

## The universal validity of the global formula

The world formula ought to contain the universal space-time quantum and the universal timing cycle, which we discussed in the previous Chapters. They would then look like this:

$$\text{Space - time quantum} = \frac{\left(\frac{\sqrt{10}}{3}\right)^2}{1,00100100} = 1,11$$

Or as a description of the energy in the space balls:

$$E = \sqrt{10} = \sqrt{1,00100100100\dots \cdot 1,11 \cdot 3^2}$$

But I have chosen the form of  $\hbar \cdot c = \sqrt{10} \cdot l_p$ , because it contains the well-known physical constants with  $c$  and  $\hbar$ .

A grand unified theory has universal validity, and therefore it consists of the number one. If there are extraterrestrial highly developed civilizations, which certainly have a different numbering system and other definitions of length and time, the universal formula is valid also with them in the above form.

The speed of light  $c$  and the smallest effect  $\hbar$  have the value we know because of our earthly determinations of length and time units. The meter is based on the circumference of the earth and our second on the orbital period of the Earth around the sun, so our earthly years. These measurement units have been clarified in the international determination and now are based on the speed of light.

If other civilizations in the universe, for example inhabit a planet twice as big as our Earth, and attribute their unit length on the perimeter of their planet, they would obtain a different numerical value for the speed of light with their years as a unit of time duration. Thus they would have a different value for the Planck constant, because this constant depends on the definition of the speed of light. Thus, the quantized variables, the so called modified Planck units, are "earthly sizes" because they depend on the definition of the speed of light with our measurement units.

The numerical values of the fundamental constants of nature on the left side of the global formula depend on the length and time definition of individual civilizations; the right side of the global formula, however, is universally valid. In other words: the physics that we operate is "earthly" because it is based on earthly measurement units, and only through transformation with the global formula it can attain universal validity. Each civilization can make physics with its numbering system and its measurement units. But in the entire universe, all physical phenomena are ultimately attributed to the global formula.

The famous physicist Max Planck, in answer to the discovery of the quantum of action, has found the importance of this natural constant, but he could not have guessed that it is only the product of the universal global formula. He defined the Planck units and the following quote gives an indication of the priority given by Planck admitted to these units:

*"... .. retain necessary their significance for all times and for all, also aliens and nonhuman cultures and which therefore can be described as natural Mass units."*

Under their number system, another civilization would receive another numerical value, but the components of the formula with the world timing cycle 1.00100100 ... and the space-time Quantum 1,11 are universal valid because they are based on the number 1. Not the number 10 is the foundation of the global formula, but the timing cycle and the quantum space-time, because each number system is based on the number one.

If we were ever to communicate with an alien, highly developed civilization, these universal elements of the global formula would form the basis for this. Certainly other cultures have a different numbering system and other characters for the numbers. But the number one is universal and therefore also forms the basis of the Global formula.