Pohl, M. U. E., Steps to the World Formula - Comparison of the dimensionless ToE of S. Pellis and S. Jarvis with the dimensioned ToE of M.U.E. Pohl - Are there natural constants ? Are there physical dimensions?

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Steps to the World Formula…
Comparison of the dimensionless ToE of S. Pellis and S. Jarvis with the dimensioned ToE of M.U.E. Pohl.
Are there natural constants ? Are there physical dimensions?

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Abstract

In 2019, the author postulated "12 π c^3 =1" as a framework for a final ToE (Theory of Everything) and worked this out over the years until 2024 into the world formula "Space / Time = 12 π^3". Here, the competing approaches of Stergios Pellis and Stephen Jarvis, both of whom present a dimensionless number theory as ToE, will be briefly compared and placed in an overall picture. Finally, it will be briefly discussed whether and in what form natural constants can exist and what distinguishes a dimensionless world formula from a dimensional world formula.

Content

1 The world formula according to M.U.E. Pohl

In 2019, the author formulated the hypothesis as a framework for a Theory of Everything

$$12\,\pi\,c^3 = 1 \qquad\qquad (1)$$

Derived from the fundamental idea that three-dimensional space must have three axes in the dimension length / time. (here written as "c" in the sense of Einstein's constant speed of light "length / time = constant", c here represents the physical unit meter/second). The connection arises from the idea that the volume of a sphere must be differentiated twice in the sense of

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$$\frac{d}{dc}\left[\frac{d}{dc}[c^3]\pi c^2\right] = constant \rightarrow 12\,\pi\,c^3 = 1 \qquad (2)$$

In his further work, the author has worked out that the number of circles π must be the only constant of nature and reflects the relationship between time and space.

$$\pi = \frac{Time\ (Rotation)}{2\cdot Length\ (Radius)} = \frac{1}{2}\ [\frac{Second}{Meter}] \qquad (3)$$

This means that the context (2) can be understood in such a way that one can replace "c" as the ratio of length / time and "π" as the ratio of time / length. Transferred to three-dimensional space, this means, for example,

"World Formula" $\qquad\qquad 12\,\pi^3 = \frac{Time}{Length} \qquad (4)$

Interpretation: With the "world formula", the dimensionless circle number π is no longer understood only as a dimensioned constant, but as a dimensioned "variable", i.e. a freely scalable ratio of the unit dimension "time" to the dimension "length". It can also be said that there is only the physical unit "time / length" and of course the reciprocal "length / time".

To put it more figuratively: If one understands the circle number π as a two-dimensional structure "circle" (time / length) with the area 1^2, this structure appears from any perspective in three-dimensional space with identical distance to the center of the circle with an area of 0^2 to a maximum of 1^2. In three-dimensional space, a circle is therefore always to be understood as an ellipse and one can calculate the area A of an ellipse

$$A_{ellipse} = r_1\,r_2\,\pi = function\ (\pi, r_1, r_2) \qquad (5)$$

Reinterpret in such a way that the number of circles π is not a constant, but a variable that depends on the observer's point of view.
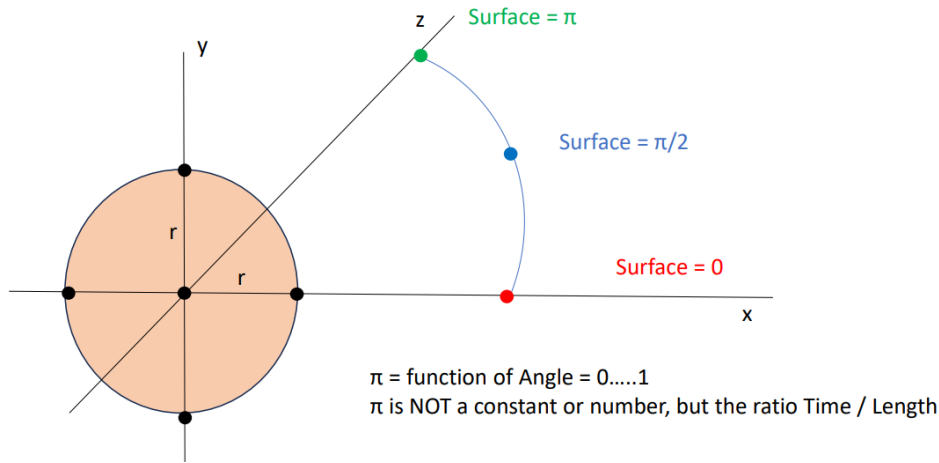
$$\pi = function\ (A_{ellipse},\ r_1, r_2) \qquad (6)$$

Transferred to three-dimensional space, one can write in general as a world formula

„World Formula „ $\qquad\qquad \pi = function\ (x, y, z, t^2) \qquad (7)$

Where (x,y,z) represents the observer's position in three-dimensional space, looking at a circle.

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Understanding that π is Einsteins constant „speed of light"

Depending on the angel of view of the Observer (● , ● or ●) a circle (2D) appears to be a perfect circle, an Ellipse or a straight line (1D). At an angle of 90° (right angle) the surface is maximal Surface = π r² (Speed of light = right angle), inbetween the surface is the surface of an ellipse (Surface = π r1 r2) and at 0° the Surface is Zero.

Surface = π

Surface = π/2

Surface = 0

π = function of Angle = 0.....1
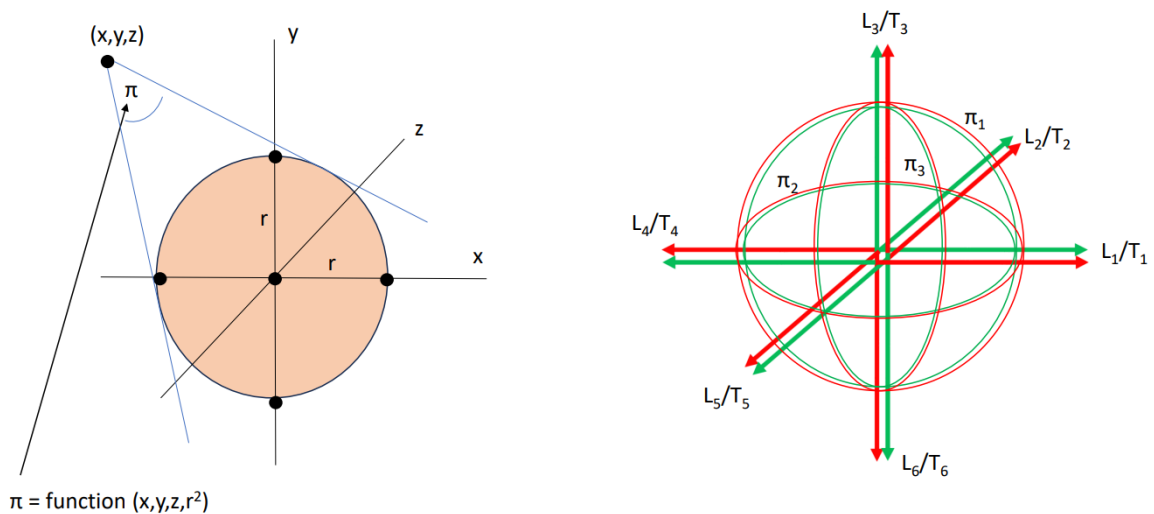π is NOT a constant or number, but the ratio Time / Length

Since a sphere in three-dimensional space has three axes of rotation, one can write on the three-dimensional space

„World Formula „
$$\pi^3 = \left(\frac{T}{L}\right)^3 = function \left(\frac{T_1}{L_1}, \frac{T_2}{L_2}, \frac{T_3}{L_3}\right) \qquad (8)$$

It is shown that space-time is, after all, 12 dimensional.

12 Dimensional Space-Time as „Ether"

π = function (x,y,z,r²)

And

„World Formula „
$$E = mc^2 \quad \to \quad Surface = \pi\, r^2 \qquad (9)$$

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The speed of light is to be understood as a "right" angle. Figuratively speaking: If you look at a circle in a three-dimensional space with a circle area of 1 meter^2, then depending on the angle of view, the circle appears as a straight line with an area of 0, as an ellipse with an area of 0<area<1 or at most with an area of 1.

The only natural constant (4) is free to choose. This is to be understood as follows:

$$\text{"World Formula"} \qquad 12\,\pi^3 \;=\; \frac{Time}{Length} = 372{,}0753202.. \qquad (10)$$

Either one understands the world formula as a "dimensionless" mathematical "number theory" in which the only natural constant is the irrational and transcendent "number" 372.0753202.... or the world formula is understood as a dimensional physical theory in which the only dimensionless constant is the number "12" and the relation of time to space is determined by the choice of any "center" of the universe as the observer position.

Figuratively speaking, if you want to "describe" the universe in a mathematical form, i.e. make it intersubjectively measurable, you have to choose a coordinate origin in the sense of an agreement arbitrarily. In order to be able to compare measurement results, the coordinate origin of the universe could be placed in example either in the center of the Earth, in the center of the Sun, in the center of Mars or Venus, or in any other celestial body around which the universe should then revolve.

Because originally (in 1793 in the context of the French Revolution) the units "meter" and "second" were chosen "arbitrarily" on the basis of the circumference of the earth and the duration of the earth's rotation, the world formula $12\,\pi^3$ = Time / Length can be confirmed to be correct on base of (7)

$$\text{„World Formula „} \qquad \pi^3 = function\,(x, y, z, t^2)$$

$$\pi^3 = \frac{Earth_{Circumference}^2}{2 \cdot speed\ of\ ligth} \cdot \frac{1}{Eearth\_Day} \qquad (11)$$

$$Speed\ of\ Ligth = \frac{40078091{,}23^2\ m^2}{2 \cdot 86400\ s} \cdot \frac{1}{\pi^3} = 299792458\,\frac{m^2}{s} \qquad (12)$$

The relative deviation between the circumference of the Earth, calculated here from the speed of light, and the mean circumference of the Earth at the equator of 40075017m (WGS 84) given in the literature, is $7.6706 \cdot 10^{-5}$. The deviation is thus in the range of the relative uncertainty of the gravitational constant in the third power and thus in the expected value range.

This world formula thus predicts that all dimensional constants in physics are ultimately determined by the geometric properties of the orbits of the celestial bodies around the center of the universe (e.g. the center of the earth).

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Thus, the incompatibility of quantum theory and general relativity results from the fact that in electrodynamics the center of the universe was arbitrarily placed in the center of the earth by choice of physical units, while in gravitational theory the center of the universe was placed in the gravitational center of the universe, which simply cannot be known (and is projected into the Big Bang). Thus, the general theory of relativity lacks a point of reference.

2 The dimensionless Theory of Everything of S. Pellis

While the author proposed in 2019 the circle number π as only fundamental constant in nature on which all physics is grounded, in 2021 Stergios Pellis proposed [12] to explain the fine structure constant α on base on the Golden Angle and the Golden mean.

$$\alpha^{-1} = 360\ \varphi^{-2} - 2\varphi^{-3} + (3\varphi)^{-5}$$

Building on this, Stergios Pellis creates an impressive work on a "dimensionless" theory of everything, which is based on the circle number π, the golden ratio phi and Eulerian identity. [13]. The work of Stergios Pellis proves that it is possible to reduce all known constants and theories of physics to a pure number theory, in which ultimately the only constant is the circle number π as the "constant" of nature. Both the golden ratio and Euler's identity as well as all other mathematical constants can be geometrically traced back to the circle and thus the circle number π. In this way, the golden ratio φ can easily be constructed geometrically with compasses and rulers, i.e. traced back to the number of circles π. The problem for Stergios Pellis, however, is that without applying the dimensions of length and time in a dimensionless theory, the "ruler" to trace phi back to only Pi is figuratively missing. The work of Pellis is incredibly valuable and important insofar as it proves that there are and can be no "physical", i.e. dimensional constants, and ultimately only mathematical constants exist.

At the same time, however, Stergios Pellis thesis proves that a reduction of known physics to a physical principle is not possible with a dimensionless theory. A number theory as the basis of physics retains the lack of the use of dimensionless constants, which do not allow explanatory content about physical principles.

3 Zero-Dimensional Number Theory by S. Jarvis

In 2018 Stephen Jarvis suggested to use an algorithm bases on Phi and Pi as a dimensionless approach to explain the nature of time and space: "Golden ratio axioms of time and Space" [14]. In an extensive work, Stephen Jarvis also developed his approach into a comprehensive and impressive "Zero dimensional Number Theory"
In 2023 Jarvis summarized [15]

> *"These features are derived and accommodated in the zero-dimensional number theory per the dialectic mathematical relationship of the two derived equations for time and space, namely $t_B + 1 = t_A$ (where $t_B^2 = t_A$) and $e_t{}_B{}^{i\pi} + 1_{tN} = 0_{tA}$ respectively. This then translates to a geometric mathematical model of reality that demonstrates its capacity*

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for harboring and communicating all the known data of physical theories, constructing a model of this solar system correct to all its equations, constants, and relative dimensional scales, except for how the stars are proposed to manifest. "

Like Stergios Pellis, also Stephen Jarvis shows that all known natural constants and data can simply be traced back to a dimensionless number theory, which is ultimately based solely on the circle number Pi and its derivatives in the sense of the golden ratio and Euler's identity.

The impressive work of Stephen Jarvis also underlines the author's conclusion, namely that the world formula is ultimately a theory based solely on a single natural constant, namely the circle number π .

But here, too, the author's criticism remains of the fact that a pure number theory reveals nothing about the "physical" principles in the "engine room" of the universe.

4 Discussion on the question of the existence of natural constants.

In principle, natural constants are supposed to be constant independent of space and time. What can be considered a natural constant therefore depends on the state of science and the system of units used and the dimensions. In principle, only constants can be fundamentally independent of space and time if their differential by length or time is zero. Since in the current SI system of units (according to the theories of Einstein and Planck) ultimately all the natural constants underlying the base units (hyperfine frequency of CS133, the elementary charge, the speed of light, the Planck constant, etc.) are all dependent on space and time, only the mole, i.e. the Avogadro constant (dimension number) underlying to the mole, remains as a candidate for a fundamental constant, because all dimensional constants are not independent of time and space.

This brings us directly to the "engine room" of physics, which ultimately represents the interface between physics and biology and chemistry. The Context

Avogadro Constant (Dimension Number) =
Faraday Constant (Dimension Charge) / Elementary Charge (Dimension Charge)

(Faraday's Laws of 1834) forms the "cause" or the foundation of quantum theories, because here a ratio of physical phenomena is formed and a ratio number is introduced as a natural constant, which of course then makes nature "quantized", i.e. "discrete", into the natural numbers and states in the foundation that nature must be a pure number theory.

On the other hand, the author points out that dimensionless numbers or natural constants cannot exist outside of the known mathematical constant "π", because a dimensionless constant can only ever represent a ratio of identical physical units (quantities). For example, one could determine by measurements that the diameter of the moon to 10 decimal places has always been exactly the dimensionless ratio of "3" (meters / meter) for 10,000 years. But such must

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not occur at all in the formation of theories of physics, for even if this relation appears constant to man through experience and statistics, it must not be elevated to a law of nature. The reason for this is that theories have to be confirmed by measurements or have to be falsifiable. However, a theory that uses a measurement result (dimensionless comparison number) as a premise, i.e. as a postulate, is no longer falsifiable.

This summarizes the current state of science: Because quantum theory and theories of relativity use dimensionless constants as a premise, they are neither compatible nor falsifiable and form two competing worldviews, each using a different center of the universe (in space and time) as the coordinate origin.

Basically, the work of Pellis and Jarvis shows that a theory of everything or a world formula is possible and must be worked out. On the other hand, the author's work suggests that ultimately a dimensionless theory would only conceal the existing flaw in physical theories and cannot be a substitute for a pure physical theory.

Only a revision of the system of units and the reduction of the dimensions of space and time to the circle number π allows science to highlight the absolute necessity of uniting all scientists, nations and continents of the earth (and thus all people on earth) on a common center in the universe (the common "God", so to speak) as the most urgent problem and necessity.

As long as – figuratively speaking – the people of Earth do not agree on a common center and agree on a common standard of comparison, there will be disputes between people and nations about the validity of the respective world view. Wars will be waged accordingly. To prevent this, the intention was actually to create a uniform, binding system of measurement (e.g. the metric system). A "dimensionless" number theory as a "world formula" would distract and unsettle the people of planet Earth, keep them permanently disoriented and lead them into an endless, humanity-destroying war over the countless arbitrary competing world views.

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References and Conflict of Interest

The author declares that there are no conflicts of interest and that all his work specifically on the topic of "time" in physics (2008 – 2024)[1][2][3][4][5][6][7][8][9][10][11] has been created through self-funded projects and essentially refers only to the ideas of Isaac Newton and Albert Einstein. Comparisons are made with the alternative approaches of Stergios Pellis [12],[13] and Stephen Jarvis [14],[15],[16].

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