Wolfgang Goldmann

Theory of Everything ToE 2026

Version 3

$$\frac{\hbar^2 \cdot G^2}{c^7} = \sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^5}}$$

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Theory of Everything 2026

by Dr. Wolfgang Goldmann

For about 100 years, scientists have been searching for a theory of everything that can unify the macrocosm (theory of relativity) and the microcosm (quantum physics). Some scientists also claim that this will never be possible. This treatise proves the opposite.

The theory of eveything 2026 is

$$\frac{\hbar^2 \cdot G^2}{c^7} = \sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^5}}$$

The following abbreviations apply:

ħ = reduced Planck quantum of action
G = gravity constant
c = speed of light
ħ, G and c are universally recognized natural constants.

ħ = reduced Planck quantum of action
= 1,054 571 817 • 10^{-34} joules • seconds

$$\text{dimension} = \frac{m \cdot \text{length}^2}{\text{time}} = \text{action} = \text{spin} = \text{angular momentum}$$

m = mass

G = gravity constant
≈ 6,674 • 10-11 Newton • Meter^2 / Kilogram^2

$$\text{dimension} = \frac{\text{length}^3}{m \cdot \text{time}^2}$$

c = speed of light

= 299 792,458 kilometers / second

$$\text{dimension} = \frac{\text{Length}}{\text{Time}} = \text{speed}$$

$$\sqrt{\frac{\hbar \cdot G}{c^3}} = \text{Planck length} = 1{,}616\,255 \cdot 10^{-35} \text{ meter}$$

$$\text{dimension} = \sqrt{\frac{m \cdot \text{Length}^2 \cdot \text{Length}^3 \cdot \text{Time}^3}{\text{Time} \cdot m \cdot \text{Time}^2 \cdot \text{Length}^3}}$$

$$\hbar \cdot G \cdot \frac{1}{c^3}$$

$$= \sqrt{\text{Length}^2} = \text{Length}$$

The Planck length is currently the shortest length that makes physical sense. This length is 15 orders of magnitude smaller than the diameter of a proton.

$$\sqrt{\frac{\hbar \cdot G}{c^5}} = \text{Planck time} = 5{,}391\,247 \cdot 10^{-44} \text{ seconds}$$

$$\text{dimension} = \sqrt{\frac{m \cdot \text{Length}^2 \cdot \text{Length}^3 \cdot \text{Time}^5}{\text{Time} \cdot m \cdot \text{Time}^2 \cdot \text{Length}^5}}$$

$$\hbar \cdot G \cdot \frac{1}{c^5}$$

$$= \sqrt{\text{Time}^2} = \text{Time}$$

Planck time is currently the shortest time interval in which cause and effect are still physically distinguishable. Time does not pass continuously, but jerkily. Time is also quantized. The speed of light “c” is defined such that light travels one Planck length in one Planck second.
These three fundamental constants of nature unify quantum physics with the theory of relativity. **„ħ“** represents the domain of quantum physics, **„G“** and **„c“** the domain of the theory of relativity. The unification of the domains is represented by the term

$$\frac{\hbar^2 \cdot G^2}{c^7}$$

dimension = Length^3 • Time
= Planck spacetime

This term is created by multiplying

Planck length • Planck length • Planck length • Planck time.

After the Lorentz transformation, the dimensions of length and time are equal and can therefore be multipied together. This results in a Planckian spacetime defined by Wolfgang Goldmann. This Planckian spacetime is currently the smallest and shortest unit in physics.
This spacetime is approximately 10^{-149} meters^3 • second. This Planckian spacetime is roughly on the order of the STRINGS, which have not yet been detected in any way. The term or unit or object

$$\frac{\hbar^2 \cdot G^2}{c^7}$$

represents a space of possibility or a hypothesis into which the other most important natural constants can be mathematically integrated.
Mathematically speaking, these measurable physical natural constants are contained in this term. Thus, a connection between the natural constants and the term is established.

From the term, for exemple, the following equation can be derived:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{1}{c^2}$$

Planck spacetime = Planck spacetime

A well-known equation with natural constants is Maxwell's equation:

$$\varepsilon_0 \cdot \mu_0 \cdot c^2 = 1$$

The following abbreviations apply:

ε_0 = Electric field constant

μ_0 = Magnetic field constant

„$\varepsilon_0 \cdot \mu_0$" represents the electromagnetic field in a vacuum.
By rearranging the above equation, we get:

$$\frac{1}{c^2} = \varepsilon_0 \cdot \mu_0$$

Substituting into the spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \varepsilon_0 \cdot \mu_0$$

Planck spacetime = Planck spacetime

The electric and magnetic constants are contained in Planck spacetime. Since many natural constants have a relationship to the natural constants ħ, G and c, a mathematical relationship to Planck spacetime can also be established. Albert Einstein's world-famous equation is:

$$E = m \cdot c^2$$

The following abbreviations apply:

E = energy $\quad$ dimension $= \dfrac{m \cdot \text{Length}^2}{\text{Time}^2}$

The same equation also applies to Planck units:

$$\sqrt{\frac{\hbar \cdot c^5}{G}} = \text{Planck energy} = 1{,}956 \cdot 10^9 \text{ Joules}$$

$= 1{,}221 \cdot 10^{28}$ eV (electron volts)

$= E_p$

$$\sqrt{\frac{\hbar \cdot c}{G}} = \text{Planck mass} = 2{,}176\,434 \cdot 10^{-8} \text{ Kilograms}$$

$= m_p$

Rearranging Einstein's equation yields:

$$\frac{\sqrt{\frac{\hbar \cdot c}{G}}}{\sqrt{\frac{\hbar \cdot c^5}{G}}} = \frac{1}{c^2}$$

Substituting into the spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^3} \bullet \varepsilon_0 \bullet \mu_0 \bullet \frac{\sqrt{\frac{\hbar \cdot c}{G}}}{\sqrt{\frac{\hbar \cdot c^5}{G}}}$$

Planck spacetime = Planck spacetime

With these substitutions, mass, energy,space, time, electricity and magnetism are integrated into Planck spacetime. The last-mentioned equation can also include the Bohr radius. As a further example of substitution possibilities in the spacetime formula, the Bohr radius is also listed here.

Bohr radius a_0

The Bohr radius a_0 is a natural constant.
Definition:
The Bohr radius is the radius of the hydrogen atom in its lowest energy state. The Bohr radius is the radius of the first and smallest electron shell of the hydrogen atom.
The value of the Bohr radius $\mathbf{a_0}$ is:

$$5{,}291\ 772\ 105\ 44 \bullet 10^{-11} \text{ meters}$$

and has the dimension length.
The relationship to the other natural constants is

$$a_0 = \frac{4 \bullet \pi \bullet \varepsilon_0 \bullet \hbar^2}{e^2 \bullet m_e}$$

The following abbreviations apply:

π = 3,14159265359...... Dimension: none
ε_0 = Electric field constant
$\hbar$ = Reduced Planck quantum of action
e^2 = Elementary charge ^{2}
m_e = Mass of the electron

The various fundamental constants have different dimensions:

ε_0 = Electric field constant

ε_0 has the dimensions:

$$\frac{\text{currentelectrical strength}^2 \bullet \text{time}^4}{\text{m} \bullet \text{length}^3}$$

m = mass

μ_0 = Magnetic field constant

μ_0 has the dimensions:

$$\frac{\text{m} \bullet \text{length}}{\text{currentelectrical}^2 \bullet \text{time}^2}$$

This gives the Maxwell equation the following dimensions:

$$\boldsymbol{\varepsilon_0 \bullet \mu_0 \bullet c^2 = 1}$$

$$\frac{\text{currentelectrical}^2 \bullet \text{time}^4}{\text{m} \bullet \text{length}^3} \bullet \frac{\text{m} \bullet \text{length}}{\text{currentelectrical}^2 \bullet \text{time}^2} \bullet \frac{\text{length}^2}{\text{time}^2}$$

All components cancel out to give „1“.

$\hbar$ = reduced Planck quantum of action

$\hbar$ has the dimensions $\dfrac{m \bullet length^2}{time}$ = action = spin

e^2 = Elementary charge^2

e^2 has the dimensions currentelectrical ^{2} • Zeit^2

m_e = mass of the elektron

m_e has the dimension m (for mass, for exemple, in kg)

The dimensions must be considered in all formulas, as they serve as a check for the formulas' correctness.

a_0 has the dimensions $\dfrac{currentelectrical^2 \bullet time^4 \bullet m^2 \bullet length^4}{m \bullet length^3 \bullet time^2 \bullet currentelectrical^2 \bullet time^2 \bullet m}$

All components, except for the length in the numerator, cancel out.
„4" und „π" have no dimensions.
The formula

$$a_0 = \frac{4 \bullet \pi \bullet \varepsilon_0 \bullet \hbar^2}{e^2 \bullet m_e}$$

can be rearranged as follows:

$$\hbar^2 = \frac{a_0 \bullet e^2 \bullet m_e}{4 \bullet \pi \bullet \varepsilon_0}$$

$\hbar^2$ can be substituted into the equation

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^3} \bullet \varepsilon_0 \bullet \mu_0 \bullet \frac{\sqrt{\dfrac{\hbar \cdot c}{G}}}{\sqrt{\dfrac{\hbar \cdot c^5}{G}}}$$

Planck spacetime = Planck spacetime

and gives

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{G^2}{c^3} \bullet \varepsilon_0 \bullet \mu_0 \bullet \frac{\sqrt{\dfrac{\hbar \cdot c}{G}}}{\sqrt{\dfrac{\hbar \cdot c^5}{G}}} \bullet \frac{a_0 \bullet e^2 \bullet m_e}{4 \bullet \pi \bullet \varepsilon_0}$$

Planck spacetime = Planck spacetime

The term $\frac{\hbar^2 \cdot G^2}{c^7}$ can be decomposed arbitrarily in the Planck spacetime equation and the individual components (**$\hbar^2$, G^2 und c^7**) can be substitited via their relationship to the other fundamental constants. This is the basic principle of the “theory of everything 2026” by Wolfgang Goldmann, in which all fundamental constants can be combined.
There must be a real relationship between the fundamental constants, otherwise one could not express one fundamental constant in terms of other fundamental constants. If, for exemple, the gravitational constant “G” can be expressed mathematically in terms of electrical fundamental constants, then

electrical fundamental constants such as the electric field constant, Planck currentelectrical strength, and Planck electrical voltage (see later) can not only be expressed mathematically in terms of the gravitational constant G, but there is also a real relationship. Gravitation is a force that is not independent of the electromagnetic field.

The following are examples of possible decompositions of the term

$$\frac{\hbar^2 \cdot G^2}{c^7} = \hbar^2 \cdot G^2 \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c}$$

or the complete decomposition

$$\frac{\hbar^2 \cdot G^2}{c^7} = \hbar \cdot \hbar \cdot G \cdot G \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c} \cdot \frac{1}{c}$$

or the partial decomposition.

$$\frac{\hbar^2 \cdot G^2}{c^7} = \hbar^2 \cdot G^2 \cdot \frac{1}{c^2} \cdot \frac{1}{c^2} \cdot \frac{1}{c^2} \cdot \frac{1}{c}$$

All these parts of the equation can be substituted with other fundamental constants, since most fundamental constants have a relationship to the fundamental constants **ħ , G and c.**
Since some fundamental constants also contain the mass of the electron, and the mass of the electron has a fixed relationship to other elementary particles and the fundamental forces (strong nuclear force, weak nuclear force, electromagnetic force, and gravitational force), these fundamental forces and masses of the other elementary particles can also be integrated into the “theory of everything 2026” by Wolfgang Goldmann.
The individual fundamental constants and their relationship to the “theory of everything 2026” by Wolfgang Goldmann are discussed below:

Planck momentum $m_p \cdot c$
= Planck mass • speed of light

The Planck momentum $m_p \cdot c$ is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.
m_p is the Planck mass.
The Planck momentum m_p has the value 6,525 kilogram • meters per second.
The formula for the Planck momentum $m_p \cdot c$ ist:

$$\sqrt{\frac{\hbar \cdot c^3}{G}}$$

From this,the following equations follow:

$$(m_p \cdot c)^2 = \frac{\hbar \cdot c^3}{G}$$

$$c^3 = \frac{(m_p \cdot c)^2 \cdot G}{\hbar}$$

$$\frac{1}{c^3} = \frac{\hbar}{(m_p \cdot c)^2 \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^4} \cdot \frac{1}{c^3}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G}{c^6 \cdot m_p^2}$$

Planck spacetime = Planck spacetime

Planck force F_p

The Planck force F_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

F_p is the Planck force.
The Planck force F_p has the value 1,210 Newton.
The formula for the Planck force F_p is:

$$\frac{c^4}{G}$$

From this,the following equations follow:

$$F_p = \frac{c^4}{G}$$

$$c^4 = F_p \cdot G$$

$$\frac{1}{c^4} = \frac{1}{F_p \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^3} \cdot \frac{1}{c^4}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^3 \cdot F_p}$$

Planck spacetime = Planck spacetime

Planck acceleration g_p

The Planck acceleration g_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck acceration g_p has the value
$5{,}56 \cdot 10^{51}$ meters / seconds^2.
The formula for the Planck acceleration g_p is:

$$g_p = \sqrt{\frac{c^7}{\hbar \cdot G}}$$

From this,the following equations follow:

$$g_p^2 = \frac{c^7}{\hbar \cdot G}$$

$$c^7 = g_p^2 \cdot \hbar \cdot G$$

$$\frac{1}{c^7} = \frac{1}{g_p^2 \cdot \hbar \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \hbar^2 \cdot G^2 \cdot \frac{1}{c^7}$$

Planck-Raumzeit = Planck-Raumzeit

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G}{g_p^2}$$

Planck performance P_p

The Planck performance P_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck performance P_p has the value 3,628 • 10^{52} Watt.
The formula for the Planck performance P_p is:

$$P_p = \frac{c^5}{G}$$

From this,the following equations follow:

$$c^5 = P_p \cdot G$$

$$\frac{1}{c^5} = \frac{1}{P_p \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^2} \cdot \frac{1}{c^5}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^2 \cdot P_p}$$

Planck currentelectrical strength I_p

The Planck currentelectrical strength I_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck currentelectrical strength I_p has the value $3{,}479 \cdot 10^{25}$ amp. The formula for the Planck currentelectrical strength I_p is:

$$I_p = \sqrt{\frac{c^6 \cdot 4 \cdot \pi \cdot \varepsilon_0}{G}}$$

From this,the following equations follow:

$$I_p^2 = \frac{c^6 \cdot 4 \cdot \pi \cdot \varepsilon_0}{G}$$

$$c^6 = \frac{l_p^2 \cdot G}{4 \cdot \pi \cdot \varepsilon_0}$$

$$\frac{1}{c^6} = \frac{4 \cdot \pi \cdot \varepsilon_0}{l_p^2 \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c} \cdot \frac{1}{c^6}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G \cdot 4 \cdot \pi \cdot \varepsilon_0}{c \cdot l_p^2}$$

This equation can be continued by multiplying both sides:

$$\frac{1}{\hbar^2 \cdot G}$$

Then the following equations result:

$$\frac{G}{c^7} = \frac{4 \cdot \pi \cdot \varepsilon_0}{c \cdot l_p^2}$$

$$G = \frac{4 \cdot \pi \cdot \varepsilon_0 \cdot c^7}{c \cdot l_p^2}$$

$$G = \frac{4 \cdot \pi \cdot \varepsilon_0 \cdot c^6}{l_p^2}$$

This equation means that the gravitational constant depends on electric constant, the speed of light and Planck's current. The gravitational constant depends on the electric field and vice versa. There is not only a mathematically relationship, but also a real relationship.

Planck electrical voltage U_p

The Planck electrical voltage U_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck electrical voltage U_p has the value 1,043 • 10^{27} volt.
The formula for the Planck electrical voltage U_p is:

$$U_p = \sqrt{\frac{c^4}{G \cdot 4 \cdot \pi \cdot \varepsilon_0}}$$

From this,the following equations follow:

$$U_p^2 = \frac{c^4}{G \cdot 4 \cdot \pi \cdot \varepsilon_0}$$

$$c^4 = U_p^2 \cdot G \cdot 4 \cdot \pi \cdot \varepsilon_0$$

$$\frac{1}{c^4} = \frac{1}{U_p^2 \cdot G \cdot 4 \cdot \pi \cdot \varepsilon_0}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^3} \cdot \frac{1}{c^4}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^3 \cdot U_p^2 \cdot 4 \cdot \pi \cdot \varepsilon_0}$$

This equation can be continued by multiplying both sides:

$$\frac{1}{\hbar^2 \cdot G}$$

Then the following equations result:

$$\frac{G}{c^7} = \frac{1}{c^3 \cdot U_p^2 \cdot 4 \cdot \pi \cdot \varepsilon_0}$$

$$G = \frac{c^7}{c^3 \cdot U_p^2 \cdot 4 \cdot \pi \cdot \varepsilon_0}$$

$$G = \frac{c^4}{U_p^2 \cdot 4 \cdot \pi \cdot \varepsilon_0}$$

This equation means that, even with the Planck voltage, the gravitational constant depends on the electric constant, the speed of light, and the Planck voltage. The gravitational constant also depends on the electromagnetic field constant and vice versa. There is not only a mathematical connection, but also a real one.

Planck electrical charge q_p

The Planck electrical charge q_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.
Charge results from the product of current • time.
The Planck charge q_p has the value 1,875 545 956 • 10^{-18} Coulombs.
The formula for the Planck charge q_p is:

$$q_p = \sqrt{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c}$$

From this,the following equations follow:

$$q_p^2 = 4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c$$

$$c = \frac{q_p^2}{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar}$$

$$\frac{1}{c} = \frac{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar}{q_p^2}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2 \cdot 4 \cdot \pi \cdot \varepsilon_0}{c^6 \cdot q_p^2}$$

Planck temperature T_p

The Planck temperature T_p is a natural constant.
The Planck temperature T_p has the value 1,416 784 • 10^{32} Kelvin.
The formula for the Planck temperature T_p is:

$$T_p = \frac{m_p \cdot c^2}{K_B}$$

m_p = Planck mass
K_B = Boltzmann constant (= Planck energy / Planck temperature)

From this,the following equations follow:

$$c^2 = \frac{K_B \cdot T_p}{m_p}$$

$$\frac{1}{c^2} = \frac{m_p}{K_B \cdot T_p}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{1}{c^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2 \cdot m_p}{c^5 \cdot K_B \cdot T_p}$$

Planck density ρ_p

The Planck density ρ_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck density ρ_p has the value 5,155 • 10^{96} kilogram / meters^3.
The formula for the Planck density ρ_p ist:

$$\rho_p = \frac{c^5}{\hbar \cdot G^2}$$

From this,the following equations follow:

$$c^5 = \rho_p \cdot \hbar \cdot G^2$$

$$\frac{1}{c^5} = \frac{1}{\rho_p \cdot \hbar \cdot G^2}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^2} \cdot \frac{1}{c^5}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar}{c^2 \cdot \rho_p}$$

The value of the Planck density is, however, extremely high an is probably only reached within a black hole.

Planck-pressure p_p = Planck energy density

The Planck pressure p_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck pressure p_p has the value 4,633 • 10^{113} joules / meters^3.
The formula for the Planck pressure p_p is:

$$p_p = \frac{c^7}{\hbar \cdot G^2}$$

From this,the following equations follow:

$$c^7 = p_p \cdot \hbar \cdot G^2$$

$$\frac{1}{c^7} = \frac{1}{p_p \cdot \hbar \cdot G^2}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{1} \cdot \frac{1}{c^7}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar}{\rho_p}$$

Planck frequency f_p

The Planck frequency f_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck frequency f_p has the value 2,952 • 10^{42} hertz.
The formula for the Planck frequency f_p is:

$$f_p = \frac{c}{2 \cdot \pi \cdot \sqrt{\frac{\hbar \cdot G}{c^3}}}$$

From this,the following equations follow:

$$f_p^2 = \frac{c^2}{4 \cdot \pi^2 \cdot \frac{\hbar \cdot G}{c^3}}$$

$$f_p^2 = \frac{c^5}{4 \cdot \pi^2 \cdot \hbar \cdot G}$$

$$\frac{1}{c^5} = \frac{1}{f_p^2 \cdot 4 \cdot \pi^2 \cdot \hbar \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^2} \cdot \frac{1}{c^5}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G}{c^2 \cdot f_p^2 \cdot 4 \cdot \pi^2}$$

Planck electrical resistance Z_p

The Planck electrical resistance Z_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck electrical resistance Z_p has the value 29,979 ohm (Ω). The formula for the Planck electrical resistance Z_p is:

$$Z_p = \frac{1}{4 \cdot \pi \cdot \varepsilon_0 \cdot c}$$

From this,the following equations follow:

$$\frac{1}{c} = Z_p \cdot 4 \cdot \pi \cdot \varepsilon_0$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2 \cdot Z_p \cdot 4 \cdot \pi \cdot \varepsilon_0}{c^6}$$

Planck energy E_p

The Planck energy E_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.
The Planck energy E_p has the value
$1{,}956 \cdot 10^9$ joules oder $1{,}221 \cdot 10^{28}$ elektron volt.
The formula for the Planck energy E_p is:

$$\sqrt{\frac{\hbar \cdot c^5}{G}}$$

From this,the following equations follow:

$$E_p^2 = \frac{\hbar \cdot c^5}{G}$$

$$c^5 = \frac{E_p^2 \cdot G}{\hbar}$$

$$\frac{1}{c^5} = \frac{\hbar}{E_p^2 \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^2} \cdot \frac{1}{c^5}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G}{c^2 \cdot E_p^2}$$

Planck mass m_p

The Planck mass m_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck mass m_p has the value 2,176434 • 10^{-8} kilogram.
The formula for the Planck mass m_p is:

$$\sqrt{\frac{\hbar \cdot c}{G}}$$

From this,the following equations follow:

$$m_p^2 = \frac{\hbar \cdot c}{G}$$

$$c = \frac{m_p^2 \cdot G}{\hbar}$$

$$\frac{1}{c} = \frac{\hbar}{m_p^2 \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G}{c^6 \cdot m_p^2}$$

Planck area l^2_p

The Planck area l^2_p is not a natural constant, but it is composed entirely of natural constants. Mathematically speaking, it is therefore to be treated like a natural constant. Through the mere mathematical combination of natural constants, a new natural constant is created, in a sense.

The Planck area l^2_p has the value 2,612 • 10^{-70} meters^2.
The formula for the Planck area l^2_p ist:

$$\frac{\hbar \cdot G}{c^3}$$

From this,the following equations follow:

$$l^2_p = \frac{\hbar \cdot G}{c^3}$$

$$\frac{1}{c^3} = \frac{l^2_p}{\hbar \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^4} \cdot \frac{1}{c^3}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G \cdot l^2_p}{c^4}$$

The Planck surface consist of 2 dimensions: length • length
Photons also consist of 2 dimensions. Due to speed of light, the photon "experiences" no time on its own perspective, because the time stands still at the speed of light. Since the "travel distance" also shrinks to zero at the speed of light due the length contraction, the photon only has 2 spatial dimensions available, which are perpendicular to the direction of motion. Since no time passes for the photon from its own perspective, the photon cannot change. Changes are bound to the dimension of "time". Emission and absorption occur simultaneously and at the same location for the photon from its own perspective. The Planck surface is, in a sense, a subspace within Planck spacetime. Time and distances can only perceived from the observer's perspective. This is because the observer has mass and moves at less than the speed of light.

Boltzmann-constant K_B and Stefan-Boltzmann constant σ

The Boltzmann constant K_B is a conversion factor. It converts from absolute temperature (in Kelvin) to energy. The Boltzmann constant K_B has no relationship to the natural constants ħ und c on its own, but only in conjunction with the Stefan-Boltzmann constant σ. The corresponding formula is:

$$\sigma = \frac{2 \cdot \pi^5 \cdot K_B^4}{15 \cdot h^3 \cdot c^2}$$

h = P- constant
$h = 2 \cdot \pi \cdot \hbar$
ħ = reduced P-constant

σ = Stefan-Boltzmann constant

$$\sigma = \frac{2 \cdot \pi^5 \cdot K_B^4}{15 \cdot (2 \cdot \pi \cdot \hbar)^3 \cdot c^2}$$

$$\sigma = \frac{2 \cdot \pi^5 \cdot K_B^4}{15 \cdot 8 \cdot \pi^3 \cdot \hbar^3 \cdot c^2}$$

$$\sigma = \frac{\pi^2 \cdot K_B^4}{60 \cdot \hbar^3 \cdot c^2}$$

$$\frac{1}{c^2} = \frac{60 \cdot \hbar^3 \cdot \sigma}{\pi^2 \cdot K_B^4}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{1}{c^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{60 \cdot \hbar^3 \cdot \sigma}{\pi^2 \cdot K_B^4}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^5 \cdot G^2 \cdot 60 \cdot \sigma}{c^5 \cdot \pi^2 \cdot K_B^4}$$

This equation can be substituted into the "theory of everything 2026" by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{G^2}{c} \cdot \varepsilon_0 \cdot \mu_0 \cdot \frac{\sqrt{\frac{\hbar \cdot c}{G}}}{\sqrt{\frac{\hbar \cdot c^5}{G}}} \cdot \frac{a_0 \cdot e^2 \cdot m_e}{4 \cdot \pi \cdot \varepsilon_0} \cdot \frac{60 \cdot \hbar^3 \cdot \sigma}{\pi^2 \cdot K_B^4}$$

Planck = space time

Planck spacetime

The Boltzmann constant K_B has the value 1,380 649 • 10^{-23} joules per Kelvin or the value 8,617 333 262 • 10^{-5} eV (elektron volt) per Kelvin.

The Boltzmann constant K_B has the formula:

$$K_B = \frac{\text{mass} \cdot \text{speed of light}^2}{\text{temperatur in Kelvin}} = \frac{m_p \cdot c^2}{\text{temp.}}$$

The Stefan-Boltzmann constante σ has the value 5,67 • $10^{-8} \frac{\text{watt}}{\text{meters}^2 \cdot \text{temp}^4}$

$$\sigma = \frac{\pi^2 \cdot K_B^4}{60 \cdot \hbar^3 \cdot c^2}$$

The equation above has the dimensions:

$$\frac{\text{watt}}{\text{meters}^2 \cdot \text{temp}^4} = \frac{m^4 \cdot \text{length}^8 \cdot \text{time}^3 \cdot \text{time}^2}{\text{time}^8 \cdot \text{temp}^4 \cdot m^3 \cdot \text{length}^6 \cdot \text{length}^2} = \frac{m}{\text{time}^3 \cdot \text{temp}^4}$$

The Stefan-Boltzmann constant σ is used to calculate the thermal radiation emitted by an idealized black body. A black body, also called a black body radiator, is an idealized object that only emits and absorbs thermal radiation, but does not reflect it. Normally, bodies absorb and reflect incident thermal radiation. The black body is an approximation of real objects. Temperature is given in Kelvin. Doubling the temperature leads to sixteenfold (16-fold) increase in radiant power. The radiated power of black body is proportional to the fourth power of its absolute temperature(K^4=Kelvin^4):

$$P = \sigma \cdot A \cdot T^4$$

P = Blackbody radiated power
σ = Stefan-Boltzmann constant
A = Blackbody surface area
T = Blackbody temperture in Kelvin

$$P = \text{Performance} = \frac{m \cdot \text{length}^2}{\text{time}^3}$$

$$\sigma = \frac{m}{\text{time}^3 \cdot \text{temp}^4}$$

$$A = \text{length}^2$$

$$T^4 = \text{temp}^4$$

The equation has the dimensions:

$$\underset{P}{\frac{m \cdot \text{length}^2}{\text{time}^3}} = \frac{\underset{\sigma}{m} \cdot \underset{A}{\text{length}^2} \cdot \underset{T^4}{\text{temp}^4}}{\text{time}^3 \cdot \text{temp}^4}$$

Magnetic field constant μ_0 and electric field constant ε_0

The magnetic field constant μ_0 is the ratio of the magnetic flux density B and the magnetic field strength H.

$$B = \mu_0 \cdot H$$

μ_0 explains how a vacuum conducts magnetic fields. μ_0 is a fundamental constant and is, in a sense, conversion factor between B and H. μ_0 also has a fixed relationship to the fundamental constants ε_0 and c:

$$\mu_0 \cdot \varepsilon_0 \cdot c^2 = 1$$

μ_0 can also be calculated from ε_0 and c^2.
The relationship of μ_0 to the other fundamental constants is:

$$\mu_0 = \frac{4 \cdot \pi \cdot \alpha_{em} \cdot \hbar}{e^2 \cdot c} = \frac{m \cdot \text{length}^2 \cdot \text{time}}{\text{time} \cdot \text{current}^2 \cdot \text{time}^2 \cdot \text{Länge}}$$

$$\hbar \qquad \frac{1}{e^2} \qquad \frac{1}{c}$$

$4 \cdot \pi \cdot \alpha_{em}$ has no dimension

The following abbreviations apply:

π = 3,1415...
α_{em} = Coupling constant for electromagnetic interaction E_{em} (=fundamental constant) = 1/137
$\hbar$ = Reduced Planck quantum of action (=fundamental constant)
e^2 = Elementary charge ^{2} (=fundamental constant)
c = Speed of light (=fundamental constant)
ε_0 = Electric field constant (=fundamental constant)

μ_0 has the value: $1{,}25663706212 \cdot 10^{-6}$ Newton per ampere^2

ε_0 has the value: $8{,}854187817 \cdot 10^{-12}$ amp • seconds per volt • meters

The electric field constant ε_0 establishes the relationship between the electric field strength E and the electric flux density D:

$$D = \varepsilon_0 \cdot E$$

The electric field strength E and the electric flux density D are <u>not</u> natural constants.

ε_0 is also called the permittivity of free space.

ε_0 has aforementioned relationship $\varepsilon_0 \cdot \mu_0 \cdot c^2 = 1$
ε_0 has the dimensions:

$$\varepsilon_0 = \frac{e^2}{4 \cdot \pi \cdot \alpha_{em} \cdot \hbar \cdot c} = \frac{\text{Planck current}^2 \cdot \text{time}^2 \cdot \text{time} \cdot \text{time}}{m \cdot \text{length}^2 \cdot \text{length}}$$

$$e^2 \qquad \frac{1}{\hbar} \qquad \frac{1}{c}$$

$4 \cdot \pi \cdot \alpha_{em}$ has no dimension

Multiplying the dimensions of ε_0 und μ_0 gives the dimension of c^{-2}.

Coulomb constant K_C

The Coulomb constant K_C is a natural constant.
The Coulomb constant K_C has the value

$$8{,}987 \cdot 10^9 \ \frac{\text{newton} \cdot \text{meters}^2}{\text{Coulomb}^2} \ .$$

The formula for the Coulomb constant K_C is:

$$K_C = \frac{1}{4 \cdot \pi \cdot \varepsilon_0}$$

The Coulomb constant K_C is a proportionality constant in the equation

$$F_{em} = \frac{1}{4 \cdot \pi \cdot \varepsilon_0} \cdot \frac{\text{Planck charge 1} \cdot \text{Planck charge 2}}{\text{radius 1} \cdot \text{radius 2}}$$

F_{em} = electromagnetic force
The radius is represented by the Planck length.
The Planck charge has the formula

$$q_p = \sqrt{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c}$$

The Planck length has the formula:

$$\sqrt{\frac{\hbar \cdot G}{c^3}} = \text{Planck length} = 1{,}616\ 255 \cdot 10^{-35} \text{ meters}$$

Planck charge and Planck length are used:

$$F_{em} = \frac{1}{4 \cdot \pi \cdot \varepsilon_0} \cdot \frac{\sqrt{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c} \cdot \sqrt{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c}}{\frac{\hbar \cdot G}{c^3}}$$

$$F_{em} = \frac{c4}{G} = \text{Planck force} = F_p$$

From this,the following equations follow:

$$F_p = \frac{c^4}{G}$$

$$c^4 = F_p \cdot G$$

$$\frac{1}{c^4} = \frac{1}{F_p \cdot G}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^3} \cdot \frac{1}{c^4}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^3 \cdot F_p}$$

Elementary charge e

The elementary charge e is the smallest amount of charge detected so far. The elementary charge e is a fundamental constant of nature and has the value

$1{,}602\ 176\ 634 \cdot 10^{-19}$ Coulomb

The dimension is Planck current • time

The formula is

$$e = \sqrt{4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em} \cdot \hbar \cdot c}$$

α_{em} = Coupling constant for electromagnetic interaction E_{em} (=fundamental constant) = 1/137

To integrate this equation into the „Theory of Everything 2026 by Wolfgang Goldmann”, both sides must be squared:

$$e^2 = 4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em} \cdot \hbar \cdot c$$

$$\frac{4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em} \cdot \hbar}{e^2} = \frac{1}{c}$$

is substituted into formula:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em} \cdot \hbar}{e^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2 \cdot 4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em}}{c^6 \cdot e^2}$$

Compton wavelength λ_C

The Compton wavelength λ_C is a characteristic quantity for every particle with mass. The Compton wavelength λ_C indicates the increase in weavelength of the photon scattered perpendicularly by the particle.

The formula für the Compton wavelength λ_C is:

$$\lambda_C = \frac{2 \cdot \pi \cdot \hbar}{m_e \cdot c}$$

$$\frac{m_e \cdot \lambda_C}{2 \cdot \pi \cdot \hbar} = \frac{1}{c}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{m_e \cdot \lambda_C}{2 \cdot \pi \cdot \hbar}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot m_e \cdot \lambda_C}{c^6 \cdot 2 \cdot \pi}$$

Classical Elektron Radius r_e

The classical elektron radius r_e is a combination of the natural constants ε_0, m_e, e, c, α, ħ, λ_C und a_0.

ε_0 = electric field constant
m_e = masse of the elektron
e = elementary charge
c = speed of light
α = fine structure constant
ħ = reduced Planck quantum of action
λ_C = Compton wavelength
a_0 = Bohr radius

There is no relationship to the spatial extent of the electron.

$$r_e = 2{,}817\,940\,320\,5 \cdot 10^{-15} \text{ meters}$$

The dimension is length.

The following relationships exist to the other fundamental constants:

I. $$r_e = \frac{1}{4 \cdot \pi \cdot \varepsilon_0} \cdot \frac{e^2}{m_e \cdot c^2}$$

$$\frac{1}{4 \cdot \pi \cdot \varepsilon_0} = \text{Coulomb constant } k_C$$

II. $$r_e = \alpha \cdot \frac{\hbar}{m_e \cdot c}$$ dimension: length

III. $$r_e = \alpha \cdot \frac{\lambda_C}{2 \cdot \pi}$$ dimension: length

IV. $$r_e = \alpha^2 \cdot a_0$$ dimension: length

Only equations I. and II. are suitable for integration into “The Theory of Everything 2026 by Wolfgang Goldmann”.

ad I.

$$r_e = \frac{1}{4 \cdot \pi \cdot \varepsilon_0} \cdot \frac{e^2}{m_e \cdot c^2}$$

$$r_e = \frac{e^2}{4 \cdot \pi \cdot \varepsilon_0 \cdot m_e} \cdot \frac{1}{c^2}$$

$$\frac{4 \cdot \pi \cdot \varepsilon_0 \cdot m_e \cdot r_e}{e^2} = \frac{1}{c^2}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{1}{c^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{4 \cdot \pi \cdot \varepsilon_0 \cdot m_e \cdot r_e}{e^2}$$

ad II. $$r_e = \alpha \cdot \frac{\hbar}{m_e \cdot c}$$ dimension: length

$$\frac{r_e \cdot m_e}{\alpha \cdot \hbar} = \frac{1}{c}$$

This equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{r_e \cdot m_e}{\alpha \cdot \hbar}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot r_e \cdot m_e}{c^6 \cdot \alpha}$$

Planck spacetime = Planck spacetime

First Planck radiation constant C_1

The First Planck radiation constant C_1 represents the dependence of radiation intensity of wavelength. It is a measure of the strength of emitted radiation and is related to the natural constants c und ħ.
The corresponding formula is:

$$C_1 = 4 \cdot \pi^2 \cdot \hbar \cdot c^2$$

$\hbar \cdot c^2$ has the dimensions $\dfrac{m \cdot \text{length}^2 \cdot \text{length}^2}{\text{time} \cdot \text{time}^2}$

$4 \cdot \pi^2$ has no dimensions.

C_1 has the dimensions performance • area = watt • meters^2 or
quantum of action • speed^2

C1 has the value $3{,}741\ 7749 \cdot 10^{-16}$ watt • meters^2.

$$C_1 = 4 \cdot \pi^2 \cdot \hbar \cdot c^2$$

This formula can also be represented by ħ and c^2:

$$\text{(I.)} \qquad \frac{1}{c^2} = \frac{4 \cdot \pi^2 \cdot \hbar}{C_1}$$

or (II.) $$\hbar = \frac{C_1}{4 \cdot \pi^2 \cdot c^2}$$

The equation (I.) can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{1}{c^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2 \cdot 4 \cdot \pi^2}{c^5 \cdot C_1}$$

Planck spacetime = Planck spacetime

The equation (II.) can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot C_1}{c^9 \cdot 4 \cdot \pi^2}$$

All equations contain only constants and natural constants and thus represent natural constants in turn.

Second Planck radiation constant C_2

The second Planck radiation constant C_2, represents the dependence of radiation intensity on temperature. It is related to the natural constants ħ and c. The corresponding formula is:

$$C_2 = \frac{2 \cdot \pi \cdot \hbar \cdot c}{K_B}$$

$\hbar \cdot c$ has the dimensions: $\frac{m \cdot \text{length}^2 \cdot \text{length}}{\text{time} \cdot \text{time}}$

K_B is the Boltzmann constant and

has the dimensions: $\frac{m \cdot \text{length}^2}{\text{time}^2 \cdot \text{temperature}}$

$2 \cdot \pi$ has no dimensions.

C_2 has the dimensions length • temperature = meters • Kelvin

C_2 has the value $1{,}438776877 \cdot 10^{-2}$ meters • Kelvin .

$$C_2 = \frac{2 \cdot \pi \cdot \hbar \cdot c}{K_B}$$

This formula can also be represented by c or ħ:

$$\text{(I.)} \qquad \frac{1}{c} = \frac{2 \cdot \pi \cdot \hbar}{C_2 \cdot K_B}$$

or (II.) $$\hbar = \frac{C_2 \cdot K_B}{2 \cdot \pi \cdot c}$$

The equation (I.) can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2 \cdot 2 \cdot \pi}{c^6 \cdot C_2 \cdot K_B}$$

Planck spacetime = Planck spacetime

The equation (II.) can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot C_2 \cdot K_B}{c^8 \cdot 2 \cdot \pi}$$

All equations contain only constants and natural constants and thus represent natural constants in turn.

Bohr magneton μ_B

The Bohr magneton μ_B is the magnitude of the magnetic moment that an electron with orbital angular momentum quantum number (l = 1) generates through its orbital angular momentum.
The Bohr magneton μ_B is fundamental constant of nature.
The value of The Bohr magneton μ_B is

9,24401 • 10^{-24} Joules / Tesla

oder 5,78838 • 10^{-5} Elektron volts / Tesla

and has the dimension energy / Tesla.

The relationship to the other fundamental constants is

$$\mu_B = \frac{e \cdot \hbar}{2 \cdot m_e}$$

The following abbreviations apply:

m_e = mass of the elektron
e = elementary charge
ħ = reduced Planck quantum of action

From this,the following equations follow:

$$\hbar = \frac{\mu_B \cdot 2 \cdot m_e}{e}$$

The equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot \mu_B \cdot 2 \cdot m_e}{c^7 \cdot e}$$

Mass of the Elektron m_e

The mass of the electron m_e is a natural constant.
The value of the mass of the elektron m_e is

$$9{,}1093837 \cdot 10^{-31} \text{ kilogram}$$

and has the dimension mass.
The relationship to the other natural constants is

$$\mathbf{m_e} = \frac{e \cdot \boldsymbol{\hbar}}{\mathbf{2} \cdot \mu_B}$$

The following abbreviations apply:

m_e = mass of the elektron
e = elementary charge
ħ = reduced Planck quantum of action
μ_B = Bohr magneton

From this,the following equations follow:

$$\hbar = \frac{\mu_B \cdot 2 \cdot m_e}{e}$$

The equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot \mu_B \cdot 2 \cdot m_e}{c^7 \cdot e}$$

The same spacetime equation results as for Bohr's magneton.
The relationship to the other natural constants is also

$$m_e = \frac{\hbar}{\alpha_{em} \cdot a_0 \cdot c} = \frac{m \cdot length^2 \quad \cdot \quad time}{time \quad \cdot length \quad \cdot \quad length}$$

$$\hbar \qquad \frac{1}{a_0} \qquad \frac{1}{c}$$

The following abbreviations apply:

α_{em} = Coupling constant for electromagnetic interaction E_{em}
(= fundamental constant) = 1/137 (no dimension)
ħ = Reduced Planck quantum of action (= fundamental constant)
(dimension m • length² / time)
e = Elementary charge (= fundamental constant)
c = Speed of light (= fundamental constant) (dimension length / time)
ε_0 = Electric field constant (= fundamental constant)
m = mass (dimension m)
m_e = mass of the electron
a_0 = Bohr radius (dimension length)
E_n = Hartree-Energie (= $\alpha_{em} \cdot m_e \cdot c^2$)

From this,the following equations follow:

$$\hbar = \alpha_{em} \cdot a_0 \cdot c \cdot m_e$$

The equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot \alpha_{em} \cdot a_0 \cdot c \cdot m_e}{c^7}$$

Planck spacetime = Planck spacetime

Since the last equation with m_e also contains c, the mass of the electron can also be integrated into the world formula 2026 as follows:

$$c = \frac{\hbar}{\alpha_{em} \cdot a_0 \cdot \mathbf{m_e}} = \frac{m \cdot length^2}{time \cdot length \cdot m}$$

$$\hbar \qquad \frac{1}{a_0} \qquad \frac{1}{\mathbf{m_e}}$$

$$\frac{1}{c} = \frac{\alpha_{em} \cdot a_0 \cdot \mathbf{m_e}}{\hbar}$$

The equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot \alpha_{em} \cdot a_0 \cdot \mathbf{m_e}}{c^6}$$

This results in identical equations. The mass of the electron m_e appears in the following equations:

$$a_0 = \frac{\hbar}{\alpha_{em} \cdot \mathbf{m_e} \cdot \mathbf{c}} = \text{Bohr radius}$$

$$\lambda_C = \frac{2 \cdot \pi \cdot \hbar}{\mathbf{m_e} \cdot \mathbf{c}} = \text{Compton weavelength}$$

$$r_e = \frac{e^2}{4 \cdot \pi \cdot \varepsilon_0 \cdot m_e \cdot c} = \text{Classical elektron radius}$$

$$\mu_B = \frac{e \cdot \boldsymbol{\hbar}}{2 \cdot m_e} = \text{Bohr magneton}$$

$$E_n = \alpha_{em} \cdot m_e \cdot c^2 = \text{Hartree energy}$$

From the 5 equations, the mass of the electron can be extrapolated in each case:

$$\mathbf{m_e} = \frac{\hbar}{\alpha_{em} \cdot a_0 \cdot \mathbf{c}} \quad \text{from the Bohr radius}$$

$$m_e = \frac{2 \cdot \pi \cdot \hbar}{\lambda_C \cdot \mathbf{c}} \quad \text{from the Compton weavelength}$$

$$m_e = \frac{e^2}{4 \cdot \pi \cdot \varepsilon_0 \cdot r_e \cdot c} \quad \text{from the classical electron radius}$$

$$m_e = \frac{e \cdot \hbar}{2 \cdot \mu_B}$$ from Bohr's magneton

$$m_e = \frac{E_n}{\alpha_{em} \cdot c^2}$$ from the Hartree energy

All 5 equations contain ħ , c or ħ and c.
Following the given pattern, the 5 equations can be inserted into Planck spacetime equations.
This also results in only 5 Planck spacetime equations, regardless of whether one substitutes ħ or c.

$$a_0 = \frac{\hbar}{\alpha_{em} \cdot \mathbf{m_e} \cdot \mathbf{c}} = \text{Bohr radius}$$

$$\hbar = a_0 \cdot \alpha_{em} \cdot \mathbf{m_e} \cdot \mathbf{c}$$

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6} \cdot a_0 \cdot \alpha_{em} \cdot m_e$$

$$a_0 = \frac{\hbar}{\alpha_{em} \cdot \mathbf{m_e} \cdot \mathbf{c}} = \text{Bohr radius}$$

$$\frac{1}{c} = \frac{a_0 \cdot \alpha_{em} \cdot \mathbf{m_e}}{\hbar}$$

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot a_0 \cdot \alpha_{em} \cdot m_e}{c^6}$$

The same applies to the Compton weavelength.

$$\lambda_C = \frac{2 \cdot \pi \cdot \hbar}{m_e \cdot c} = \text{Compton weavelength}$$

$$\frac{\hbar}{c} = \frac{m_e \cdot \lambda_C}{2 \cdot \pi}$$

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6} \cdot \frac{\hbar}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot m_e \cdot \lambda_C}{c^6 \cdot 2 \cdot \pi}$$

$$r_e = \frac{e^2}{4 \cdot \pi \cdot \varepsilon_0 \cdot m_e \cdot c} = \text{classical electron radius}$$

$$\frac{1}{c} = \frac{r_e \cdot 4 \cdot \pi \cdot \varepsilon_0 \cdot m_e}{e^2}$$

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^6} \cdot \frac{1}{c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2 \cdot r_e \cdot 4 \cdot \pi \cdot \varepsilon_0 \cdot m_e}{c^6 \cdot e^2}$$

$$\mu_B = \frac{e \cdot \hbar}{2 \cdot m_e} = \text{Bohr magneton}$$

From this,the following equations follow:

$$\hbar = \frac{\mu_B \cdot 2 \cdot m_e}{e}$$

The equation can be substituted into the “theory of everything 2026” by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot \mu_B \cdot 2 \cdot m_e}{c^7 \cdot e}$$

$$E_n = \alpha_{em} \cdot m_e \cdot c^2 = \text{Hartree energy}$$

$$\frac{1}{c^2} = \frac{\alpha_{em} \cdot m_e}{E_n}$$

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{1}{c^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2 \cdot \alpha_{em} \cdot m_e}{c^5 \cdot E_n}$$

Not only is the mass of the electron m_e a natural constant, but the ratio of the electron's mass m_e to the masses of the other elementary particles is in a fixed ratio. If the mass of the electron m_e is set to „1", then fixed ratios result:

Elementary Particles		**Multiplication Factor**
Electron	=	1
Proton	=	1836
Neutron	=	1839
Up Quark	=	4
Down Quark	=	9
Muon Neutrino	=	0,3
Tauon Neutrino	=	0,5
Electron Neutrino	=	0,00003
Higgs Boson	=	238680

These mass ratios are practically like natural constants.
This allows the elementary particles to be integrated into Planck's spacetime.

The product replaces m_e :

Electron	=	$m_e \cdot 1$
Proton	=	$m_e \cdot 1836$
Neutron	=	$m_e \cdot 1839$
Up Quark	=	$m_e \cdot 4$
Down Quark	=	$m_e \cdot 9$
Muon Neutrino	=	$m_e \cdot 0{,}3$
Tauon Neutrino	=	$m_e \cdot 0{,}5$
Electron Neutrino	=	$m_e \cdot 0{,}00003$
Higgs Boson	=	$m_e \cdot 238680$

If, for example, one takes the equation for the Bohr radius, then for the individual elementary particles one only needs to multiply m_e by the respective factor:

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6} \cdot a_0 \cdot \alpha_{em} \cdot m_e$$

Mass of the proton = $m_{Pr} = m_e \cdot 1836$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6 \cdot 1836} \cdot a_0 \cdot \alpha_{em} \cdot m_{Pr}$$

Mass of the neutron = $m_N = m_e \cdot 1839$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6 \cdot 1839} \cdot a_0 \cdot \alpha_{em} \cdot m_N$$

Mass of the Up Quark = m_{UQ} = $m_e \cdot 4$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6 \cdot 4} \cdot a_0 \cdot \alpha_{em} \cdot m_{UQ}$$

Mass of the Down Quark = m_{DQ} = $m_e \cdot 9$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6 \cdot 9} \cdot a_0 \cdot \alpha_{em} \cdot m_{DQ}$$

Mass of the Muon neutrino = $v_{Nt\text{-}my}$ = $m_e \cdot 0{,}3$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6 \cdot 0{,}3} \cdot a_0 \cdot \alpha_{em} \cdot v_{Nt\text{-}my}$$

Mass of the Tauon neutrino = $v_{Nt\text{-}tau}$ = $m_e \cdot 0{,}5$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6 \cdot 0{,}5} \cdot a_0 \cdot \alpha_{em} \cdot v_{Nt\text{-}tau}$$

Mass of the Electron neutrino = $\nu_{Nt\text{-}ele}$ = $m_e \cdot 0{,}00003$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6 \cdot 0{,}00003} \cdot a_0 \cdot \alpha_{em} \cdot \nu_{Nt\text{-}ele}$$

Mass of the Higgs boson = m_{Higgs} = $m_e \cdot 238680$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^6 \cdot 238680} \cdot a_0 \cdot \alpha_{em} \cdot m_{Higgs}$$

The Coupling Constants

Fine-Structure Constant dimensionless — α_{em} = the coupling constant for the electromagnetic interaction = 1/137

coupling constant dimensionless — α_S = coupling constant for the strong interaction = 0,1 bis 0,5

Coupling constant ohne Dimension — α_W = coupling constant for the weak interaction = 1/30 = 0,033333....

Coupling constant — α_{grav} = coupling constant for the gravitational interaction = $1/10^{45}$ bis $1/10^{38}$,corresponds to the gravitational constant

Strong Interaction E_S Range 10^{-15} meters

dimension: energy = $\dfrac{m \cdot length^2}{time^2}$

The energy of the strong interaction E_S depends on the specific coupling constant α_S and the distance r_S between the elementary particles.

$$E_S = \hbar \cdot c \cdot \alpha_S \cdot \frac{1}{r_S}$$

The following abbreviations apply:

E_S = strong interaction (dimension $m \cdot length^2 / time^2$)
α_S = coupling constant for the strong interaction = 0,1 bis 0,5
dimensionless
r_S = distance of the elementary particles (dimension length)
$\hbar$ = Reduced Planck quantum of action (= fundamental constant)
(dimension $m \cdot length^2 / time$)
c = Speed of light (= fundamental constant) (dimension length / time)

Of the dimension is

$$\hbar \cdot c \cdot \frac{1}{r_S} = \frac{m \cdot length^2 \cdot length}{time \cdot time \cdot length}$$

$$\hbar \qquad c \qquad \frac{1}{r_S}$$

equal to the energy E_S, so that one can write

$$\hbar \cdot c = \frac{E_S \cdot r_S}{\alpha_S}$$

or

$$\frac{1}{\hbar \cdot c} = \frac{\alpha_S}{E_S \cdot r_S}$$

The term $\frac{1}{\hbar \cdot c}$ is then inserted into the world formula:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2}{c^6} \cdot \frac{1}{\hbar \cdot c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2}{c^6} \cdot \frac{\alpha_S}{E_S \cdot r_S}$$

Planck spacetime = Planck spacetime

Weak interaction E_W Range 10^{-16} to 10^{-18} meters

dimension: energy = $\frac{m \cdot length^2}{time^2}$

The energy of the weak interaction E_W depends on the specific coupling constant α_W and the distance r_W between the elementary particles.
The general equation is

$$E_W = \hbar \cdot c \cdot \alpha_W \cdot \frac{1}{r_W}$$

The following abbreviations apply:

E_W = weak interaction (dimension $m \cdot length^2 / time^2$)
α_W = coupling constant for the weak interaction = 0,03333 dimensionless
r_W = distance of the elementary particles (dimension length)
$\hbar$ = Reduced Planck quantum of action (= fundamental constant) (dimension $m \cdot length^2 / time$)

c = Speed of light (= fundamental constant) (dimension length / time)

Of the dimension is

$$\hbar \cdot c \cdot \frac{1}{r_W} = \frac{m \cdot length^2 \cdot length}{time \cdot time \cdot length}$$

$$\hbar \qquad c \qquad \frac{1}{r_W}$$

equal to the energy E_S, so that one can write

$$\hbar \cdot c = \frac{E_W \cdot r_W}{\alpha_W}$$

or

$$\frac{1}{\hbar \cdot c} = \frac{\alpha_W}{E_W \cdot r_W}$$

The term $\frac{1}{\hbar \cdot c}$ is then inserted into the world formula:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2}{c^6} \cdot \frac{1}{\hbar \cdot c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2}{c^6} \cdot \frac{\alpha_W}{E_W \cdot r_W}$$

Planck spacetime = Planck spacetime

Electromagnetic Interaction E_{em} Range unlimited

$$\text{dimension: energy} = \frac{m \cdot \text{length}^2}{\text{time}^2}$$

The energy of the electromagnetic interaction E_{em} depends on the specific coupling constant α_{em} and the distance r_{em} between the charges.
The general equation is

$$E_{em} = \hbar \cdot c \cdot \alpha_{em} \cdot \frac{1}{r_{em}}$$

The following abbreviations apply:

E_{em} = electromagnetic interaction (dimension $m \cdot \text{length}^2 / \text{time}^2$)
α_{em} = coupling constant for the electromagnetic interaction
≈ 0,0072992701 dimensionless
r_{em} = distance of the elementary charges (dimension length)
$\hbar$ = Reduced Planck quantum of action (= fundamental constant)
(dimension $m \cdot \text{length}^2 / \text{time}$)
c = Speed of light (= fundamental constant) (dimension length / time)

Of the dimension is

$$\hbar \cdot c \cdot \frac{1}{r_{em}} = \frac{m \cdot \text{length}^2 \cdot \text{length}}{\text{time} \cdot \text{time} \cdot \text{length}}$$

$\hbar$ c $\frac{1}{r_{em}}$

equal to the energy E_{em}, so that one can write

$$\hbar \cdot c = \frac{E_{em} \cdot r_{em}}{\alpha_{em}}$$

or

$$\frac{1}{\hbar \cdot c} = \frac{\alpha_{em}}{E_{em} \cdot r_{em}}$$

The term $\frac{1}{\hbar \cdot c}$ is then inserted into the world formula:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2}{c^6} \cdot \frac{1}{\hbar \cdot c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2}{c^6} \cdot \frac{\alpha_{em}}{E_{em} \cdot r_{em}}$$

Planck spacetime = Planck spacetime

or

$$\alpha_{em} = \frac{e^2}{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c}$$

The following abbreviations apply:

e = elementary charge
$\hbar$ = reduced Planck quantum of action
c = Speed of light
α_{em}= coupling constant for the electromagnetic interaction ≈ 0,0072992701 (dimensionless)
ε_0 = electric field constant
π = 3,1415...

The equation can be rearranged

$$\hbar \cdot c = \frac{e^2}{4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em}}$$

or

$$\frac{1}{\hbar \cdot c} = \frac{4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em}}{e^2}$$

The term $\frac{1}{\hbar \cdot c}$ is then inserted into the world formula:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2}{c^6} \cdot \frac{1}{\hbar \cdot c}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G^2}{c^6} \cdot \frac{4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em}}{e^2}$$

Planck spacetime = Planck spacetime

Gravitational interaction E_{grav} Range unlimited

dimension: energy = $\frac{m \cdot length^2}{time^2}$

The energy of the gravitational interaction E_{grav} between the elementary particles

a) Mass Proton m_{Pr} - Mass Electron m_e
b) Mass Proton m_{Pr} - Mass Proton m_{Pr}
c) Mass Electron m_e - Mass Electron m_e

depends on the coupling constant G, which is the gravitational constant and the distance between the elementary particles r_{grav} :

a) $r_{grav}^{mPr\text{-}me}$ (Mass Proton - Mass Electron)
b) $r_{grav}^{mPr\text{-}mPr}$ (Mass Proton - Mass Proton)
c) $r_{grav}^{me\text{-}me}$ (Mass Electron - Mass Electron)

The general equation is

$$E_{grav} = G \cdot \frac{m_1 \cdot m_2}{r}$$

The following abbreviations apply:

E_{grav} = Energy of the gravitation
G = gravitational constant = coupling constant
m_1 = first mass
m_2 = second mass
r = distance of the masses

Mass Proton m_{Pr} - Mass Elektron m_e

$$E_{grav} = G \cdot \frac{m_{Pr} \cdot m_e}{r_{grav}^{mPr\text{-}me}}$$

$$G = \frac{E_{grav} \cdot r_{grav}^{mPr\text{-}me}}{m_{Pr} \cdot m_e}$$

The same derivation can also be carried out for the other two paricle combinations.

Mass Proton m_{Pr} - Mass Proton m_{Pr}

$$E_{grav} = G \cdot \frac{m_{Pr} \cdot m_{Pr}}{r_{grav}^{mPr\text{-}mPr}}$$

$$G = \frac{E_{grav} \cdot r_{grav}^{mPr\text{-}mPr}}{m_{Pr} \cdot m_{Pr}}$$

Mass Electron m_e - Mass Electron m_e

$$E_{grav} = G \cdot \frac{m_e \cdot m_e}{r_{grav}^{me\text{-}me}}$$

$$G = \frac{E_{grav} \cdot r_{grav}^{me\text{-}me}}{m_e \cdot m_e}$$

All three equations are solved for G and can therefore be substituted into the world formula. The distances $r_{grav}^{mPr\text{-}me}$, $r_{grav}^{mPr\text{-}mPr}$ and $r_{grav}^{me\text{-}me}$ of the elementary particles are natural constants.
The equation for the world formula can be decomposed as follows:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^5}{c^4 \cdot G} \cdot \frac{1}{\hbar \cdot c} \cdot \frac{1}{\hbar \cdot c} \cdot \frac{1}{\hbar \cdot c} \cdot G \cdot G \cdot G$$

Then the interactions are substituted:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^5}{c^4 \cdot G} \cdot \underbrace{\frac{\alpha_S}{E_S \cdot r_S}}_{\text{strong}} \cdot \underbrace{\frac{\alpha_W}{E_W \cdot r_W}}_{\text{weak}} \cdot \underbrace{\frac{4 \cdot \pi \cdot \varepsilon_0 \cdot \alpha_{em}}{e^2}}_{\text{electromagnetic}} \cdot$$

i n t e r a c t i o n

$$\cdot \underbrace{\frac{E_{grav} \cdot r_{grav}^{mPr\text{-}me}}{m_{Pr} \cdot m_e}}_{\text{gravitational}} \cdot \underbrace{\frac{E_{grav} \cdot r_{grav}^{mPr\text{-}mPr}}{m_{Pr} \cdot m_{Pr}}}_{\text{gravitational}} \cdot \underbrace{\frac{E_{grav} \cdot r_{grav}^{me\text{-}me}}{m_e \cdot m_e}}_{\text{gravitational}}$$

i n t e r a c t i o n

This equation contains all 4 interactions.
The following equation shows the dimensions of the equation above:

Planck spacetime = Planck spacetime

$$\text{length}^3\cdot\text{time} = \frac{m^5 \cdot \text{length}^{10} \cdot \text{time}^4 \cdot m\cdot \text{time}^2 \cdot \text{time}^2}{\text{time}^5 \cdot \text{length}^4 \cdot \text{length}^3 \cdot m\cdot\text{length}^2\cdot\text{length}} \cdot$$

$\hbar^5$ $\quad \frac{1}{c^4}$ $\quad \frac{1}{G}$ $\quad$ strong interaction

$$\cdot \frac{\text{time}^2 \cdot \text{time}^2}{m\cdot\text{length}^2\cdot\text{length} \cdot m\cdot\text{length}^2\cdot\text{length}} \cdot$$

weak $\quad$ electromagnetic
i n t e r a c t i o n

$$\cdot \frac{m^2\text{length}\cdot\text{length} \cdot m\cdot\text{length}^2\cdot\text{length} \cdot m\cdot\text{length}^2\cdot\text{length}}{m \cdot m \cdot \text{time}^2 \cdot m \cdot m \cdot \text{time}^2 \cdot m \cdot m \cdot \text{time}^2}$$

G gravitational $\quad$ **G** gravitational $\quad$ **G** gravitational
i n t e r a c t i o n

Planck spacetime = Planck spacetime

The dimensions agree with the world formula.

Schwarzschild radius r_s

The Schwarzschild radius r_s , in the case of a black hole, marks the radius of the event horizon, i. e., the boundary beyond which there is no escape. On the order of Planck unit, the Schwarzschild radius has a length of 2 Planck length. A tiny black hole has a diameter of one Planck length.The formula for the Schwarzschild radius r_s is:

$$r_S = \frac{2 \cdot G \cdot m_P}{c^2}$$

$$\frac{r_S}{2 \cdot G \cdot m_P} = \frac{1}{c^2}$$

The Schwarzschild radius r_s can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{1}{c^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{r_S}{2 \cdot G \cdot m_P}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G \cdot r_S}{c^5 \cdot 2 \cdot m_P}$$

Planck spacetime = Planck spacetime

The following abbreviations apply:
m_P = Planck mass
G = Gravitational constant
c = Speed of light

The formula for the 2 Planck length is:

$$r_S = 2 \cdot \sqrt{\frac{\hbar \cdot G}{c^3}}$$

Substituting the two Planck length for the Schwarzschildradius r_S , the following equations result.
The above equation is squared.

$$r_S^2 = 4 \cdot \frac{\hbar \cdot G}{c^3}$$

$$\frac{r_S^2}{4 \cdot \hbar \cdot G} = \frac{1}{c^3}$$

The Schwarzschild radius r_S can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^4} \cdot \frac{1}{c^3}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^4} \cdot \frac{r_S^2}{4 \cdot \hbar \cdot G}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G \cdot r_S^2}{c^4 \cdot 4}$$

Planck spacetime = Planck spacetime

This spacetime equation differs from the previous spacetime equation in that it does not include the Planck mass.

Hawking Temperature T_H

The Hawking Temperature T_H of a black hole is inversely proportional to its mass and describes the thermal radiation it emits. T_H and m_{SL} are not fundamental constants of nature. The formula for the Hawking Temperature T_H is:

$$T_H = \frac{\hbar \cdot c^3}{8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B} \qquad = \text{Kelvin}$$

The following abbreviations apply:

$\hbar$ = Reduced Planck quantum of action (= fundamental constant) (dimension m • length^2 / time)
c = Speed of light (= fundamental constant) (dimension length / time)
m_{SL} = mass of the Black hole (= variable)
G = Gravitational constant
K_B = Boltzmann constant
m_P = Planck mass

The dimension for T_H is: Temperature

$$T_H = \frac{m \cdot length^2 \cdot length^3 \cdot m \cdot time^2 \cdot time^2 \cdot Temperature}{time \cdot time^3 \cdot length^3 \cdot m \cdot m \cdot length^2}$$

$$\hbar \qquad c^3 \qquad \frac{1}{G} \qquad \frac{1}{m_{SL}} \qquad \frac{1}{K_B}$$

To adjust the equation for the Hawking temperature T_H of a black hole for the theory of everything, the mass of the black hole must be replaced by the Planck mass:

$$T_H = \frac{\hbar \cdot c^3}{8 \cdot \pi \cdot G \cdot K_B} \cdot \sqrt{\frac{G}{\hbar \cdot c}} = temp.$$

$$\frac{1}{\text{Planck mass}}$$

both sides squared:

$$T_H^2 = \frac{\hbar^2 \cdot c^6}{64 \cdot \pi^2 \cdot G^2 \cdot K_B^2} \cdot \frac{G}{\hbar \cdot c} = temp.^2$$

$$\frac{1}{\text{Planck mass}^2}$$

$$T_H^2 = \frac{\hbar^2 \cdot c^6}{64 \cdot \pi^2 \cdot G \cdot K_B^2} \cdot \frac{1}{\hbar \cdot c} = temp.^2$$

$$T_H^2 = \frac{\hbar \cdot c^5}{64 \cdot \pi^2 \cdot G \cdot K_B^2} \qquad = \text{temp.}^2$$

$$\frac{1}{T_H^2} = \frac{64 \cdot \pi^2 \cdot G \cdot K_B^2}{\hbar \cdot c^5}$$

$$\frac{1}{T_H^2} = \frac{64 \cdot \pi^2 \cdot G \cdot K_B^2}{\hbar} \cdot \frac{1}{c^5}$$

$$\frac{\hbar}{T_H^2 \cdot 64 \cdot \pi^2 \cdot G \cdot K_B^2} = \frac{1}{c^5}$$

The equation can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^2} \cdot \frac{1}{c^5}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^2} \cdot \frac{\hbar}{T_H^2 \cdot 64 \cdot \pi^2 \cdot G \cdot K_B^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G}{c^2 \cdot T_H^2 \cdot 64 \cdot \pi^2 \cdot K_B^2}$$

Planck spacetime = Planck spacetime

Since the equation for the Hawking temperature contains the 3 natural constants ħ, G and c, the equation can also be solved for ħ and G.

rearranged for ħ:

$$\frac{\hbar}{T_H^2 \cdot 64 \cdot \pi^2 \cdot G \cdot K_B^2} = \frac{1}{c^5}$$

$$\frac{c^5}{T_H^2 \cdot 64 \cdot \pi^2 \cdot G \cdot K_B^2} = \frac{1}{\hbar}$$

$$\frac{T_H^2 \cdot 64 \cdot \pi^2 \cdot G \cdot K_B^2}{c^5} = \hbar$$

The equation can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \frac{T_H^2 \cdot 64 \cdot \pi^2 \cdot G \cdot K_B^2}{c^5}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^3 \cdot T_H^2 \cdot 64 \cdot \pi^2 \cdot G \cdot K_B^2}{c^{12}}$$

Planck spacetime = Planck spacetime

rearranged for G:

$$\frac{\hbar}{T_H^2 \cdot 64 \cdot \pi^2 \cdot G \cdot K_B^2} = \frac{1}{c^5}$$

$$\frac{\hbar \cdot c^5}{T_H^2 \cdot 64 \cdot \pi^2 \cdot K_B^2} = G$$

The equation can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^7} \cdot G$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^7} \cdot \frac{\hbar \cdot c^5}{T_H^2 \cdot 64 \cdot \pi^2 \cdot K_B^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G}{c^2 \cdot T_H^2 \cdot 64 \cdot \pi^2 \cdot K_B^2}$$

Planck spacetime = Planck spacetime

If the mass of the black hole (m_{SL}) is a variable, then the following equations result:

$$T_H = \frac{\hbar \cdot c^3}{8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B} \quad = \text{Kelvin}$$

rearranged for: $\frac{1}{c^3}$

$$\frac{1}{T_H} = \frac{8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B}{\hbar \cdot c^3} = \frac{1}{\text{Kelvin}}$$

$$\frac{\hbar}{T_H \cdot 8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B} = \frac{1}{c^3} = \frac{\text{time}^3}{\text{length}^3}$$

The equation can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^4} \cdot \frac{1}{c^3}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^4} \cdot \frac{\hbar}{T_H \cdot 8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G}{c^4 \cdot T_H \cdot 8 \cdot \pi \cdot m_{SL} \cdot K_B}$$

Planck spacetime = Planck spacetime

$$T_H = \frac{\hbar \cdot c^3}{8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B} \quad = \text{Kelvin}$$

rearranged for: ħ

$$\hbar = \frac{8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B \cdot T_H}{c^3}$$

The equation can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \frac{8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B \cdot T_H}{c^3}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^3 \cdot 8 \cdot \pi \cdot m_{SL} \cdot K_B \cdot T_H}{c^{10}}$$

Planck spacetime = Planck spacetime

rearranged for: G

$$T_H = \frac{\hbar \cdot c^3}{8 \cdot \pi \cdot G \cdot m_{SL} \cdot K_B} = \text{Kelvin}$$

$$G = \frac{\hbar \cdot c^3}{8 \cdot \pi \cdot T_H \cdot m_{SL} \cdot K_B} = \frac{\text{length}^3}{\text{m} \cdot \text{time}^2}$$

The equation can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^7} \cdot G$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^7} \cdot \frac{\hbar \cdot c^3}{8 \cdot \pi \cdot T_H \cdot m_{SL} \cdot K_B}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^3 \cdot G}{c^4 \cdot 8 \cdot \pi \cdot T_H \cdot m_{SL} \cdot K_B}$$

The more mass the black hole has, the lower its temperature.
The lower the mass of black hole, the higher its temperature.
The higher the temperature of a black hole, the shorter its “lifetime”.
The lower the mass of the black hole, the shorter its “lifetime”.

If the mass of the black hole ($m_{SL} = m_P$) equal the Planck mass, then the black hole will exist 16085 times longer than the Planck time.
The formula for the black hole's lifetime is

$$t_{SL} = \frac{\mathbf{5120 \cdot \pi \cdot G^2 \cdot m_{SL}^3}}{\mathbf{\hbar \cdot c^4}} \qquad = \text{ time}$$

t_{SL} = time of existence of the black hole

5120 • π = 16084,95438638...

The dimension for t_{SL} is: time

$$t_{SL} = \frac{\text{length}^6 \cdot \text{m}^3 \cdot \text{time} \cdot \text{time}^4}{\text{m}^2 \cdot \text{time}^4 \cdot \text{m} \cdot \text{length}^2 \cdot \text{length}^4}$$

G^2	m_{SL}^3	$\frac{1}{\hbar}$	$\frac{1}{c^4}$

If you insert the Planck mass into the formula above, you get the following formula:

$$t_{SL} = \frac{\mathbf{5120 \cdot \pi \cdot G^2 \cdot m_P^3}}{\mathbf{\hbar \cdot c^4}} \qquad = \text{ time}$$

$$\sqrt{\frac{\hbar \cdot c}{G}} = \text{Planck mass} = 2{,}176\,434 \cdot 10^{-8} \text{ kilogram}$$

$= m_p$

$$t_{SL} = \frac{16085 \cdot G^2 \cdot \hbar \cdot c}{\hbar \cdot c^4 \cdot G} \cdot \sqrt{\frac{\hbar \cdot c}{G}} = \text{time}$$

Planck mass³

both sides squared

$$t_{SL}^2 = \frac{(16085)^2 \cdot G^4 \cdot \hbar^2 \cdot c^2}{\hbar^2 \cdot c^8 \cdot G^2} \cdot \frac{\hbar \cdot c}{G} = \text{time}^2$$

Planck mass⁶

$$t_{SL}^2 = \frac{(16085)^2 \cdot G \cdot \hbar}{c^5} = \text{time}^2$$

Square root taken on both sides:

$$t_{SL} = 16085 \cdot \sqrt{\frac{G \cdot \hbar}{c^5}} = \text{time}$$

Planck time

The equation above consists only of natural constants, so that „t_{SL} „ also becomes a natural constant. From the mathematical fact that mini black holes have a lifetime 16085 times the Planck time, various explanations can follow, but none of them are currently provable. However, the formula for the “evaporation time” of a mini black hole, which mathematically proves

that this “evaporation time” is a natural constant, opens up a mathematical framework for possible explanations for the origin of elementary particles and quantum fluctuations.
The existence time of the black hole t_{SL} can be inserted into the Planck spacetime equation:

$$t_{SL}^2 = \frac{(16085)^2 \cdot G \cdot \hbar}{c^5}$$

$$c^5 = \frac{(16085)^2 \cdot G \cdot \hbar}{t_{SL}^2}$$

$$\frac{1}{c^5} = \frac{t_{SL}^2}{(16085)^2 \cdot G \cdot \hbar}$$

The equation can be inserted into the Planck spacetime equation:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^2} \cdot \frac{1}{c^5}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^2} \cdot \frac{t_{SL}^2}{(16085)^2 \cdot G \cdot \hbar}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G \cdot t_{SL}^2}{c^2 \cdot (16085)^2}$$

Planck spacetime = Planck spacetime

Hartree Energy E_h

The Hartree energy E_h is a constant composed of natural constants and thus also becomes a natural constant. The Hartree energy E_h is used in atomic units as the unit of energy.

$$\text{Energy} = \text{mass} \cdot \frac{\text{length}^2}{\text{time}^2} = m \cdot \frac{\text{length}^2}{\text{time}^2}$$

The formula of Hartree energie E_h is:

$$E_h = \alpha_{em}^2 \cdot m_e \cdot c^2$$

The following abbreviations apply:

$\hbar$ = reduced Planck quantum of action (dimension m • length^2 / Zeit)
α_{em} = coupling constant for the electromagnetic interaction (= 1 / 137 no dimension)
a_0 = Bohr radius (dimension length)
c = Speed of light (dimension length / time)
m = mass (dimension m)
m_e = mass of the electron

By rearranged we get:

$$\frac{E_h}{\alpha_{em}^2 \cdot m_e} = c^2$$

$$\frac{\alpha_{em}^2 \cdot m_e}{E_h} = \frac{1}{c^2}$$

The right side of the equation can be integrated into the World Formula 2026:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{1}{c^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^5} \cdot \frac{\alpha_{em}^2 \cdot m_e}{E_h}$$

Planck spacetime = Planck spacetime

The **Rydberg energy** is half the Hartree energy E_h and does not need to be derived separately here.

Heisenberg's uncertainty principle has the same dimensions as ħ, momentum • length (= position) or energy • time, and is included in the world formula.

The de Broglie equation

The de Broglie equation has the dimension length and is also included in the world formula 2026. The de Broglie equation describes the wave nature of matter. The wavelength of a particle depends on its momentum.

The formula is

$$\text{Wavelength } \lambda = \frac{\text{Planck quantum of action } h}{\text{Momentum } p} \qquad \lambda = \frac{h}{p}$$

The following equation shows the dimensions of the equation above:

$$\text{length} = \frac{m \cdot \text{length}^2 \cdot \text{time}}{\text{time} \cdot m \cdot \text{length}}$$

$$\lambda = h \cdot \frac{1}{p}$$

Planck's quantum of action has the following formula:

$$h = 2 \cdot \pi \cdot \hbar$$

Substituting into the de Broglie equation

$$\lambda = \frac{2 \cdot \pi \cdot \hbar}{p}$$

The momentum p is on the order of Planck units:

$$m_p \cdot c = \sqrt{\frac{\hbar \cdot c^3}{G}}$$

Substituting into the de Broglie equation:

$$\lambda = \frac{2 \cdot \pi \cdot \hbar}{\sqrt{\dfrac{\hbar \cdot c^3}{G}}}$$

Both sides of the equation are squared:

$$\lambda^2 = \frac{4 \cdot \pi^2 \cdot \hbar^2}{\dfrac{\hbar \cdot c^3}{G}}$$

$$\lambda^2 = \frac{4 \cdot \pi^2 \cdot \hbar^2 \cdot G}{\hbar \cdot c^3}$$

$$\lambda^2 = \frac{4 \cdot \pi^2 \cdot \hbar \cdot G}{c^3}$$

$$\lambda^2 \cdot c^3 = 4 \cdot \pi^2 \cdot \hbar \cdot G$$

$$\frac{\lambda^2 \cdot c^3}{4 \cdot \pi^2} = \hbar \cdot G$$

The de Broglie equation is substituted into Planck's spacetime:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G}{c^7} \cdot \hbar \cdot G$$

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G}{c^7} \cdot \frac{\lambda^2 \cdot c^3}{4 \cdot \pi^2}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G \cdot \lambda^2}{c^4 \cdot 4 \cdot \pi^2}$$

The Schrödinger Equation

The Schrödinger equation has the dimension of ħ and is also included in the World Formula 2026.
The Schrödinger equation describes particles as matter waves. The state of the particle is mathematically captured by the wave function ψ. The formula for a two-dimensional system is:

$$\psi \cdot \hat{H} = i \cdot \hbar \cdot \frac{\partial}{\partial_t} \cdot \psi$$

Since the wave function ψ cancels out on both sides, it plays no role in the integration into the World Formula 2026.

$\hat{H}$ = Hamilton Operator — dimension Energy = $m \cdot \frac{\text{length}^2}{\text{time}^2}$

i = imaginary number „i“ = $\sqrt{-1}$ — no dimension, only number

$\hbar$ = reduced Planck quantum of action — dimension= $m \cdot \frac{\text{length}^2}{\text{time}}$

$\frac{\partial}{\partial_t}$ = the partial derivative with respect to time dimension = $\frac{1}{\text{time}}$

The formula then reads:

$$\hat{H} = i \cdot \hbar \cdot \frac{\partial}{\partial_t}$$

This equation can be solved for ħ and integrated into the Theory of Everything 2026

$$\hbar = \frac{\hat{H} \cdot \partial_t}{i \cdot \partial}$$

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \hbar$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2}{c^7} \cdot \frac{\hat{H} \cdot \partial_t}{i \cdot \partial}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar \cdot G^2 \cdot \hat{H}}{c^7 \cdot i} \cdot \frac{\partial_t}{\partial}$$

Planck spacetime = Planck spacetime

The Equivalence between Gravitational Force and Planck Charge

On the order of Planck units, there is an equivalence between the gravitational force and the Planck charge: The gravitational force between two Planck masses and the electromagnetic force between two Planck charges are equal.

$$\sqrt{\frac{\hbar \cdot c}{G}} = \text{Planck-mass} = 2{,}176\,434 \cdot 10^{-8} \text{ kilogram} = m_p$$

The Planck charge has the formula:

$$q_p = \sqrt{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c}$$

The general formula for the gravitational force is:

$$F = G \cdot \frac{\text{mass 1} \cdot \text{mass 2}}{\text{radius 1} \cdot \text{radius 2}}$$

F = Gravitational force (corresponds to the Planck force)
G = Gravitational constant
mass 1 und mass 2 correspond to the square of the Planck masses.

$$\frac{\hbar \cdot c}{G} = \text{Planck mass}^2 = m_p^2$$

Radius 1 and radius 2 correspond to the square of the Planck lengths. The radius also corresponds to the distance between the masses.

$$\frac{\hbar \cdot G}{c^3} = \text{Planck length}^2 = l_p^2$$

The gravitational constant is composed of

$$G = \frac{\text{Planck length} \cdot \text{Planck length} \cdot \text{Planck length}}{\text{Planck mass} \cdot \text{Planck time} \cdot \text{Planck time}}$$

$$G = \frac{\sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^3}}}{\sqrt{\frac{\hbar \cdot c}{G}} \cdot \sqrt{\frac{\hbar \cdot G}{c^5}} \cdot \sqrt{\frac{\hbar \cdot G}{c^5}}}$$

$$G = \frac{\sqrt{\frac{\hbar^3 \cdot G^3}{c^9}}}{\sqrt{\frac{\hbar^3 \cdot G}{c^9}}} = G$$

The Planck units are inserted into the equation

$$F = G \cdot \frac{\text{Mass 1} \cdot \text{Mass 2}}{\text{Radius 1} \cdot \text{Radius 2}}$$

$$F_p = G \cdot \frac{\frac{\hbar \cdot c}{G}}{\frac{\hbar \cdot G}{c^3}} = \frac{c^4}{G}$$

F_p **= Planck force**

The same procedure can be used for the electromagnetic force.
The Planck units are inserted into the equation

$$F = G \cdot \frac{\text{mass 1} \cdot \text{mass 2}}{\text{radius 1} \cdot \text{radius 2}}$$

In the electromagnetic domain, the Coulomb constant corresponds to the gravitational constant.
The mass corresponds to the electric charge.
The radius corresponds to the Planck length.

Planck charge and Planck length are inserted:
F_{em} = electromagnetic force

$$F_{em} = \frac{1}{4 \cdot \pi \cdot \varepsilon_0} \cdot \frac{\sqrt{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c} \cdot \sqrt{4 \cdot \pi \cdot \varepsilon_0 \cdot \hbar \cdot c}}{\frac{\hbar \cdot G}{c^3}}$$

$$F_{em} = \frac{c4}{G} = \text{Planck force} = F_p$$

From this,the following equations follow:

$$F_p = \frac{c^4}{G}$$

$$c^4 = F_p \cdot G$$

$$\frac{1}{c^4} = \frac{1}{F_p \cdot G}$$

The equation can be substituted into the "theory of everything 2026" by Wolfgang Goldmann:

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G^2}{c^3} \cdot \frac{1}{c^4}$$

Planck spacetime = Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7} = \frac{\hbar^2 \cdot G}{c^3 \cdot F_p}$$

If is „F_{em} = F_p" ,then on the order of Planck units, the gravitational force and the electromagnetic Planck force are equal. This also establishes a mathematical relationship between the electromagnetic force and the gravitational force. Quantum gravitiy takes place on the order of Planck length. According to the principle of reductionism, common constituents must always be smaller: atoms are smaller than molecules. Quarks are smaller than protons. Planck spacetime

$$\frac{\hbar^2 \cdot G^2}{c^7}$$

is on the order of 10^{-149}. This object, “Planck spacetime” , is very small compared to the known elementary particles, but it is not zero. And that is the crucial point. If you artificially set very small values equal to zero, then the calculations no longer work because divisions by zero or infinities occur. With such results, the entire mathematical framework collapses. The world formula with the term

$$\frac{\hbar^2 \cdot G^2}{c^7}$$

does not generate divisions by zero, no infinities, and does not require imaginary and complex numbers. On the order of Planck units, the electromagnetic force and the gravitational force have the same strength. Furthermore, the ranges of electromagnetism and gravitation are obviously unlimited. This property is common to both. The ranges of the strong and weak nuclear forces are strongly limited. The curvature of spacetime according to general relativity is not a contradiction to the previous view of gravitation because the gravitational constant is still conserved even when spacetime is curved. Gravity is not calculated differently when spacetime is curved than before. The world formula with the term

$$\frac{\hbar^2 \cdot G^2}{c^7}$$

saves the renormalizability required in other theories because no infinities occur here.
The large difference in the strength of gravity to the strength of the other three fundamental forces is therefore mathematically unproblematic because neither infinities, zero values, nor division by zero occur. Mathematically speaking, it doesn’t matter whether one is at 10^{-10} or 10^{-149} . The order of 10^{-149} is not yet experimentally verifiable. String theory, which operates on the order of the Planck length, has also not yet been verified by a single experiment. The energies that can be generated at CERN today only reach a depth of 10^{-20}. For smaller objects, the energies would have to be x orders of magnitude greater. Therefore, string theory cannot be experimentally confirmed.

Possible Conclusions

1. The physical phenomena in the universe are essentially determinated by the fundamental constants of nature.

2. The theory of relativity cannot do without fundamental constants of nature (for exemple speed of light, Schwarzschild radius ect.).

3. Quantum theory also cannot do without fundamental constants of nature.

4. Constants are composed, formulaically, only of fundamental constants and numerical constants are themselves fundamental constants of nature.

5. The fundamental constants form, at least mathematically, the link between the macrocosm and the microcosm, i.e., between the theory of relativity and quantum theory.

6. The Planckian spacetime defined by Wolfgang Goldmann forms, in a sense, the mathematical “container” in which both theories can fit.

7. Planckian spacetime is the smallest and shortest-lived object currently known in physics. All other objects (neutrinos, quarks etc.) are considerably larger.

8. According to reductionism, common elements or objects must always be smaller than dissimilar objects: atoms are smaller than molecules, quarks are smaller than protons or neutrons, etc.

9. One could imagine that the universe consists of Planckian spacetimes that appear and disappear (similar to so-called vacuum fluctuations) and that can combine to form larger objects, which then also exist longer and, for exemple, form matter. Planckian spacetime provide the mathematical framework for this.

10. All these statements only indicate that it could be this way, but not that it must be this way.

Subject word register Page