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Effect of Gravitational Formula Change on Gravitational Anomalies

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Abstract

The gravitational constant G is a basic quantity in physics, and, despite its relative imprecision, appears in many formulas, for example, also in the formulas of the Planck units. The "relative inaccuracy" lies in the fact that each measurement gives different values, depending on where and with which device the measurement is taken. Ultimately, the mean value was formed and agreed upon as the official value that is used in all calculations. In an effort to explore the reason for the inaccuracy of this quantity, some formulas were configured using G, so that the respective quantity assumed the value = 1. The gravitational constant thus modified was also used in the other Planck equations instead of the conventional G. It turned out that the new values were all equivalent to each other. It was also shown that the new values were all represented by powers of the speed of light. The G was therefore no longer needed. Just like the famous mass/energy equivalence $E = m * c^2$, similar formulas emerged, e.g. mass/momentum = $m * c$, mass/velocity = $m * c^2$ and so on. This article takes up the idea that emerges in the article by Weber [1], who describes the gravitational constant as a variable (G_{var}) and gives some reasons for this. Further reasons are given in the present paper and are computed. For example, the Planck units are set iteratively with the help of the variable G_{var}, so that the value of one unit equals 1 in each case. In this article, eleven Planck units are set iteratively using the variable G_{var}, so that the value of one unit equals 1 in each case. If all other units are based on the G_{var} determined in this way, a matrix of values is created that can be regarded both as conversion factors and as equivalence relationships. It is astonishing, but not surprising that the equivalence relation $E = m * c^2$ is one of these results. All formulas for these equivalence relationships work with the vacuum speed of light c and a new constant K. G, both as a variable and as a constant, no longer appears in these formulae. The new thing about this theory is that the gravitational constant is no longer needed. And if it no longer exists, it can no longer cause any difficulties.

The example of the Planck units shows this fact very clearly. This is a radical break with current views. It is also interesting to note that the "magic" number 137 can be calculated from the distances between the values of the matrix. In addition, a similar number can be calculated from the distances between the Planck units. This number is 131 and differs from 137 with 4.14 percent. This difference has certainly often led to confusion, for example, when measuring the Fine Structure Constant.

Keywords

System of Units, Planck Constants, Gravitational Constant, Variable Gravitation, Equivalence Relations, Number 137

1. Introduction

The removal of the conventional gravitational constant "G" from its constancy has an effect throughout physics, as there are many formulas in which G plays a role. This article uses the Planck units to show the effects of the variation of the gravitational constant on the physical system of units. The uncertainty in determining of the "gravitational constant" and the assessment of some phenomena, which are still regarded as anomalies today, becomes easier as a result. The changes in people's everyday lives are marginal. For all processes and calculations that relate to distances from a few millimetres to distances such as Sun-Earth, the deviations are smaller than those resulting from the tolerance of the gravitational constant that applies today. In this range, it is therefore still possible to work with the conventional gravitational constant. However, for the evaluation of measurement results and for theoretical considerations relating to distances that exceed the size of our solar system, it makes sense to use the gravitational variable. It is just as useful for distances that lie below the Planck horizon.

2. Newton and the Gravitation

It is no secret that the law of gravitation is disputed in physics. If the gravitational lines of force were to extend parallel to infinity, then Newton would be right with his law of gravity. However, it is no secret in physics that the law of gravity is controversial. There is plenty of evidence that gravity does not behave quite as simply as Newton's law suggests [2]. At very large distances, the observable effects of gravity indicate a reduction in the force of attraction. In contrast, the force of attraction is greater at very small distances. This would fit exactly into the picture of an exponential curve or a power function. However, today such deviations are calculated relativistically, *i.e.* according to the rules of the General Theory of Relativity (GRT). There are a number of gravitational anomalies. The most spectacular is the perihelion aberration of the planets. This provides us with a wonderful template, because the perihelion deviation of the planets is closely related to the variable gravitation. This allows us to draw direct conclusions about the functional relationship. The planetary orbits would have to describe an exact ellipse if Newton's law were correct. But this is not the case. The measured deviations are very small and only become apparent when you add up the measurements over several years. They are most obvious for the planet Mercury [1] [3], which led to the formulation "the perihelion precession of Mercury".

In his article from 2023, Weber [1] on the subject of the "gravitational constant", the results of a calculation were presented, which showed the dependence of the perihelion precession of the planets on the distance between two bodies (in this case the planet and the Sun). A formula was thus proposed that modifies the gravitational constant and uses it to calculate gravity from zero to infinity. The values of the perihelion shift merely serve as diagram points of a function that can be used to calculate the deviation of the variable gravitational constant (G_{var}) from Newton's gravitational constant for the distance. of two points.

Why not use this perihelion precession indicator? The course of the variable gravitational force deviates only very slightly from a straight line, so that it was previously interpreted as a straight line, or, therefore, as the gravitational constant.

The proposed formula for a variable gravitational in this article is:

$$G_{var} = \frac{k_1}{r^{k_2}} \tag{1}$$

where $k_1 = 6.674296 \times 10^{-11}$ (conventional gravitational constant);
$k_2 = \frac{1}{R} = \frac{1}{\text{Rydberg Constant}} = \frac{1}{10973731.57}$.

The formula for the force of gravity becomes then:

$$F = \left(\frac{k_1}{r^{k_2}}\right)\left(\frac{m_1 \cdot m_2}{r^2}\right) \tag{2}$$

3. The G_{var} Scale of the Natural Units

If you modify a formula that contains a G, so that the result of the formula = 1 by adjusting the G accordingly, you get a series of values that characterize the gravitational constant and form a scale. The Planck units are essentially formed by combining the three fundamental constants [4]-[8]:

c = vacuum light velocity = 199,792,458 m/s;

G = gravitational constant = 6.674296E−11 m^3/kgs^2;

$\bar{h}$ = quantum of action = 1.054571817E−34.

It is assumed that the vacuum speed of light and the quantum of action are fixed quantities, so that it is only worth varying the gravitational constant. This variation makes the gravitational constant a variable and leads to a scale of the gravitational constant. The variation of the Planck units and the units derived from the electron was carried out by means of iteration (successive approximation) by two separate steps. First, however, an attempt was made to bring the natural units related to the electron into agreement with the Planck units by changing G. In other words, G was changed so that the electron mass became equal to the electron mass (em). G thus takes the value:

$$G_{var}em = 3.80994675 \times 10^{+34}$$

If we set the Planck energy equal to the electron energy (*ee*), then we get:

$$G_{var}ee = 3.80994675 \times 10^{+34}$$

And if you set the Planck length equal to the Compton wavelength (*comp*) of the electron, then you also get:

$$G_{var}comp = 3.80994675 \times 10^{+34}$$

So, there is a constant quantity that can be inserted into the formulas in place of the conventional *G*, making the Planck units the natural units of the electron. However, the same procedure carried out with the electron radius (*er*) for the Planck length gives:

$$G_{var}er = 2.0288479 \times 10^{+30}.$$

And equating the Planck time with the electron time (*et*) (this is the time it takes for a photon to fly through an electron) gives:

$$G_{var}et = 2.0288479 \times 10^{+30}$$

Obviously, there are only two positions on a *G*-scale where the natural units derived from the electron are hidden. For example, they could be named:

$$G_{var^1} \text{ and } G_{var^2}.$$

α is defined as the ratio of the squares of the electron mass to the Planck mass. The point G_{var^1} fulfills the condition that the Planck mass is equal to the electron mass. It was found under this condition. But this also means that at this point, the gravitational coupling constant $\alpha G = 1$, because the numerator and the denominator now have the same values.

Thus, the point $G_{var^1} = 3.80994675 \times 10^{+34}$ is the point where gravity is equal to the strong force.

The point G_{var^1} is different from the point G_{var^2} by the factor α^2. Thus, the gravitational coupling constant α in the point G_{var^1} becomes the square of the coupling constant of the electro-magnetic interaction α.

At this point, the gravitational force is equal to the electro-magnetic force.

It turned out that there are only these two points on the G_{var} scale that are relevant for the representation of the "natural" units derived from the electron. They were named G_{var^1} and G_{var^2}. They differ by the factor α. Just as you get from G_{var^1} to G_{var^2}, you can multiply further and get G_{var^3}, G_{var^4}, G_{var^5} and so on. This also works in the other direction from G_{var^1}. If you divide G_{var^1} by α, you get G_{var^1}, G_{var^2}, G_{var^3} and so on. This gives you a scale of points from which you can assume that you will find further natural units. However, this has so far proved to be a mistake. All natural units relating to the electron are concentrated on the points G_{var^1} and G_{var^2}

However, it is interesting for further research to determine whether the free places on the scale of natural units are occupied by other units.

The ratio of these two G_{var} values results in:

$$\frac{G_{var^2}}{G_{var^1}} = 0.000053251345 \quad \text{or} \quad \frac{G_{var^1}}{G_{var^2}} = 137,03601133$$

This is the famous magic number whose origin was unknown for decades. Apparently, it represents the equal distance between the natural units. This is the square of the coupling constant of the electro-magnetic interaction α, which is also known as Sommerfeld's fine structure constant.

$$\text{It is } \sqrt{\frac{G_{var^2}}{G_{var^1}}} = 0.007297351923 = \alpha$$

From this point of view, it was interesting to find out whether the G_{var} scale of units might contain other values, for example, those related to the Planck units. For this purpose, 17 Planck units were adjusted by changing G, so that the result of the Planck formula became equal to 1.

In contrast to the units related to the electron, the resulting G_{var} values of the Planck units were well distributed over the entire scale generated using α. But they did not hit any of the points exactly. In **Table 1**, the values in column Gα are all hypothetical except for the start values. However, it could be seen that they followed their own direction. They had their own factor, which differed slightly from α. While α has the numerical value 0.0072973525664, the new factor, say α', has the value 0.00759967158. That is 4.143% more than α. This second scale is related to the speed of light "c". The reciprocal of 0.00759967158 is 137.035999 and if you square this twice, *i.e.* to the power of 4, you get 299,792,457 = "c"—the speed of light.

So, each of the two scales has a famous constant as its "godfather". It can be seen here that the distance between the two scales Gα. and Gα' corresponds in percentage terms almost exactly to the difference found when determining the proton radius with electrons on the one hand and with muons on the other, for which there is no plausible explanation to date.

Table 1 shows the two "scales" for the range in which the derived Planck units are located. On the left is the scale generated using α, on the right and in the center is the scale generated using α'. The latter contains values marked in red. These are the G values for which the respective Planck unit assumes the value 1. The middle column has calculated values. It is merely intended to show that the "values marked in red" correspond to the calculated values to at least the sixth decimal place. The values marked in bold are the starting values (G_{var^1} and G_{var^2}) from which the development of the scales started. The Gα' values have two different starting values. If the mean value is calculated from these points, the result is the value G(mean) = 8.07760872970777E+33. This in turn is the value that results when the Planck force equals 1.

The third scale listed in **Table 1** corresponds to scale α'. Here, the values marked in red were generated by iteration. These are the G values for which the respective Planck unit assumes the value 1. The centre column was calculated in full. It is merely intended to show that the "values marked in red" correspond to the calculated values to at least the sixth decimal place. The values marked in bold are the starting values (G_{var^1} and G_{var^2}) from which the development of the scales started.

Table 1. Two scales derived from Planck Units.

Units	Gα (calculated)	Gα′(calc.)	Gα′(with Planck = 1)
Point A	9.1123E+102	6.187134E+101	6.187134E+101
Point B	4.85244E+98	3.5733795E+97	3.573380E+97
Acceleration	2.58399E+94	2.063805622E+93	2.063805636E+93
Point C	1.375601E+90	1.1919511E+89	1.191951E+89
Point D	7.32743E+85	6.8841146E+84	6.884115E+84
Point E	3.90196E+81	3.9759209E+80	3.975921E+80
Time circular frequency	2.07784E+77	2.296293458E+76	2.296293474E+80
Point F	1.10648E+73	1.3262245E+72	1.3262245E+72
Point G	5.89216E+68	7.6596105E+67	7.6596106E+67
Point H	3.13765E+64	4.4238087E+63	4.4238087E+63
Length	1.67084E+60	2.554971064E+59	2.554971063E+59
Point I	8.89746E+55	1.456237E+55	1.456237E+55
Point J	4.73802E+51	8.5224661E+50	8.5224661E+50
Point K	2.52306E+47	4.9221510E+46	4.9221510E+46
Power	1.34356E+43	2.842788718E+42	2.842788718E+42
Point L	7.15465E+38	1.6418529E+38	1.6418529E+38
Start + force	**3.8099468**E+34	**9.4825225**E+33	**9.4825225**E+33
Start − force	**3.8099468**E+34	**6.8808445**E+33	**6.8808445**E+33
Point M	2.02885E+30	3.9740323E+29	3.9740323E+29
Velocity	1.08039E+26	2.2952027E+25	2.295202678E+25
Point N	5.7322E+21	1.3255945E+21	1.3255945E+21
Point O	3.06366E+17	7.6559721E+17	7.6559721E+17
Point P	1.63144E+13	4.4217073E+12	4.4217073E+12
Energy	8.68765E+08	2.553757407E+08	2.553757407E+08
Point Q	4.62629E+04	1.4749228E+04	1.4749228E+04
Point R	2.46356E+00	8.5184178E+01	8.5184178E+01
Point S	1.311880E−04	4.9198129E−05	4.9198129E−05
Impuls momentum	6.985938E−09	2.841438343E−09	2.841438311E−09
Point T	3.720106E−13	1.6410729E−13	1.6410729E−13
Point U	1.981006E−17	9.4780181E−18	9.4780181E−18
Point V	1.054913E−21	5.470301E−22	5.470301E−22
Mass	5.617551E−26	3.161526555E−26	3.161526292E−26
Point W	2.991422E−30	1.8259399E−30	1.8259398E−30
Point X	1.592972E−34	1.0545717E−34	1.0545717E−34
Point Y	8.482792E−39	6.0906800E−39	6.0906795E−39

In this work, a result is generated in two different ways. One is with the Planck formulas and the other is by trial and error. It has to be emphasized that the "twin formulas" were guessed until both formulas produced the exact same result in one field each. The amazing thing is that the guessed formulas can all be represented solely by the speed of light and another constant. The constant, which was given the working name K, arose by chance in the run-up to processing. The correspondence between the two formulas per unit is so clear that there were no problems in the respective search for the formula.

4. The Constant Kα'

When working with the Gα'scale, the constant 1.173927 kept coming to mind. As it did not yet exist in physics, it had to be given a name. It was given the working name α'constant or Kα'. This constant is found several times in the Gα'scale. For example, it is contained in the ratio of the starting value "−" (minus) to the mean value and in the ratio of the mean value to the starting value "+" (plus).

Table 1 is to be regarded as an intermediate step. The final relationships are shown in Table 2 and Table 3. Looking at Table 1 in its current form, it is noticeable that it says nothing about how the other units would behave if the gravity variable were to change. The units must therefore be linked to this variable with their own formulas. Each unit receives a column with formulas for the units that want to use the variable "G_{var}". This is conveniently placed in the column header. The result is a matrix of units, as shown in Table 2.

Table 2 is a matrix of the Planck Units with values set equal to 1. The calculation method in the matrices is as follows. In a spreadsheet, all the Planck formulae are written one below the other and the gravitational constant G is placed in the header of this table (column). In the formulae, the G is replaced with a reference to the G in the column header. Then, there is the original Planck value in each row. The G value in the column header is now changed for as long as necessary—until a Planck formula in the body of the column equals 1. This is best done with a spreadsheet iteration programme. This is how the relationships are created. This process is repeated once for each Planck unit. This creates a matrix. As many columns are needed as there are rows. The variable G values that arise in the column header form the G_{var} scale of the Planck units. This matrix is unique. It was not calculated, but developed from the Planck units.

Header line 2 in the table body contains the original mathematically programmed Planck formulas. This is done in such a way that the Planck formulas access the respective "G" in the header. This creates the original Planck units on each "line 2" in the body of the table. Then, column by column, the G is set using the Excel function "Target value search" so that a Planck unit of the column assumes the value 1.00000... (iteration). It starts with "mass" and ends with "acceleration". This produces Table 2 with its conversion factors. The former "G" in the column header has thus become "G_{var} determined".

If the Planck units in Table 2 are set to 1, all other Planck units that want to

Table 2. Part 1 and Part 2: Matrix with 11 Planck units.

Planck Units	mass	Pl.moment	energy	velocity	force	density	press.	temp	length	time	accel.
precision	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$
G_{var} Formula	$\frac{\frac{1}{c^3}}{K^3}\cdot$	$\frac{\frac{1}{c}}{K^1}$	$\frac{c^1}{K^1}\cdot$	$\frac{c^3}{K^1}$	$\frac{c^4}{K^0}$	$\frac{c^{4,5}}{\sqrt{K}}$	$c^{5,5}\cdot\sqrt{K}$	$\frac{c^1}{K^1}$	$c^7\cdot K^1$	$c^9\dot{K}^1$	$c^{11}\cdot K^1$
G_{var}determined	$3,1611526775596E^{-26}$	$2,841438559E^{+09}$	$2,553757620E^{+08}$	$2,295202886E^{+25}$	$8,07608713E^{+25}$	$1,515352525E^{+38}$	$4,542912582E^{+46}$	$1,339717129E^{+54}$	$2,5549708406E^{+59}$	$2,29629327E^{+76}$	$2,063805472E^{+93}$
G_{var}calculated	$3,1611526775596E^{-26}$	$2,841438559E^{+09}$	$2,553757620E^{+08}$	$2,295202886E^{+25}$	$8,07608713E^{+25}$	$1,515352525E^{+38}$	$4,542912582E^{+46}$	$1,339717129E^{+54}$	$2,5549708406E^{+59}$	$2,29629327E^{+76}$	$2,063805472E^{+93}$
Pl. mass$_{(kg)}$	$\frac{mass}{mass}$	$\frac{mass}{impuls}$	$\frac{mass}{energy}$	$\frac{mass}{velocity}$	$\frac{mass}{force}$	$\frac{mass}{density}$	$\frac{mass}{press.}$	$\frac{mass}{temp.}$	$\frac{mass}{length}$	$\frac{mass}{time}$	$\frac{mass}{accel.}$
$\sqrt{(\hbar\cdot\frac{c}{Gvar})}$	$1,000000000000E^{+00}$	$3,335640951982E^{-09}$	$1,112650056054E^{-17}$	$3,711401092197E^{-26}$	$1,978367759901E^{-30}$	$1,444413682E^{-32}$	$8,342212376559E^{-37}$	$1,5336179187240E^{-40}$	$3,51767293959E^{-43}$	$1,1769391298E^{-51}$	$3,913938993414E^{-51}$
$2,176434205E^{-08}$	$c^0\cdot K^0$	$\frac{1}{c^1\cdot K^0}$	$\frac{1}{c^2\cdot K^0}$	$\frac{1}{c^3\cdot K^0}$	$\frac{1}{c^{3,5}\cdot\sqrt{K}}$	$\frac{1}{c^{3,75}\cdot K^{0,75}}$	$\frac{1}{c^{4,25}\cdot K^{0,75}}$	$\left(\frac{1}{c^2\cdot K^0}\right)\cdot k$	$\frac{1}{c^5\cdot K^1}$	$\frac{1}{c^6\cdot K^1}$	$\frac{1}{c^7\cdot K^1}$
calculated w.(c-k formula)	$1,000000000000E^{+00}$	$3,335640951982E^{-09}$	$1,112650056054E^{-17}$	$3,711401092197E^{-26}$	$1,978367759901E^{-30}$	$1,444413682E^{-32}$	$8,342212376559E^{-37}$	$1,5336179187240E^{-40}$	$3,51767293959E^{-43}$	$1,1769391298E^{-51}$	$3,913938993414E^{-51}$
backwards compatible .	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$5,0546719E^{+29}$	$3,3183731E^{+95}$	$1,7224883E^{+108}$	$1,000000000000E^{+00}$	$1,2374023E^{+85}$	$1,3767957E^{+102}$	$1,000000000000E^{+00}$
Pl.impuls$\frac{kgm}{s}$	$\frac{impuls}{mass}$	$\frac{impuls}{impuls}$	$\frac{impuls}{energy}$	$\frac{impuls}{velocity}$	$\frac{impuls}{force}$	$\frac{impuls}{density}$	$\frac{impuls}{press.}$	$\frac{impuls}{temp.}$	$\frac{impuls}{length}$	$\frac{impuls}{time}$	$\frac{impuls}{accel.}$
$\sqrt{\left(\hbar\cdot\frac{c^3}{Gvar}\right)}$	$2,99792458000E^{+08}$	$1,000000000000E^{+00}$	$3,335640951981E^{-09}$	$1,112650056054E^{-17}$	$5,930997335685E^{-22}$	$4,330243279403E^{-24}$	$2,50093235227E^{-28}$	$4,605349344712E^{-32}$	$1,054571817000E^{-34}$	$3,517672939591E^{-43}$	$1,173369391298E^{-51}$
$6,52478601079E^{-00}$	$c^1\cdot K^0$	$c^0\cdot K^0$	$\frac{1}{c^1\cdot K^0}\cdot$	$\frac{1}{c^2\cdot K^0}$	$\frac{1}{c^{2,5}\cdot\sqrt{K}}$	$\frac{1}{c^{2,75}\cdot K^{0,75}}$	$\frac{1}{c^{3,25}\cdot K^{0,75}}$	$\frac{1}{c^1\cdot K^0}$	$\frac{1}{c^4\cdot K^1}$	$\frac{1}{c^5\cdot K^1}$	$\frac{1}{c^6\cdot K^1}$
calculated w.(c-k formula)	$2,99792458000E^{+08}$	$1,000000000000E^{+00}$	$3,335640951981E^{-09}$	$1,112650056054E^{-17}$	$5,930997335685E^{-22}$	$4,330243279403E^{-24}$	$2,50093235227E^{-28}$	$4,605349344712E^{-32}$	$1,054571817000E^{-34}$	$3,517672939591E^{-43}$	$1,173369391298E^{-51}$
backwards compatible	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,686057E^{+21}$	$1,2315814E^{+70}$	$6,3928449E^{+82}$	$1,000000000000E^{+00}$	$1,1121217E^{-68}$	$1,2374023E^{-85}$	$1,000000000000E^{+00}$
Pl.energy$_{kg}\frac{m^2}{s}$	$\frac{energy}{mass}$	$\frac{energy}{impuls}$	$\frac{energy}{energy}$	$\frac{energy}{velocity}$	$\frac{energy}{force}$	$\frac{energy}{density}$	$\frac{energy}{press.}$	$\frac{energy}{temp.}$	$\frac{energy}{length}$	$\frac{energy}{time}$	$\frac{energy}{accel}$
$\sqrt{\left(\hbar\cdot\frac{c^5}{Gvar}\right)}$	$8,987551787368E^{+16}$	$2,9979245800E^{-08}$	$1,000000000000E^{+00}$	$3,335640951981E^{-09}$	$1,778068269657E^{-13}$	$1,29817427670E^{-15}$	$7,497606575555E^{-20}$	$1,380649000E^{-23}$	$3,161526771560E^{-26}$	$1,05457181700E^{-34}$	$3,5176729391E^{-43}$
$1,9560816361E^{+09}$	$c^2\cdot K^0$	$c^1\cdot K^0$	$c^0\cdot K^0$	$\frac{1}{c^1\cdot K^0}\cdot$	$\frac{1}{c^{1,5}\cdot K^{0,5}}$	$\frac{1}{c^{1,75}\cdot K^{0,75}}$	$\frac{1}{c^{2,25}\cdot K^{0,75}}$	$\left(\frac{1}{c^0\cdot K^0}\right)\cdot k$	$\frac{1}{c^3\cdot K^1}$	$\frac{1}{c^4\cdot K^1}$	$\frac{1}{c^5\cdot K^1}$
calculated w.(c-k formula)	$8,987551787368E^{+16}$	$2,9979245800E^{-08}$	$1,000000000000E^{+00}$	$3,335640951981E^{-09}$	$1,778068269657E^{-13}$	$1,29817427670E^{-15}$	$7,497606575555E^{-20}$	$1,380649000E^{-23}$	$3,161526771560E^{-26}$	$1,05457181700E^{-34}$	$3,5176729391E^{-43}$
backwards compatible	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$5,6240810E^{+12}$	$4,5708924E^{+44}$	$2,3726411E^{+57}$	$1,000000000000E^{+00}$	$9,9952515E^{-52}$	$1,1121217E^{-68}$	$1,000000000000E^{+00}$
Pl.velocity$(\frac{m}{s})$	$\frac{velocity}{mass}$	$\frac{velocity}{impuls}$	$\frac{velocity}{energy}$	$\frac{velocity}{velocity}$	$\frac{velocity}{force}$	$\frac{velocity}{density}$	$\frac{velocity}{press.}$	$\frac{velocity}{temp.}$	$\frac{velocity}{length}$	$\frac{velocity}{time}$	$\frac{velocity}{accel}$
$\sqrt{\left(\hbar\cdot\frac{c^7}{Gvar}\right)}$	$2,694400241737E^{+25}$	$8,98755187368E^{+16}$	$2,9979245800E^{+08}$	$1,000000000000E^{+00}$	$5,330514570521E^{-05}$	$3,891828572554E^{-07}$	$2,247725904402E^{-11}$	$4,139081573452E^{-15}$	$9,478018818786E^{-18}$	$3,161526771560E^{-26}$	$1,0545718170E^{-34}$
$5,86418521735^{+17}$	$c^3\cdot K^0$	$c^2\cdot K^0$	$c^1\cdot K^0$	$\frac{1}{c^0\cdot K^0}\cdot$	$\frac{1}{c^{0,5}\cdot K^{0,5}}$	$\frac{1}{c^{0,75}\cdot K^{0,75}}$	$\frac{1}{c^{1,25}\cdot K^{0,75}}$	$\left(\frac{1}{c^1\cdot K^0}\right)\cdot k$	$\frac{1}{c^2\cdot K^1}$	$\frac{1}{c^3\cdot K^1}$	$\frac{1}{c^4\cdot K^1}$
calculated w.(c-k formula)	$2,694400241737E^{+25}$	$8,98755187368E^{+16}$	$2,9979245800E^{+08}$	$1,000000000000E^{+00}$	$5,330514570521E^{-05}$	$3,891828572554E^{-07}$	$2,247725904402E^{-11}$	$4,139081573452E^{-15}$	$9,478018818786E^{-18}$	$3,161526771560E^{-26}$	$1,0545718170E^{-34}$
backwards compatible	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,000000000000E^{+00}$	$1,8759915E^{+04}$	$1,6964415E^{+19}$	$8,8058229E^{+31}$	$1,000000000000E^{+00}$	$8,9832841E^{-35}$	$9,9952515E^{-52}$	$1,000000000000E^{+00}$
Pl.force$_{(N)}\frac{m}{s^2}$	$\frac{force}{mass}$	$\frac{force}{impuls}$	$\frac{force}{energy}$	$\frac{force}{velocity}$	$\frac{force}{force}$	$\frac{force}{density}$	$\frac{force}{press.}$	$\frac{force}{temp.}$	$\frac{force}{length}$	$\frac{force}{time}$	$\frac{force}{accel}$
$\left(\frac{c^4}{Gvar}\right)$	$2,55497084058E^{+59}$	$2,842788448992E^{+42}$	$3,163028727119E^{+25}$	$3,519344090528E^{+08}$	$9,9999999E^{-01}$	$5,330514570522E^{-05}$	$1,778068269657E^{-13}$	$6,0292338983774E^{-21}$	$3,161526771560E^{-26}$	$3,517672939591E^{-43}$	$3,913938993414E^{-60}$
$1,21025556434E^{+44}$	$c^7\cdot K^1$	$c^5\cdot K^1$	$c^3\cdot K^1$	$c^1\cdot K^1$	$c^0\cdot K^0$	$\frac{1}{c^{0,5}\cdot K^{0,5}}$	$\frac{1}{c^{1,5}\cdot K^{0,5}}$	$\left(c^3\cdot K^1\right)\cdot k^2$	$\frac{1}{c^3\cdot K^1}$	$\frac{1}{c^5\cdot K^1}$	$\frac{1}{c^7\cdot K^1}$
calculated w.(c-k formula)	$2,55097084058E^{+59}$	$2,842788448992E^{+42}$	$3,163028727119E^{+25}$	$3,519344090528E^{+08}$	$1,00000000E^{+00}$	$5,330514570522E^{-05}$	$1,778068269657E^{-13}$	$6,0292338983774E^{-21}$	$3,161526771560E^{-26}$	$3,517672939591E^{-43}$	$3,913938993414E^{-60}$
backwards compatible	$5,0546719E^{+29}$	$1,6860571E^{+21}$	$5,6240810E^{+12}$	$1,8759915E^{+04}$	$1,0000000E^{+00}$	$5,3305146^{-05}$	$5,6240810E^{+12}$	$7,7648818E^{-11}$	$5,62141041E^{-39}$	$2,0863309E^{-64}$	$1,9783678E^{-30}$
$1013tab2p1pusysweb$	$Note: K = K\alpha'$	$k = Boltzmann - const.$							$H.P.Weber, 2023$		

Part 1

Continued

Planck Units	mass	Pl.moment	energy	velocity	force	density	press.	temp	length	time	accel.
Pl. density $\frac{kg}{m^3}$	$\frac{density}{mass}$	$\frac{density}{impuls}$	$\frac{density}{energy}$	$\frac{density}{velocity}$	$\frac{density}{force}$	$\frac{density}{density}$	$\frac{density}{press.}$	$\frac{density}{temp.}$	$\frac{density}{length}$	$\frac{density}{time}$	$\frac{density}{accel}$
$\left(\frac{c^5}{\hbar\cdot(G^2var)}\right)$	$2,297384181106E^{+127}$	$2,844138980626^{+93}$	$3,521016035385^{+59}$	$4,358983160067^{+25}$	$3,519344090528^{+08}$	$1,0000000^{+00}$	$1,112650056054^{-17}$	$1,279384643759^{-32}$	$3,517672939591^{-43}$	$4,35484440412^{-77}$	$5,39125409976^{-111}$
$5,154848500640E^{+96}$	$c^{15}\cdot K^3$	$c^{11}\cdot K^3$	$c^7\cdot K^3$	$c^3\cdot K^3$	$c^1\cdot K^1$	$c^0\cdot K^0$	$\frac{1}{c^2K^0}$	$(c^3\cdot K^{2,5})\cdot k^{2,5}$	$\frac{1}{c^5K^1}$	$\frac{1}{c^9K^1}$	$\frac{1}{c^{13}K^1}$
calculated w.(c-k formula)	$2,297384181106E^{+127}$	$2,844138980626^{+93}$	$3,521016035385^{+59}$	$4,358983160067^{+25}$	$3,519344090528^{+08}$	$1,0000000^{+00}$	$1,112650056054^{-17}$	$1,279384643759^{-32}$	$3,517672939591^{-43}$	$4,35484440412^{-77}$	$5,39125409976^{-111}$
backwards compatible	$3,31837331E^{+95}$	$1,2315814E^{+70}$	$4,5708924E^{+44}$	$1,6964415E^{+19}$	$1,8759915E^{+04}$	$1,0000000^{+00}$	$1,0000000^{+00}$	$1,2029591E^{-24}$	$8,5668137E^{-54}$	$3,5376577E^{-96}$	$1,96896073E^{-83}$
pressure (Pa)	$\frac{pressure}{mass}$	$\frac{pressure}{impuls}$	$\frac{pressure}{energy}$	$\frac{pressure}{velocity}$	$\frac{pressure}{force}$	$\frac{pressure}{density}$	$\frac{pressure}{press.}$	$\frac{pressure}{temp.}$	$\frac{pressure}{length}$	$\frac{pressure}{time}$	$\frac{pressure}{accel}$
$\left(\frac{c^7}{\hbar\cdot(G^2var)}\right)$	$2,064785930317E^{+144}$	$2,556184637885E^{+110}$	$3,164531396217^{+76}$	$3,9176586891^{+42}$	$3,163028727119^{+25}$	$8,987551787368^{+16}$	$1,0000000^{+00}$	$1,149853574174^{-15}$	$3,161526771560^{-26}$	$3,913938993414^{-60}$	$4,845417910729^{-94}$
$4,63294679E^{+113}$	$c^{17}\cdot(K^3)$	$c^{13}\cdot(K^3)$	$(c^9)\cdot(K^3)$	$(c^5)\cdot(K^3)$	$c^3\cdot(K^1)$	$c^2\cdot(K^0)$	c^0K^0	$(c^9K^3)\cdot k$	$\frac{1}{c^3K^1}$	$\frac{1}{c^7K^1}$	$\frac{1}{c^{11}K^1}$
calculated w.(c-k formula)	$2,064785930317E^{+144}$	$2,556184637885E^{+110}$	$3,164531396217^{+76}$	$3,9176586891^{+42}$	$3,163028727119^{+25}$	$8,987551787368^{+16}$	$1,0000000^{+00}$	$1,149853574174^{-15}$	$3,161526771560^{-26}$	$3,913938993414^{-60}$	$4,845417910729^{-94}$
backwards compatible	$1,7224883E^{+108}$	$6,3928449E^{+82}$	$2,3726411E^{+57}$	$8,8058229E^{+31}$	$5,6240810E^{+12}$	$1,0000000^{+00}$	$1,0000000^{+00}$	$6,2442733E^{-12}$	$1,3331256E^{-32}$	$5,5051298E^{-75}$	$1,0327577E^{-70}$
Pl. temperat.	$\frac{temp}{mass}$	$\frac{temp}{impuls}$	$\frac{temp}{energy}$	$\frac{temp}{velocity}$	$\frac{temp}{force}$	$\frac{temp}{density}$	$\frac{temp}{press.}$	$\frac{temp}{temp.}$	$\frac{temp}{length}$	$\frac{temp}{time}$	$\frac{temp}{accel}$
$\frac{1}{k}\sqrt{\left(\frac{\hbar\cdot c^5}{Gvar}\right)}$	$6,509657260729E^{+39}$	$2,171387934225E^{+31}$	$7,24297051604E^{+22}$	$2,415994906730E^{+14}$	$1,287849605263E^{+10}$	$9,402638009156E^{+07}$	$5,430494336761E^{+03}$	$1,000000E^{+00}$	$2,289884519208E-03$	$7,638232577578E^{-12}$	$2,547840138653E^{-20}$
$1,4167841617E^{+32}$	$(c^2)\cdot(K^0)$	$c^1\cdot(K^0)$	$(c^0)\cdot(K^0)$	$\frac{1}{c^1K^0}$	$\frac{1}{c^{1,5}K^{0,5}}$	$\frac{1}{c^{1,75}K^{0,75}}$	$\frac{1}{c^{2,25}K^{0,75}}$	$(c^0)\cdot(K^0)$	$\frac{1}{c^3K^1}$	$\frac{1}{c^4K^1}$	$\frac{1}{c^5K^1}$
calculated w.(c-k formula)	$6,509657260729E^{+39}$	$2,171387934225E^{+31}$	$7,24297051604E^{+22}$	$2,412970516040E^{+14}$	$1,287849605263E^{+10}$	$9,402638009156E^{+07}$	$5,430494336761E^{+03}$	$1,000000^{+00}$	$2,289884519208E-03$	$17,63232577578E^{-12}$	$2,547840138653E^{-20}$
backwards compatible	$1,000000^{+00}$	$1,000000E^{+00}$	$1,000000E^{+00}$	$1,000000E^{+00}$	$7,7648818E^{-11}$	$1,2029591E^{-24}$	$6,2442733E^{+12}]$	$1,000000E^{+00}$	$5,2435711E^{-06}$	$5,8342597E^{-23}$	$1,000000E^{+00}$
Pl. length	$\frac{length}{mass}$	$\frac{length}{impuls}$	$\frac{length}{energy}$	$\frac{length}{velocity}$	$\frac{length}{force}$	$\frac{length}{density}$	$\frac{length}{press.}$	$\frac{length}{temp.}$	$\frac{length}{length}$	$\frac{length}{time}$	$\frac{length}{accel}$
$\sqrt{\left(\frac{\hbar G_{var}}{c^3}\right)}$	$3,51767293959E^{-43}$	$1,05457181700E^{-34}$	$3,161526771560E^{-26}$	$9,478018818787E^{-18}$	$1,778068269657E^{-13}$	$2,435363902E^{-11}$	$4,2167146804791E^{-07}$	$2,289884519208E^{+00}$	$1,000000E+00$	$2,99792458000E^{+08}$	$8,987551787368E^{+16}$
$1,6162550E^{-35}$	$\frac{1}{c^5K^1}$	$\frac{1}{c^4K^1}$	$\frac{1}{c^3K^1}$	$\frac{1}{c^2K^1}$	$\frac{1}{c^{1,5}K^{0,5}}$	$\frac{1}{c^{1,25}K^{0,25}}$	$\frac{1}{c^{0,75}K^{0,25}}$	$\frac{1}{c^3K^1}$	$\frac{1}{c^0K^0}$	$c^1\cdot(K^0)$	$c^2\cdot(K^0)$
calculated w.(c-k formula)	$3,51767293959E^{-43}$	$1,05457181700E^{-34}$	$3,161526771560E^{-26}$	$9,478018818787E^{-18}$	$1,778068269657E^{-13}$	$2,435363902E^{-11}$	$4,2167146804791E^{-07}$	$2,289884519208E^{+00}$	$1,000000E+00$	$2,99792458000E^{+08}$	$8,987551787368E^{+16}$
backwards compatible	$1,2374023^{-85}$	$1,1121217E^{-68}$	$9,9952515E^{-52}$	$8,9832841E^{-35}$	$5,62144104E^{-39}$	$8,56681371E^{-54}$	$1,3331256E^{-32}$	$5,2435711E^{-06}$	$1,000000E^{+00}$	$1,000000E^{+00}$	$8,07760870E^{+33}$
Pl. time	$\frac{time}{mass}$	$\frac{time}{impuls}$	$\frac{time}{energy}$	$\frac{time}{velocity}$	$\frac{time}{force}$	$\frac{time}{density}$	$\frac{time}{press.}$	$\frac{time}{temp.}$	$\frac{time}{length}$	$\frac{time}{time}$	$\frac{time}{accel}$
$\sqrt{\left(\frac{\hbar G_{var}}{c^5}\right)}$	$1,17336931298E^{-51}$	$3,51767293959E^{-43}$	$1,054571817000E^{-34}$	$3,161526771560E^{-26}$	$5,930997335686E^{-22}$	$8,123499564845E^{-20}$	$1,406544617103E^{-15}$	$7,638232577578E^{-12}$	$3,335640951982E-09$	$1,0000000E^{+00}$	$2,997924580000E^{+08}$
$5,39124644666E^{-44}$	$\frac{1}{c^6K^1}$	$\frac{1}{c^5K^1}$	$\frac{1}{c^4K^1}$	$\frac{1}{c^3K^1}$	$\frac{1}{c^{2,5}K^{\frac{1}{2}}}$	$\frac{1}{c^{2,25}K^{\frac{1}{4}}}$	$\frac{1}{c^{1,75}K^{0,25}}$	$\frac{1}{c^4\cdot K^1}$	$\frac{1}{c^1\cdot K^0}$	$\frac{1}{c^0\cdot K^0}$	c^1K^0
calculated w.(c-k formula)	$1,17336931298E^{-51}$	$3,51767293959E^{-43}$	$1,054571817000E^{-34}$	$3,161526771560E^{-26}$	$5,930997335686E^{-22}$	$8,123499564845E^{-20}$	$1,406544617103E^{-15}$	$7,638232577578E^{-12}$	$3,335640951982E-09$	$1,0000000E^{+00}$	$2,997924580000E^{+08}$
backwards compatible	$1,3767957^{-102}$	$1,2374023^{-85}$	$1,1121217E^{-68}$	$9,9952515E^{-52}$	$2,0863309E^{-64}$	$3,5376577E^{-96}$	$5,5051298E^{-75}$	$5,8342597E^{-23}$	$1,000000E^{+00}$	$1,000000E^{+00}$	$8,9875518E^{+16}$
Pl.accell. $\frac{m}{sec^2}$	$\frac{accell.}{mass}$	$\frac{accell.}{impuls}$	$\frac{accell.}{energy}$	$\frac{accell.}{velocity}$	$\frac{accell.}{force}$	$\frac{accell.}{density}$	$\frac{accell.}{press.}$	$\frac{accell.}{temp.}$	$\frac{accell.}{length}$	$\frac{accell.}{time}$	$\frac{accell.}{accel}$
$\sqrt{\left(\frac{c^7}{\hbar G_{var}}\right)}$	$2,554970840585E^{+59}$	$8,522465366973E^{+50}$	$2,842788448992E^{+42}$	$9,482521568277E^{+33}$	$5,054671938499E^{+29}$	$3,690434837928E^{+27}$	$2,1314109360807E^{+23}$	$3,924893029312E+19$	$8,987551787368E^{+16}$	$2,997924580000E^{+08}$	$1,0000000E^{+00}$
$5,5607262804E^{+51}$	c^7K^1	c^6K^1	c^5K^1	c^4K^1	$c^{3,5}K^{0,5}$	$c^{3,25}K^{\frac{1}{4}}$	$c^{2,75}K^{\frac{1}{4}}$	$(c^5K^1)\cdot k$	c^2K^0	c^1K^0	c^0K^0
calculated w.(c-k formula)	$2,554970840585E^{+59}$	$8,522465366973E^{+50}$	$2,842788448992E^{+42}$	$9,482521568277E^{+33}$	$5,054671938499E^{+29}$	$3,690434837928E^{+27}$	$2,1314109360807E^{+23}$	$3,924893029312E+19$	$8,987551787368E^{+16}$	$2,997924580000E^{+08}$	$1,0000000E^{+00}$
backwards compatible	$1,0000000E^{+00}$	$1,0000000E^{+00}$	$1,0000000E^{+00}$	$1,0000000E^{+00}$	$1,9783678^{-30}$	$1,9896073^{-83}$	$1,0327577E^{-70}$	$1,0000000E^{+00}$	$8,0776087E^{+33}$	$8,9875518E^{+16}$	$1,000000E^{+00}$
1014*pusystab2p2*	$Note: K = K\alpha'$	$k = Boltzmann - const.$							H.P.Weber, 2023		

Part 2

enter into a relationship with the unit set to 1 also change, as they are all dependent on the changed G_{var}. The G_{var} determined in this way has been entered in the header of each column on line 4. These values were calculated using only the speed of light c and the constant $K\alpha'$. To prove this, such formulas were searched for and entered as a formula in header line 3. The result is shown in header line 5. If the values in line 4 and line 5 match 100 percent, then the formula in line 3 is confirmed.

The value in line 4 was determined iteratively and that in line 5 was calculated using the formula in line 3. Both results are identical. The values in line 5 in each field of the matrix is a control number that shows how well the forward calculation is convertible with the backward calculation. The accuracy of the calculation is indicated by the number of zeros.

All the values in Table 2 represent c and its powers. In many cases, these c-values are combined with a constant. This is the constant called $K\alpha'$. All values have been formed by c alone or with $K\alpha'$, because even the value for the quantum of action turns out to be a combination of c and $K\alpha'$ (see intersection "length/momentum"), so that in the end the entire table consists only of such combinations. For reasons of space, the constant $K\alpha'$ is only referred to as K in Table 2 and Table 3. If the powers $K\alpha'^0$ and $K\alpha'^1$ are also allowed for the constant $K\alpha'$, then each formula contains a c and a K in different dimensions. While the formula in row 2 still accesses the current G_{var} in the column header, the formula shown in row 4 requires neither a G nor a $\bar{h}$. As in the column header, the determined value and the calculated value are identical in the table.

All formulas or values specified in Table 2 represent a relationship between the unit in the line header and the unit in the column header.

Line header: energy = column header: $\text{mass} \cdot c^2$.

Line header: mass = column header: $\text{energy} \cdot \frac{1}{c^2}$.

The two equations are well known. It is Einstein's famous equivalence: mass-energy.

In principle, all formulas resulting from Table 2 are valid relations. The result is a matrix of units, as exemplified in Table 2, with mathematical formulas. Thus, Table 2 is part of a universal system of units. However, it turns out that the values developed from the original Planck formulas are not convertible back and forth. One does not always get back to the initial value when reversing the calculation. Therefore, Table 3 was created.

5. Equivalence Relations

In Table 3, the conversion factors are presented similar to Table 2. A five-line field was set up for each factor, with the top "line 1" showing the "pairing" as the heading in each case.

The table was reduced from 17 Planck units to 11 units in order to be able to print the table. The "line 2" is reserved for the factor itself as it results from the Planck formula.

Table 3. Equivalence matrix with 11 Planck units.

Original Planck units corrected	Planck mass	Planck momentum (impuls)	energy	velocity	force	density	pressure	temperature	length	time	acceleration
	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00	1,00000000000E+00
Gvar formula	(1/c^3)/(K^1)	(1/C^1)/(K^1)	(c^1)/(K^1)	(c^3)/(K^1)	(c^4)/(K^0)	(c^4,5)*K^(0,5)	(c^5,5)*(K^0,5)	(c^1/K^1)*(1/k)^2	(c^7)*(K^1)	(c^9)*(K^1)	(c^11)*(K^1)
Gvar determined by target value	3,161526771560E-26	2,841438559E-09	2,553757620E+08	2,295202886E+25	8,077608713E+33	1,515352525E+38	4,542912582E+46	1,339717129E+54	2,554970841E+59	2,296293274E+76	2,063805472E+93
Gvar calculated by Gvar search	3,161526771560E-26	2,841438559E-09	2,553757620E+08	2,295202886E+25	8,077608713E+33	1,515352525E+38	4,542912582E+46	1,339717129E+54	2,554970841E+59	2,296293274497E+76	2,063805472E+93
Planck-mass (kg)	mass : mass	mass : impuls	mass : energy	mass : velocity	mass : force	mass : density	mass : pressure	mass : temp.	mass : length	mass : time	mass : accel.
(h-bar*c/G)^(1/2)	1,00000000E+00	3,33564095E-09	1,11265006E-17	3,71140109E-26	1,97836776E-30	1,44441368E-32	8,34221238E-37	1,53617919E-40	3,51767294E-43	1,17336939E-51	3,91393899E-60
2,17650934704E-08	1,10000000E+01	1/((c^1)*(K^0))	1/((c^2)*(K^0))	1/((c^3)*(K^0))	1/((c^3,5)/(K^0,5))	1/((c^3,75)*(K^0,75))	1/((c^4,25)*(K^0,75))	1/((c^2)*(K^0))*k	1/((c^5)*(K^1))	1/((c^6)*(K^1))	1/((c^7)*(K^1))
	1,00000000E+00	3,33564095E-09	1,11265006E-17	3,71140109E-26	1,97836776E-30	1,44441368E-32	8,34221238E-37	1,53617919E-40	3,51767294E-43	1,17336939E-51	3,91393899E-60
	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Planck-impuls (kgm/s)	Impuls : mass	Impuls : Impuls	Impuls : energy	Impuls : velocity	Impuls : force	Impuls : density	Impuls : pressure	Impuls : temp.	Impuls : length	impuls : time	Impuls : accel.
(h-bar*c^3/G)^(1/2)	2,99792458E+08	1,00000000E+00	3,33564095E-09	1,11265006E-17	5,93099734E-22	4,33024328E-24	2,50093235E-28	4,60534934E-32	1,05457182E-34	3,51767294E-43	1,17336939E-51
6,52501087008E+00	((c^1)*(K^0))	((c^0)*(K^0))	1/((c^1)*(K^0))	1/((c^2)*(K^0))	1/((c^2,5)*(K^0,5))	1/((c^2,75)*(K^0,75))	1/((c^3,25)*(K^0,75))	1/((c^1)*(K^0))*k	1/((c^4)*(K^1))	1/((c^5)*(K^1))	1/((c^6)*(K^1))
	2,99792458E+08	1,00000000E+00	3,33564095E-09	1,11265006E-17	5,93099734E-22	4,33024328E-24	2,50093235E-28	4,60534934E-32	1,05457182E-34	3,51767294E-43	1,17336939E-51
	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Planck-energy (kg*m²/s)	energy : mass	energy : Impuls	energy : energy	energy : velocity	energy : force	energy : density	energy : pressure	energie : temp.	energie : length	energy : time	energy : accel.
(h-bar*c^5/G)^(1/2) |z2 --->	8,98755179E+16	2,99792458E+08	1,00000000E+00	3,33564095E-09	1,77806827E-13	1,29817428E-15	7,49760658E-20	1,38064900E-23	3,16152677E-26	1,05457182E-34	3,51767294E-43
1,95614904722E+09	((c^2)*(K^0))	((c^1)*(K^0))	((c^0)*(K^0))	1/((c^1)*(K^0))	1/((c^1,5)*(K^0,5))	1/((c^1,75)*(K^0,75))	1/((c^2,25)*(K^0,75))	((c^0)*(K^0))*k	1/((c^3)*(K^1))	1/((c^4)*(K^1))	1/((c^5)*(K^1))
|z4 --->	8,98755179E+16	2,99792458E+08	1,00000000E+00	3,33564095E-09	1,77806827E-13	1,29817428E-15	7,49760658E-20	1,38064900E-23	3,16152677E-26	1,05457182E-34	3,51767294E-43
|z5 --->	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Pl.-velocity (m/s)	velocity : mass	velocity : impuls	velocity : energy	velocity : velocity	velocity : force	velocity : density	velocity : pressure	velocity : temp.	velocity : length	velocity : time	velocity : accel.
(h-bar*c^7/G)^(1/2)	2,69440024E+25	8,98755179E+16	2,99792458E+08	1,00000000E+00	5,33051457E-05	3,89182857E-07	2,24772590E-11	4,13908157E-15	9,47801882E-18	3,16152677E-26	1,05457182E-34
5,86438731080E+17	((c^3)*(K^0))	((c^2)*(K^0))	((c^1)*(K^0))	((c^0)*(K^0))	1/((c^0,5)*(K^0,5))	1/((c^0,75)*(K^0,75))	1/((c^1,25)*(K^0,75))	((c^1)/(K^0))*k	1/((c^2)*(K^1))	1/((c^3)*(K^1))	1/((c^4)*(K^1))
	2,69440024E+25	8,98755179E+16	2,99792458E+08	1,00000000E+00	5,33051457E-05	3,89182857E-07	2,24772590E-11	4,13908157E-15	9,47801882E-18	3,16152677E-26	1,05457182E-34
	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Planck-force((kg*m)²)/s	force : mass	force : Impuls	force : energy	force : velocity	Force : force	force : density	force : pressure	force : temp.	force : length	force : time	force : accel.
(c^4/G)	5,05467194E+29	1,68605707E+21	5,62408102E+12	1,87599150E+04	1,00000000E+00	7,30103730E-03	4,21671468E-07	7,76488183E-11	1,77806827E-13	5,93099734E-22	1,97836776E-30
1,10015407203E+22	((c^3,5)*(K^0,5))	((c^2,5)*(K^0,5))	((c^1,5)*(K^0,5))	((c^0,5)*(K^0,5))	((c^0)*(K^0))	1/((c^0,25)*(K^0,25))	1/((c^0,75)*(K^0,25))	((c^1,5)*(K^0,5))*k	1/((c^1,5)*(K^0,5))	1/((c^2,5)*(K^0,5))	1/((c^3,5)*(K^0,5))
correction:: see below	5,05467194E+29	1,68605707E+21	5,62408102E+12	1,87599150E+04	1,00000000E+00	7,30103730E-03	4,21671468E-07	7,76488183E-11	1,77806827E-13	5,93099734E-22	1,97836776E-30
(c^4/G)^(1/2)	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Planck-density (kg/m³)	density : mass	density : Impuls	density : energy	density : velocity	density : force	density : density	density : pressure	density : temp.	Density : length	Density : time	Density : : accel.
(c^5/(h-bar*G^2))	6,92322437E+31	2,30933907E+23	7,70312598E+14	2,56948625E+06	1,36966839E+02	1,00000000E+00	5,77550080E-05	1,06353132E-08	2,43536390E-11	8,12349956E-20	2,70970778E-28
2,27058563709E+48	((c^3,75)*(K^0,75))	((c^2,75)*(K^0,75))	((c^1,75)*(K^0,75))	((c^0,75)*(K^0,75))	((c^0,25)*(K^0,25))	((c^0)*(K^0))	1/((c^0,5)*(K^0))	((c^1,75)*(K^0,75))*k	1/((c^1,25)*(K^0,25))	1/((c^2,25)*(K^0,25))	1/((c^3,25)*(K^0,25))
correction:	6,92322437E+31	2,30933907E+23	7,70312598E+14	2,56948625E+06	1,36966839E+02	1,00000000E+00	5,77550080E-05	1,06353132E-08	2,43536390E-11	8,12349956E-20	2,70970778E-28
(c^5/(h-bar*G^2))^(1/4)	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Planck-pressure (kg/m²)	pressure : mass	Pressure : Impuls	Pressure : energy	Pressure : velocity	Pressure : force	Pressure : density	pressure : pressure	pressure : temp.	pressure : length	pressure : time	pressure : accel.
c^7/(h-barr*G^2)	1,19872278E+36	3,99850879E+27	1,33375897E+19	4,44894103E+10	2,37151450E+06	1,73145158E+04	1,00000000E+00	1,84145298E-04	4,21671468E-07	1,40654462E-15	4,69172783E-24
8,3135781763E+72	((c^4,25)*(K^0,75))	((c^3,25)*(K^0,75))	((c^2,25)*(K^0,75))	((c^1,25)*(K^0,75))	((c^0,75)*(K^0,25))	((c^0,5)*(K^0))	((c^0)*(K^0))	((c^2,25)*(K^0,75))*k	1/((c^0,75)*(K^0,25))	1/((c^1,75)/(K^0,25))	1/((c^2,75)*(K^0,75))
correction:	1,19872278E+36	3,99850879E+27	1,33375897E+19	4,44894103E+10	2,37151450E+06	1,73145158E+04	1,00000000E+00	1,84145298E-04	4,21671468E-07	1,40654462E-15	4,69172783E-24
c^7/(h-bar*G^2)^(1/4)	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Planck-temperature (K)	temp. : mass	temp. : Impuls	temp. : energy	temp. : velocity.	temp. : force	temp. : density	temp. : pressure	temp. : temp.	temp. : length	temp. : time	temp. : accel.
(1/k)*(h-bar*c^5/G)^1/2)	6,50965726E+39	2,17138793E+31	7,24297052E+22	2,41599491E+14	1,28784961E+10	9,40263801E+07	5,43049434E+03	1,00000000E+00	2,28988452E-03	7,63823258E-12	2,54784014E-20
1,4168329874E+32	((c^2)*(K^0))*(1/k)	((c^1)*(K^0))*(1/k)	((c^0)*(K^0))*(1/k)	1/((c^1)*(K^0))*(1/k)	1/((c^1,5)*(K^0,5))*(1/k)	1/((c^1,75)*(K^0,75))*(1/k)	1/((c^2,25))*(K^0,75))*(1/k)	((c^0)*(K^0))*(1/k)^0	(1/(c^3)/(K^1))*(1/k)	1/((c^4)/(K^1))*(1/k)	1/((c^5)*(K^1))*(1/k)
k= Bolzmann constant. = b55	6,50965726E+39	2,17138793E+31	7,24297052E+22	2,41599491E+14	1,28784961E+10	9,40263801E+07	5,43049434E+03	1,00000000E+00	2,28988452E-03	7,63823258E-12	2,54784014E-20
	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Planck-length, area, volume (m)	length : mass	Length : Impuls	Length : energy	Length : velocity	Length :force	Length : density	Length : pressure	Length : temp.	length : length	Length : time	Length : accel.
((h-bar*G)/c^3)^(1/2)	2,84278845E+42	9,48252157E+33	3,16302873E+25	1,05507282E+17	5,62408102E+12	4,10616253E+10	8,80164150E-20	1,62078090E-23	1,00000000E+00	3,33564095E-09	1,11265006E-17
1,6161993E-35	((c^10)*(K^2))	((c^8)*(K^2))	((c^6)*(K^2))	((c^4)*(K^2))	((c^1,5)*(K^0,))	((c^1,25)*(K^0,25))	((c^1,5)*(K^0,5))	((c^3)*(K^1))*k	((c^0)*(K^0))	1/((c^1)*(K^0))	1/((c^2)*(K^0))
correction:: reciprocal	2,84278845E+42	9,48252157E+33	3,16302873E+25	1,05507282E+17	5,62408102E+12	4,10616253E+10	3,71140109E-26	3,12243392E-36	1,00000000E+00	3,33564095E-09	1,11265006E-17
1/((hquer*G)/c^3)^(1/2)	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	2,3715144983E+06	3,7114010922E-26	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Planck-time, circular frequency (s)	time : mass	time : Impuls	timet : energy	time : velocity	timet : force	time : density	time : pressure	time : temp.	time : length	time : time	time : accel.
((h-bar*G/c^5)^(1/2))	8,52246537E+50	2,84278845E+42	9,48252157E+33	3,16302873E+25	1,68605707E+21	1,23099656E+19	7,10962161E+14	1,30920339E+11	2,99792458E+08	1,00000000E+00	3,33564095E-09
5,39106065818E-44	((c^6)*(K^1))	((c^5)*(K^1))	((c^4)*(K^1))	((c^3)*(K^1))	((c^2,5)*(K^0,5))	((c^2,25)*(K^0,25))	((c^1,75)/(K^0,25))	((c^4)/(K^1))*k	((c^1)*(K^0))	((c^0)*(K^0))	1/((c^1)*(K^0))
correction: reciprocal	8,52246537E+50	2,84278845E+42	9,48252157E+33	3,16302873E+25	1,68605707E+21	1,23099656E+19	7,10962161E+14	1,30920339E+11	2,99792458E+08	1,00000000E+00	3,33564095E-09
1/((hquer*G)/c^3)^(1/2)	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00
Pl.-acceleration (m/s²)	accell. : mass	Accel.: Impuls	Accel : energy	Accel: velocity	accel. : force	accel. : density	accel.: pressure	accel. : temp.	accel. : length	accel. : time	accel. : accel.
(c^7/(h-bar*G))^(1/2)	2,55497084E+59	8,52246537E+50	2,84278845E+42	9,48252157E+33	5,05467194E+29	3,69043484E+27	2,13141094E+23	3,92489303E+19	8,98755179E+16	2,99792458E+08	1,00000000E+00
5,5609179159E+51	((c^7)*(K^1))	((c^6)*(K^1))	((c^5)*(K^1))	((c^4)*(K^1))	((c^3,5)*(K^0,5))	((c^3,25)*(K^0,25))	((c^2,75)*(K^0,25))	((c^5)*(K^1))*k	((c^2)*(K^0))	((c^1)*(K^0))	c^0*K^0
	2,55497084E+59	8,52246537E+50	2,84278845E+42	9,48252157E+33	5,05467194E+29	3,69043484E+27	2,13141094E+23	3,92489303E+19	8,98755179E+16	2,99792458E+08	1,00000000E+00
	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00	1,0000000000E+00

The original Planck formulas of electr.power, pressure, force and density are without square roots !

The original Planck formulas of electrical voltage, electrical current and temperature contain „external parts" ! as (pi, epsilon0), Boltzmann constant k_B)

The original Planck formulas of length, volume and time are reciprocal versus G ! G in this table is equivalent to Gvar !

Table 4. Matrix with modified formulas of the 11 Planck units.

Original Planck units	„mass	impuls	energy	velocity	force	density	pressure	temperature	length	time	acceleration
precision	1,000000000000E+00	1,000000000000E+00	1,0000000000E+00	1,0000000000E+00	1,000000000000E+00	1,000000000000E+00	1,000000000000E+00	1,000000000000E+00	1,000000000000E+00	1,000000000000E+00	9,999999999999E-01
G_{var} formula	(1/c^3)/(K^3)	(1/C^1)/(K^1)	(c^1)/(K^1)	(c^3)/(K^1)	(c^4)/(K^0)	(c^4,5)*K^(0,5)	(c^5,5)*(K^0,5)	(c^1)/(K^1)	(c^7)*(K^1)	(c^9)*(K^1)	(c^11)*(K^1)
G_{var} determined by target value	3,1615267715596E-26	2,841438559E-09	2,553757620E+08	2,295202886E+25	8,077608713E+33	1,515352525E+38	4,542912582E+46	1,339717129E+54	2,5549708406E+59	2,296293274E+76	2,063805472E+93
G_{var} calcutated by Gvar search	3,1615267715596E-26	2,841438559E-09	2,553757620E+08	2,295202886E+25	8,077608713E+33	1,515352525E+38	4,542912582E+46	1,339717129E+54	2,5549708406E+59	2,296293274E+76	2,063805472E+93
Planck-mass (kg)	mass : mass	mass : impuls	mass : energy	mass : velocity	mass : force	mass : density	mass : pressure	mass : temp.	mass : length	mass : time	mass : accel.
(h-bar*c/G)^(1/2) 2,17643434205E-08	((c^0)*(K^0)) 1,00000000E+00	1/((c^1)*(K^0)) 3,335640951982E-09	1/((c^2)*(K^0)) 1,112650056054E-17	1/((c^3)*(K^0)) 3,711401092197E-26	1/((c^3,5)/(K^0,5)) 1,978367759901E-30	1/((c^3,75)*(K^0,75)) 1,444413681482E-32	1/((c^4,25)*(K^0,75)) 8,342212376559E-37	1/((c^2)*(K^0))*k 1,536179187240E-40	1/((c^5)*(K^1)) 3,517672939591E-43	1/((c^6)*(K^1)) 1,173369391298E-51	1/((c^7)*(K^1)) 3,913938993414E-60
Planck-impuls (kgm/s)	Impuls : mass	Impuls : Impuls	Impuls : energy	Impuls : velocity	Impuls : force	Impuls : density	Impuls : pressure	Impuls : temp.	Impuls : length	impuls : time	Impuls : accel.
(h-bar*c^3/G)^(1/2) 6,52478601079E+00	((c^1)*(K^0)) 2,997924580000E+08	((c^0)*(K^0)) 1,000000000000E+00	1/((c^1)*(K^0)) 3,335640951982E-09	1/((c^2)*(K^0)) 1,112650056054E-17	1/((c^2,5)*(K^0,5)) 5,930997335685E-22	1/((c^2,75)*(K^0,75)) 4,330243279403E-24	1/((c^3,25)*(K^0,75)) 2,500932353527E-28	1/((c^1)*(K^0)) 4,605349344712E-32	1/((c^4)*(K^1)) 1,054571817000E-34	1/((c^5)*(K^1)) 3,517672939591E-43	1/((c^6)*(K^1)) 1,173369391298E-51
Planck-energy (kg*m²/s)	energy : mass	energy : Impuls	energy : energy	energy : velocity	energy : force	energy : density	energy : pressure	Energie : temp.	Energie : length	Energy : time	Energie : accel.
(h-bar*c^5/G)^(1/2) 1,95608163610E+09	((c^2)*(K^0)) 8,987551787368E+16	((c^1)*(K^0)) 2,997924580000E+08	((c^0)*(K^0)) 1,000000000000E+00	1/((c^1)*(K^0)) 3,335640951982E-09	1/((c^1,5)*(K^0,5)) 1,778068269657E-13	1/((c^1,75)*(K^0,75)) 1,298174276470E-15	1/((c^2,25)*(K^0,75)) 7,497606575555E-20	((c^0)*(K^0))*k 1,380649000000E-23	1/((c^3)*(K^1)) 3,161526771560E-26	1/((c^4)*(K^1)) 1,054571817000E-34	1/((c^5)*(K^1)) 3,517672939591E-43
Pl.-velocity (m/s)	velocity : mass	velocity : impuls	velocity : energy	velocity : velocity	velocity : force	velocity : density	velocity : pressure	velocity : temp.	velocity : length	velocity : time	velocity : accel.
(h-bar*c^7/G)^(1/2) 5,86418521735E+17	((c^3)*(K^0)) 2,694400241737E+25	((c^2)*(K^0)) 8,987551787368E+16	((c^1)*(K^0)) 2,997924580000E+08	((c^0)*(K^0)) 1,000000000000E+00	1/((c^0,5)*(K^0,5)) 5,330514570522E-05	1/((c^0,75)*(K^0,75)) 3,891828572554E-07	1/((c^1,25)*(K^0,75)) 2,247725904402E-11	((c^1)*(K^0))*k 4,139081573452E-15	1/((c^2)*(K^1)) 9,478018818786E-18	1/((c^3)*(K^1)) 3,161526771560E-26	1/((c^4)*(K^1)) 1,054571817000E-34
Planck-force((kg*m)²)/s	force : mass	force : Impuls	force : energy	force : velocity	Force : force	force : density	force : pressure	force : temp.	force : length	force : time	force : accel..
(c^4/G) 1,21025556434E+44	((c^7)*(K^1)) 2,554970840585E+59	((c^5)*(K^1)) 2,842788448992E+42	((c^3)*(K^1)) 3,163028727119E+25	((c^1)*(K^1)) 3,519344090529E+08	((c^0)*(K^0)) 1,000000000000E+00	1/((c^0,5)*(K^0,5)) 5,330514570522E-05	1/((c^1,5)*(K^0,5)) 1,778068269657E-13	((c^3)*(K^1))*k^2 6,029338983774E-21	1/((c^3)*(K^1)) 3,161526771560E-26	1/((c^5)*(K^1)) 3,517672939591E-43	1/((c^7)*(K^1)) 3,913938993414E-60
Planck-density (kg/m³)	density : mass	density : Impuls	density : energy	density : velocity	density : force	density : density	density : pressure	density : temp.	Density : length	Density : time	Density : : accel.
(c^5/(h-bar*G^2)) 5,15484850640E+96	((c^15)*(K^3)) 2,297384181106E+127	((c^11)*(K^3)) 2,844138980626E+93	((c^7)*(K^3)) 3,521016035385E+59	((c^3)*(K^3)) 4,358983160067E+25	((c^1)*(K^1)) 3,519344090529E+08	((c^0)*(K^0)) 1,000000000000E+00	1/((c^2)*(K^0)) 1,112650056054E-17	((c^3)*(K^2,5)*k^2,5) 1,278108569655E-32	1/((c^5)*(K^1)) 3,517672939591E-43	1/((c^9)*(K^1)) 4,354844440413E-77	1/((c^13)*(K^1)) 5,391254509977E-111
Planck-pressure (kg/m²)	pressure : mass	Pressure : Impuls	Pressure : energy	Pressure : velocity	Pressure : force	Pressure : density	pressure : pressure	pressure : temp.	pressure : length	pressure : time	pressure : accel.
c^7/(h-bar*G^2) 4,6329467907E+113	((c^17)*(K^3)) 2,064785930317E+144	((c^13)*(K^3)) 2,556184637885E+110	((c^9)*(K^3)) 3,164531396218E+76	((c^5)*(K^3)) 3,917658689137E+42	((c^3)*(K^1)) 3,163028727119E+25	((c^2)*(K^0)) 8,987551787368E+16	((c^0)*(K^0)) 1,000000000000E+00	((c^9)*(K^3))*k 1,149853574174E-15	1/((c^3)*(K^1)) 3,161526771560E-26	1/((c^7)*(K^1)) 3,913938993414E-60	1/((c^11)*(K^1)) 4,845417910730E-94
Planck-temperature (K)	temp. : mass	temp. : Impuls	temp. : energy	temp. : velocity.	temp. : force	temp. : density	temp. : pressure	temp. : temp.	temp. : length	temp. : time	temp. : accel.
(1/k)*(h-bar*c^5/G)^1/2) 1,4167841617E+32 k= Bolzmannkonst. k_B	((c^2)*(K^0)) 6,509657260729E+39	((c^1)*(K^0)) 2,171387934225E+31	((c^0)*(K^0)) 7,242970516040E+22	1/((c^1)*(K^0)) 2,415994906730E+14	1/((c^1,5)*(K^0,5)) 1,287849605263E+10	1/((c^1,75)*(K^0,75)) 9,402638009156E+07	1/((c^2,25))*(K^0,75)) 5,430494336761E+03	((c^0)*(K^0)) 1,000000000000E+00	1/((c^3)*(K^1)) 2,289884519208E-03	1/((c^4)*(K^1)) 7,638232577578E-12	1/((c^5)*(K^1)) 2,547840138653E-20
Planck-length (m)	length : mass	Length : Impuls	Length : energy	Length : velocity	Length :force	Length : density	Length : pressure	Length : temp.	length : length	Length : time	Length : accel.
((h-bar*G)/c^3)^(1/2) 1,6162550E-35	1/((c^5)*(K^1)) 3,517672939591E-43	1/((c^4)*(K^1)) 1,054571817000E-34	1/((c^3)*(K^1)) 3,161526771560E-26	1/((c^2)*(K^1)) 9,478018818786E-18	1/((c^1,5)*(K^0,5)) 1,778068269657E-13	1/((c^1,25)*(K^0,25)) 2,435363902107E-11	1/((c^0,75)*(K^0,25)) 4,216714680479E-07	1/((c^3)*(K^1)) 2,289884519208E-03	1/((c^0)*(K^0)) 1,000000000000E+00	((c^1)*(K^0)) 2,997924580000E+08	((c^2)*(K^0)) 8,987551787368E+16
Planck-time (s)	time : mass	time : Impuls	timet : energy	time : velocity	timet : force	time : density	time : pressure	time : temp.	time : length	time : time	time : accel.
((h-bar*G/c^5)^(1/2)) 5,39124644666E-44	1/((c^6)*(K^1)) 1,173369391298E-51	1/((c^5)*(K^1)) 3,517672939591E-43	1/((c^4)*(K^1)) 1,054571817000E-34	1/((c^3)/(K^1)) 3,161526771560E-26	1/((c^2,5)*(K^0,5)) 5,930997335685E-22	1/((c^2,25)*(K^0,25)) 8,123499564845E-20	1/((c^1,75)/(K^0,25)) 1,406544617103E-15	1/((c^4)/(K^1)) 7,638232577578E-12	1/((c^1)*(K^0)) 3,335640951982E-09	1/((c^0)*(K^0)) 1,000000000000E+00	((c^1)*(K^0)) 2,997924580000E+08
Pl.-acceleration (m/s²)	accell. : mass	Accel.: Impuls	Accel : energy	Accel: velocity	accel. : force	accel. : density	accel.: pressure	accel. : temp.	accel. : length	accel. : time	accel. : accel.
(c^7/(h-bar*G))^(1/2) 5,5607262804E+51	((c^7)*(K^1)) 2,554970840585E+59	((c^6)*(K^1)) 8,522465366973E+50	((c^5)*(K^1)) 2,842788448992E+42	((c^4)*(K^1)) 9,482521568277E+33	((c^3,5)*(K^0,5)) 5,054671938499E+29	((c^3,25)*(K^0,25)) 3,690434837928E+27	(c^2,75)*(K^0,25)) 2,131410936807E+23	((c^5)*(K^1))*k 3,924893029312E+19	((c^2)*(K^0)) 8,987551787368E+16	((c^1)*(K^0)) 2,997924580000E+08	c^0*K^0 1,000000000000E+00

The original Planck formulas of electr.power, pressure, force and density are without square roots !
The original Planck formulas of electrical voltage, electrical current and temperature contain „external parts" ! as (pi, epsilon0), Boltzmann constant k_B)
The original Planck formulas of length, volume and time are reciprocal versus G ! G = Gvar in this table

In the middle, "line 3" is the formula for the conversion from the speed of light and the constant $K\alpha'$ alone.

The value in "line 4" represents the application of formula in line 3 and is exactly the same value as in line 2. Thus, the accuracy of the constant $K\alpha'$ can be set very high.

The value in "bottom line 5" contains a test value. This value results from the multiplication of the conversion factor with the other conversion factor, which is set if one wants to undo the conversion. If the check value is equal to =1.00000000, the calculations "to and fro" are conform.

Theoretically, one would expect that every field in line 5 contains a 1.0000E+00. Unfortunately, this does not occur as already seen in **Table 2**. More than half of the units listed here do not work with the original Planck formulas in both directions. However, the functionality of the formulas can be established by some relatively minor changes. The formulas for the Planck force and the Planck length got a square root and the formula for the density got a root of 4. For some units, the reciprocal of the Planck formula produces the desired conformity. This ensures that no quantitative changes have been made.

Table 4 corresponds to **Table 3**. It shows the original Planck formulas and the modified formulas of 11 Planck Units. All test fields (line 5 each) now show a 1.0000000E+00. This means that with the help of these factors, arbitrary conversions can be carried out and one always comes back to the starting point, if one so wishes. Thus, it is possible, for example, to represent all units as a fraction of the time standard. Since the time standard can be determined with high precision with the help of the modern atomic clocks, one could determine with it also the other unit standards precisely, as well as transfer, compare and correct those.

The formulas in line 5 are no longer required for working with **Table 3** and **Table 4**. They were only used to detect backwards conformity. However, line 5 is handy for calculations or conversions in the original spread sheets of **Table 4**. It can be obtained from the author. In **Table 4**, the redundant lines 2 and 5 have been removed. In this form, it will be most suitable for normal mathematical operations.

6. Conclusions

In order to show the effects of releasing the gravitational constant from its rigidity, a system of units is proposed, which is hidden in the Planck units and whose formulas are used for the derivation, but in the end are completely independent of the Planck formulas.

The units are connected by conversion factors, which also reflect the equivalence of relations. The condition is that the "gravitational constant" is not accepted as constant, but as variable. The application of this system will be interesting, especially for the measuring and calibration technology by limiting oneself to the provision, maintenance and care of an original measure and deriving the other measures from it. The application of this system will be of particular interest to metrology and calibration technology by limiting itself to the provision, maintenance and care of one original measure and deriving the others from it. In addition, the system presented here may stimulate further research in the field of physical units. For example, we were able to show that at least, the constant $\bar{h}$, similar to the Planck units, can be traced back to c and K.

$$\bar{h} = \frac{1}{c^4 K}$$

Note: If interested, a functional **Table 2** or **Table 3** can be requested by email from the author as a spreadsheet. These spreadsheets with descriptions can be used to perform extensive calculations.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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