = 9.307\,10^{5}\,km/s$ and almost exactly pi x 296751 km/s. This value 296028 km/s in 1% 299792 km/s and thus the speed of light. The age of the universe is $13.81\,billion\,Jahren \cdot H0 = 13.81 \cdot 10^{9} \cdot 31536000\,s \cdot 2.19 \cdot 10^{-18}/s = 0.95$, which is 1 at 5%. **The Hubble constant is** $2{,}19 \cdot 10^{-18}/sec$ **for time and** $pi\,c/2.19 \cdot 10^{-18}/m$ **for space.**

All interactions are thus due to the expansion of the universe.

Calculations on Sun - Earth - Moon

For the 3 spatial dimensions, 2^3 = 8 is the basis for ratios of rotations or frequencies. This is also reflected in the periodic table. The largest possible, stable ratio of radii of celestial bodies is that of the earth and the moon. This results in the ratios of the diameters of the earth / (earth + moon):
Moon Radius/ (Earth Radius + Moon Radius) = 2^3 / (2pi) = 4/pi.

Equator diameter with 2756.27 km and 3476.2 km: $4/pi\;12756{,}27/(12756{,}27 + 3476{,}2) = 1.00057$
Pole diameter with 12713.50 km and 3472.0 km : $4/pi\;12713{,}50/(12713{,}50 + 3472{,}0) = 1.00011$
Moon with sphere of equal volume with 3474.2 km : $4/pi\;12713{,}50/(12713{,}50 + 3474{,}2) = 0.99997$

Calculated: Moon radius = 6356.75 km (4/pi -1) = 1736.9 km related to the pole diameters, see above.

This unique relationship between the sun, earth and the first moon in the planetary system explains why the moon fits pretty much exactly into the sun during a solar eclipse. Common objections to this explanation of the eclipse are tidal forces. However, only the total energy $E = mc^2$ inside a body is important for the radius and distance (Gauss integral theorem). The distances between all bodies can also be the result of the expansion of the entire universe.

$$H0 = 2.19\,10^{-18}/s \quad . \quad d/dt\,distance(Moon) = 38{,}2\,mm/384400\,km/1\,year = 3.15\,10^{-18}/s$$
$$(1 - 1/pi)\,3.15\,10^{-18}/s \approx H0$$

The following considerations about the rotation times of the celestial bodies are speculative for the time being!

Orbital period for lunar orbit: *1/2 (8^2- 8^1 - 1) =* ***27.5 days*** *measured 27.322*
In the inertial system from the center of gravity, the orbital times are divided between the rotation from the center and the orbital period from the orbit, giving the factor 1/2.

Orbital times for Venus orbit: *1/2 (8^3 - 8^2 + 1) = 224.5 224.701 days*

Orbital times for Mercury orbit relative to the Sun's rotation *of 25.38 days*
*25.38 days * 1/2 * (8 - 1- 1/2 1/8)= 88.03 87.969 days*

Orbit times for Earth orbit:
1/2 (8^3 + 3 (8^2 + 8 +1)) = 365.5

The resonances in the solar system also result from ratios of rotation and revolution times.

Calculation of the speed of light c from the earth radius and 1 day

The sun, earth and moon combined are a system with special ratios of rotation times.This also means that the speed of light c should also be in the greatest possible ratio. As described above:

$$E_{1,2}=(r_1 v_{1,r}+xy_1 v_{1,xy}+z_1 v_{1,z})c+(r_2 v_{2,r}+xy_2 v_{1,xy}+z_2 v_{1,z})c=\sqrt{(-1\pm pi\pm pi^2\pm pi^3)}c^2 \quad (10)$$

$$Q=\sqrt{(\pm 1\pm pi\pm pi^2\pm pi^3)}c^2 \quad (11)$$

Only a middle part of the 3-polynomials corresponds to the rotation in the transverse plane. For the photon this is $E_W=pi^2 c^2=h f$. Factors pi and pi^3 relate to longitudinal propagation direction and spin. c has only one meaning in relation to a body, either its radius as its center or its radius as its orbit. In 2-d, c is a curvature of velocity x m with units m^2/s . Equation $\omega=2^2 c/r$ can be transformed for surfaces at the orbital period UZ $UZ=r/\omega=4/(2\mathrm{pi})c r^2$. If you put the radius of the earth's surface 6378.626 km and the orbital period of one day in this formula, the result is the speed of light c .

$$r=\sqrt{(pi/2 c\, m\, Tag)}=6378626\, m \qquad r^2/Tag/m\,2/pi=c \quad (18)$$

The radius of the equator is 6,378,137 m (GSM 80) with a difference of **489** m. **Measuring lengths is a very demanding task. As with any object, once a ruler is flipped, it is subject to the Coriolis force.** The natural unit of c with m^2/s is correct for a single object. Two objects are always required for the energy and are compared with each other. This results in the energy with the unit c^2.

Transfer of the equations to elementary particles

The masses of elementary particles are energies expressed by polynomials. Each summand stands for one of the 3 dimensions. Composite particles are sums of two polynomials. Every polynomial of an elementary particle starts with the 3 coefficients for r , xy and z :

$$E=E_{kin}+a_{xy}(2\mathrm{pi})^{2+3\mathrm{n}}+a_z(2\mathrm{pi})^{1+3\mathrm{n}} \quad (19)$$

For stable particles the coefficient a_xy = 1 for matter or -1 for antimatter. a_z is 1 or -1 and describes the spin +-1/2. With n=0, the rest energy of the free electron results in:

$$E_e=(2\mathrm{pi})^1+(2\mathrm{pi})^0$$

The electron is 2-dimensional. The 3rd dimension corresponds to the kinetic energy or the magnetic field. The energies of all other particles are related to the electron.

Calculation of the mass of the proton

The calculation of the proton mass is based on 2 polynomials (19) with n=1 and n=0

$$E_e=(2\mathrm{pi})^1+(2\mathrm{pi})^0-E_{W,e} \qquad E_p=(2\mathrm{pi})^4+(2\mathrm{pi})^3+(2\mathrm{pi})^2+E_{W,p}$$

E_W corresponds to the interaction or binding energy with a first estimate:

$$E_p=(2\mathrm{pi})^4+(2\mathrm{pi})^3+(2\mathrm{pi})^2-(2\mathrm{pi})^1-(2\mathrm{pi})^0-E_{W,p}-E_{W,e}=1838.79090228-2E_W$$

Calculation of the interactions:

E_W depends on the environment of the proton. I.e. decimal places should result from an inversion of the polynomials ... + $(2\mathrm{pi})^r$ +... with reflection on the unit circle (r, phi) -> (1/r,-phi) .

The unit circles depend on the dimensions d and change from matter to antimatter in the first step:

Matter : i^t : antimatter

... + $(2\mathrm{pi})^r$ + ... : $e^{i2\,pi}$: .... $-pi^{-r}$ ..

With 2 transformations we get:

Matter : i^t : antimatter : i ^t : matter

... + $(2\mathrm{pi})^r$ + ... : $e^{i2\,pi}$: ... $-pi^{-r}$ ... : $e^{i2\,pi}$: ... + $2\,pi^{(-2r)}$ + ...

This results in a sequence of addends from 1/(pi)^a , similar to calculations of

$$hG\, c^5 s^8 / m^{10} \sqrt{(pi^4 - pi^2 - 1/pi - 1/pi^3)} = 0.999991$$.

With the assumption of $E_W = 1 - 1/pi$ follows

$$m_p = 1838.79090228 - 2 - 2/pi + 2\, E_{core} = 1836.15428251\, m_e$$

Calculation of the interactions in the atomic nucleus:

The proton consists of 3 quarks, this leads to further interactions:

Dimensions: d = 3 $E_{core} = (1/pi^d)^2 = 1/pi^6$

This leads to $m_p = 1836.15428251 - 2 - 2/pi + 2/pi^6 + 2\, E_{intercore} = 1836.15324235\, m_e$.

Further factors for the interaction within the proton are added according to the same scheme:

$$E_{intercore} = (1 - 2/pi^2 - 2/pi^4 - 2/pi^6 (1 + 1/pi^2 (2\mathrm{pi} - 1/4)))$$

The last factor $1/pi^2 (2\mathrm{pi} - 1/4)$ deviates from the rule. It describes the particle that is closest to the overall center of gravity of the atom. $1/4 = (1/2\, Spin\ des\ Elektrons)^2$ It revolves around the center of gravity of the universe. This is at least a reasonable assumption. This leads to:

Mass of the proton m_p =

$$(2\mathrm{pi})^4 + (2\mathrm{pi})^3 + (2\mathrm{pi})^2 - (2\mathrm{pi})^1 - 1 - 2 - 2/pi - 2/pi^6 (1 - 2/pi^2 - 2/pi^4 - 2/pi^6 (1 + 1/pi^2 (2\mathrm{pi} - 1/4)))$$

$$= (2\mathrm{pi})^4 + (2\mathrm{pi})^3 + (2\mathrm{pi})^2 - (2\mathrm{pi})^1 - 1 - 2 - 2/pi - 2/pi^6 + 4/pi^8 + 4/pi^{10} + 4/pi^{12} - 8/pi^{13} (1 - 1/pi)$$

Theory: 1836.15267343 m_e Measured 1836.15267343(11) m_e (19)

The smallest energy fraction with the smallest orbit should be an electron neutrino.

$$E_{Neutrino} = E_{Elektron}\, 2/pi^6\, 2\mathrm{pi}^6\, 2/pi^2\, 1/4 = (2\mathrm{pi} - 1)\, pi^{14}/2 = 1.15\, 10^{-6}\, eV \qquad (20)$$

It's not a real rest mass. All particles have the same speed. Everything revolves around something else. It is the reciprocal of the entire universe. It should be emphasized that the calculations of the proton mass by chance would result in this value is extremely improbable. **n pi^r from integers is unique because pi is a transcendental number.**

Neutron:

$$m_{neutron} = (2\mathrm{pi})^4 + (2\mathrm{pi})^3 + (2\mathrm{pi})^2 - E_W$$

$$m_{neutron} = E_W + (2\mathrm{pi})^1 + (2\mathrm{pi})^0 \qquad 1/pi^2 : 1/pi^4 \qquad E_W = 1/2/pi^2 (1 + 1/pi^2)$$

$$m_{neutron} \approx (2\mathrm{pi})^4 + (2\mathrm{pi})^3 + (2\mathrm{pi})^2 - (2\mathrm{pi})^1 - (2\mathrm{pi})^0 - 1/pi^2 - 1/pi^4 = 1838.68$$

Spekulation:

$m_{Neutron}$ =

$$(2\mathrm{pi})^4 + (2\mathrm{pi})^3 + (2\mathrm{pi})^2 - (2\mathrm{pi})^1 - 1 - 1/pi^2 - 1/pi^4 + 2/pi^6 (2 + 1/pi^2 - 1/pi^4 - 1/pi^6 (1 + 1/pi^2 (2\mathrm{pi} - 1/4)))$$

Theory: *1838.6836617 m_e* Measured *1838,68366173(89)* m_e *(21)*

Muon

The calculation is analogous to the proton.

$$m_{muon} = (2\mathrm{pi})^3 + E_W \qquad m_{muon} = -E_W + (2\mathrm{pi})^2 \qquad E_W \approx 1 - 1/pi$$

$$m_{muon} = (2\mathrm{pi})^3 - (2\mathrm{pi})^2 - 2\, E_W = (2\mathrm{pi})^3 - (2\mathrm{pi})^2 - 2 - 2/pi = 205.93\, m_e$$

The muon is an unstable particle. The comparison with the calculation of the proton mass is only an estimate. Due to the instability $E_W \approx 1 - 1/pi^2$ is more likely.

$$m_{muon} = (2\mathrm{pi})^3 - (2\mathrm{pi})^2 - 2E_W^2 = (2\mathrm{pi})^3 - (2\mathrm{pi})^2 - 2 - 2/pi^2 = 206.77\, m_e \quad (22)$$

Theory: 206.77 m_e measurement: 206.7682830(46) m_e

Tauon

The tauon is composed of many particles, as can be seen from the numerous decay channels. The first particle with the factor $(2\mathrm{pi})^4$ is the proton. The tauon should therefore possess the factor $2(2\mathrm{pi})^4$.

First estimate for the mass of the tauon:

$$m_{Tauon} = 2(2\mathrm{pi})^4 = 3117.0\, m_e$$

Without a factor $(2\mathrm{pi})^3$ und $(2\mathrm{pi})^2$, the tauon, like the proton, cannot exist.

$$m_{Tauon} = 2(2\mathrm{pi})^4 + (2\mathrm{pi})^3 + (2\mathrm{pi})^2 = 3404.61\, m_e$$

Speculation: $2(2\mathrm{pi})^4 + (2\mathrm{pi})^3 + 3(2\mathrm{pi})^2 - (2\mathrm{pi})^1 = 3477.29$ with 2 x 3 particles

$$m_{Tauon} = 2(2\mathrm{pi})^4 + (2\mathrm{pi})^3 + 3(2\mathrm{pi})^2 + E_W$$

$m_{Tauon} = -E_W + 2\mathrm{pi}$ Interaction: $E_W = 1/pi^3(1 - 1/pi^2)$

$$m_{Tauon} = 2(2\mathrm{pi})^4 + (2\mathrm{pi})^3 + 3(2\mathrm{pi})^2 - 2\mathrm{pi} - 1/pi^3(2 - 2/pi^2) = 3477.235\, m_e \quad (23)$$

Theory 3477.23 m_e measured 3477.23 m_e

Calculations of orbits in the solar system

The solar system with center r_sun is orbited by smaller objects with radius r_orbit. In this respect, the number of particles N in $E = (2\mathrm{pi})^{(N/d)} i^{(tN)}$ can be replaced by the dividers n, l and m and is related to the r_center and the number of revolutions t = UZ. E can again be represented as a polynomial with at least 6 terms: $E_{(n,l,m,s)} = r_{Zentrum}^2 (2\mathrm{pi})^{nlms} i^{-t(nlms)}$. n, l and m are only placeholders for the time being and have to be determined more precisely.

$$E = r_{Zentrum}^2 (r_{sat}\, i^{-t/2} + xy_{sat}\, i^{-t} + z_{sat}\, i^0 + r_{sun}\, i^{-t} + xy_{sun}\, i^{-2\mathrm{t}} + z_{sun}\, i^{-4\mathrm{t}}) \quad (24)$$

The equations can be simplified for apopasis and periapsis. $(r\, yx) \propto t$ directly yields Kepler's 2nd law. z_satellite in (24) is just a constant, orthograde on the plane of rotation. Everything revolves around z_satellite with a constant radius to the centroid. Everything within this orbit belongs to the sun or planets further in. Each term is replaced 2pi^n, starting with 2pi^0 = 1 for the sun's surface

$$E_{(n,l,m,s)} = r_Z^2 (32\mathrm{pi}^5 i^{-t/2} + 16\mathrm{pi}^4 i^{-t} + 8\mathrm{pi}^3 i^{-0} + 4\mathrm{pi}^2 i^{-t2} + 2\mathrm{pi}\, i^{-t4} + i^{-t8})$$

The two terms $r\, i^t/2 = 32\mathrm{pi}^5 i^t$ and $xy\, i^t = 16\, pi^4 i^t$ are relevant.

The radial component r_{sat} corresponds to the potential energy. The component xy_{sat} is orthograde to r_sat and corresponds to the kinetic energy.

$$E_{pot} = 32\mathrm{pi}^5(1 + \sin^2(t/n)/2) \qquad E_{kin} = 16\mathrm{pi}^4(-1/2\cos^2(t/n))$$

$$E_{pot} + E_{kin} = 32\mathrm{pi}^5 + 16\, pi^4(2\mathrm{pi}\sin^2(t/n) - 1/2\cos^2(t/n))$$

The factors 2pi and 1/2 refer to quantum numbers. A circumference of a circle is related to a spin 1/2 . The same consideration also applies to the proportion of the sun $4\mathrm{pi}^2 i^{-t2} + 2\mathrm{pi}\, i^{-t4} + i^{-t8}$

For 2 full revolutions and 3 spatial dimensions, the ratio is $1/2(2\mathrm{pi})^{(3/2)}$.

From this we get for **Mercury:**

Periapsis:

$$r_{Orbit}=696342\,km\sqrt{(1+0*pi+4\mathrm{pi}^2+8\mathrm{pi}^3-0*16\mathrm{pi}^4+32\,pi^5)}=69916199\,km$$

measurement: 0.4667 AU * 149.6 *10^6 km = 69.81 10^6 km relative error = 1.0015

Apoapsis:

$$r_{Orbit}=696342\,km\sqrt{(1-2/2\,pi+2\mathrm{pi}^2+8\mathrm{pi}^3-16/2\mathrm{pi}^4+32/2\,pi^5)}=46114001\,km$$

measurement: 0.3075 AU * 149.6 *10^6 km = 46.002 10^6 km relative error = 1.0024

Each of the two 3-polynomials in formula (24) can be transformed into an ellipse:

$$R_O^2=\sin(t)^2/c+\cos(t)^2/d$$

Orbits for the entire solar system

The energies or radii of the orbits for the entire solar system should be calculated **approximately**. The thoughts on this are still speculative.

$$E_{total}=R_{sun}^2\,pi^3/2(\quad \text{planet} \quad + \ \text{apo-/periapsis moon} \ + \quad \text{sun})$$

$$E_{(n,l,m,s)}=R_{Sun}^2\,pi^3/2((4\mathrm{pi}^2 3^n 2^l) \quad + \quad (4\mathrm{pi}^2 \quad 3^m \qquad 2^{s/2})+(1+2\mathrm{pi}+4\mathrm{pi}^2)) \quad (25)$$

The energies are multiples of pi^3/2 (cf. 11) and are divided into 3 objects. All energies are multiples of 4pi^2. Beginning at the surface of the sun, the quantum properties of the solar system come into play. The definition of the surface results from the coincidence with which the body rotates. Thus, there is no exact limit for the surface. The energies $E_{(n,l,m,s)}$ can thus be inserted in a single line of a program. Everything else is only necessary for our contemplation of the world. 4 loops for 4 parameters n, l ,m and s. n, l and m depend on the parameters r, xy, z . s describes the large moons. The following table therefore also contains values of s with ½ or ¼ . n, l and m are not directly comparable with the quantum numbers in QM. $4\mathrm{pi}^2 3^n 2^l$ and $4\mathrm{pi}^2 3^m 2^{s/2}$ have the same form. The inner planets are predominantly dependent on $4\mathrm{pi}^2 3^n 2^l$, the outer planets predominantly on $4\mathrm{pi}^2 3^m 2^{s/2}$. Each run requires a unit of time. The first result they lead to is the radii of apoapsis and periapsis. These are the limit values of two different quantum combinations (n,l,m,s). Kelper's laws are used for graphics, with 2 orthograde circles for apoapsis and periapsis, i.e. an ellipse with frequencies, sine and cosine. Another circle gives the deviation. The advantage of the solar system over the atom or the elementary particles is that the orbits can be observed directly.

All calculations of radii to the solar system cannot be exact! The only exact laws are those of Kepler and Galileo, without pi. The orbits are derived from rational numbers during the formation of the solar system. The fractal nature of the solar system also means coincidence. Pi is the geometric mean in chaos.

$$r_{orbit}=696342\,km\sqrt{(pi^3/2((4\mathrm{pi}^2 3^n 2^l)+(4\mathrm{pi}^2 3^m 2^{s/2})+(1+2\mathrm{pi}+4\mathrm{pi}^2)))} \quad (25)$$

Example

Merkury:

n = 1: l = 0: m = 1: s = 0

Apoasis = 696342 * sqrt(pi^3/2*(((2*pi)^2 * 3^1 * 2^0) + ((2*pi)^2 * 3^1 * 2^(0 / 4)) + (1 + 2*pi + (2*pi) ^2)))

Apoasis = 46175339

n = 1: l = 2: m = 2: s = 0

Periapsis = 696342 * sqrt(pi^3/2*(((2*pi)^2 * 3^1 * 2^2) + ((2*pi)^2 * 3^1 * 2^(0 / 4)) + (1 + 2*pi + (2*pi) ^2)))

Periapsis = 69304544

The results in the table only show possible orbits.

The specified planetary radii are not corrected by moons. The frequencies are shown together.
Extracted from the radii and therefore do not have to conform exactly to Newton's laws!

		quantum numbers	n	l	m	s
sun R = 696342,0	messured:	RE: ∞				
U Zt = 25,38	messured: 25,38	RE: 0,000				
R Zt = 25,4	messured: 25,38	RE: 0,000				
mercury R = 2448,57	messured: 2439,7	RE: 0,004				
U Zt = 88,706	messured: 87,969	RE: 0,008				
R Zt = 59,0	messured: 58,65	RE: 0,007				
Apoapsis = 46,2	messured: 46,0	RE: 0,00	1	0	1	0
Periapsis = 69,3	messured: 69,8	RE: -0,01	1	2	1	0
inclination 7,14 °	Eccentricity ,2003					
Venus R = 6123,80	messured: 6051,8	RE: 0,012				
U Zt = 226,173	messured: 224,701	RE: 0,007				
R Zt = 245,6	messured: 243,6	RE: 0,008				
Apoapsis = 106,5	messured: 107,4	RE: - 0,01	2	2	0	0
Periapsis = 110,9	messured: 108,9	RE: 0,02	2	2	1	1
inclination °	Eccentricity					
erth R = 6954,89	messured: 6378	RE: 0,090				
U Zt = 368,961	messured: 365,25	RE: 0,010				
R Zt = 1,0	messured: 1	RE: 0,000				
Apoapsis = 148,4	messured: 147,1	RE: 0,01	2	3	0	0
Periapsis = 151,6	messured: 152,1	RE: 0,00	2	3	1	1
inclination °	Eccentricity					
Moon R = 1900,35	messured: 1737,4	RE: 0,094				
U Zt 27,38	messured: 27,322	RE: 0,002				
R Zt = 27,38	messured: 27,322	RE: 0,002				
Apoapsis bound 0,3697	messured: 0,363	RE: 0,02	2	3	0	0
Periapsis bound 0,4160	messured: 0,406	RE: 0,03	2	3	1	1
Mars R = 2356,03	messured: 3396,2	RE: -0,306				
U Zt = 712,9	messured: 686,98	RE: 0,038				
R Zt = 0,0	messured: 1,026	RE: -1,000				
Apoapsis = 208,3	messured: 206,6	RE: 0,01	2	4	0	0
Periapsis = 243,1	messured: 249,2	RE: -0,02	2	4	3	2
inclination °	Eccentricity					
Phobos R = 8,15 messured: 11,2		RE: -0,272				
U Zt ∞	messured: ,319	RE: ∞				
Apoapsis bound 0,00691	messured: 0,00938	RE: -0,26	2	4	0	1/2
Periapsis bound 0,00691	messured: 0,00938	RE: -0,26	2	4	1	0
Deimos R = 4,08 messured: 6,1		RE: -0,332				
U Zt ∞	messured: 1,262	RE: ∞				
Apoapsis bound 0,01738	messured: 0,02345	RE: -0,26	2	4	1	1/2
Periapsis bound 0,01738	messured: 0,02345	RE: -0,26	2	4	2	0
Asteroiden						
Apoapsis = 293,5	messured: 299,2	RE: - 0,02	2	5	0	0
Periapsis = 510,4	messured: 508,6	RE: 0,00	3	5	2	1
inclination °	Eccentricity					
Jupiter R = 71617,49	messured: 71492	RE: 0,002				
U Zt = 4510,135	messured: 4332,75	RE: 0,041				
Apoapsis = 739,7	messured: 740,5	RE: 0,00	3	6	4	1
Periapsis = 810,8	messured: 816,7	RE: -0,01	3	6	5	2
inclination °	Eccentricity					
satellite Jo						
U Zt ∞	messured: 1,763	RE: ∞				
Apoapsis bound 0,37512	messured: 0,42160	RE: -0,11	3	6	4	1/ 4
satellite Europa						
U Zt ∞	messured: 3,525	RE: ∞				
Apoapsis bound 0,61920	messured: 0,67090	RE: -0,08	3	6	4	2/ 4
satellite Ganymed						
U Zt ∞	messured: 7,156	RE: ∞				
Apoapsis bound 0,97469	messured: 1,07000	RE: -0,09	3	6	4	3/ 4
satellite Kallisko						
U Zt ∞	messured: 16,69	RE: ∞				
Apoapsis bound 1,68404	messured: 1,88300	RE: -0,11	3	6	4	4/ 4

Saturn R = 59505,79	messured: 60268	RE: -0,013				
U Zt = 11659,741	messured: 10759,1	RE: 0,084				
Apoapsis = 1394,2	messured: 1352,5	RE: 0,03	3	7	7	1
Periapsis = 1524,5	messured: 1514,6	RE: 0,01	3	7	7	2
inclination °	Eccentricity					
Uranus R = 25187,96	messured: 25559	RE: -0,015				
U Zt = 31668,231	messured: 30685	RE: 0,032				
Apoapsis = 2659,3	messured: 2741,3	RE: - 0,03	4	8	7	1
Periapsis = 2984,6	messured: 3003,7	RE: -0,01	4	8	8	1
inclination °	Eccentricity					
Neptun R = 22354,29	messured: 24341	RE: -0,082				
U Zt = 60927,724	messured: 60189	RE: 0,012				
Apoapsis = 4402,3	messured: 4444,5	RE: - 0,01	5	8	7	1
Periapsis = 4517,6	messured: 4545,6	RE: -0,01	5	8	8	0
inclination °	Eccentricity					
Pluto R = 3054,04	messured: 1188	RE: 1,571				
U Zt = 110383,093	messured: 90559,7	RE: 0,219				
Apoapsis = 4402,3	messured: 4436,8	RE: - 0,01	5	8	7	1
Periapsis = 7485,6	messured: 7375,9	RE: 0,01	6	8	7	0
inclination °						

Outlook

$hG\,c^5\sqrt{(pi^4-pi^2-1/pi-1/pi^3)}=0.999991$ shows the connection between micro- and macrocosm. We are in the middle of the potencies c^5 . On the left is the quantum of action. G is the opposite of that. Nothing more can be learned. Ultimately, only 3 angular momenta of the spatial coordinates r, xy, z are required for physics. Some is still speculative. However, the previous considerations should be reason enough to continue to pursue the connection with QFT of ART and to further expand the theory. If these considerations about the TOE are correct, this would have a significant impact on our ideas about the cosmos.

Summary

The relationship between the units is $hG\,c^5\sqrt{(pi^4-pi^2-1/pi-1/pi^3)}=0.999991$ and $r=\sqrt{(pi/2\,c\,Tag)}=6378626\,m$. h, G and c form a unit. The TOE includes the QM, QFT and the ART. The basis of all theories is classical physics. The TOE takes the direct route using the simplest assumptions with the energy $E=2^r i^t$ and rational numbers. QM, QFT and the ART are committee methods using the Euler-Lagrange formula. The vacuum is considered to be an essential part of the universe, filled with virtual particles. This can be represented as an equation:

$$All=TOE+Vakuum=TOE+QFT+ART$$

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