

# Unified Principles of Nature: List of Physical Quantities after Correction of Definition of Time and Planck's Constant in Base-SI-Units

Manfred U. E. Pohl\*

14.2.2020

## Abstract

Within "Solution to the Problem of Time I,II,III and IV [1,2,3] the author explored how to transform a 4-D Spacetime into a 5-D Spacetime consisting of 3 spacelike dimension and two timelike dimension. It was shown that in contrast to Theory of Special Relativity and Theory of General Relativity each time-dimension must be treated as 3-dimensional vector. Then two time-vectors (action + reaction) will resolve to a symmetric balance of forces. It was unveiled that today Quantum Theory and Theory of General Relativity cannot merge because of a wrong-treatment of the Dimension of time. In this paper the author gives Information on how the Physical Quantities in Base-SI-Units will be described after a fusion of Quantum Theory and General Relativity.

(Paper under Construction – Please report if you find mistakes)

## 1. Introduction

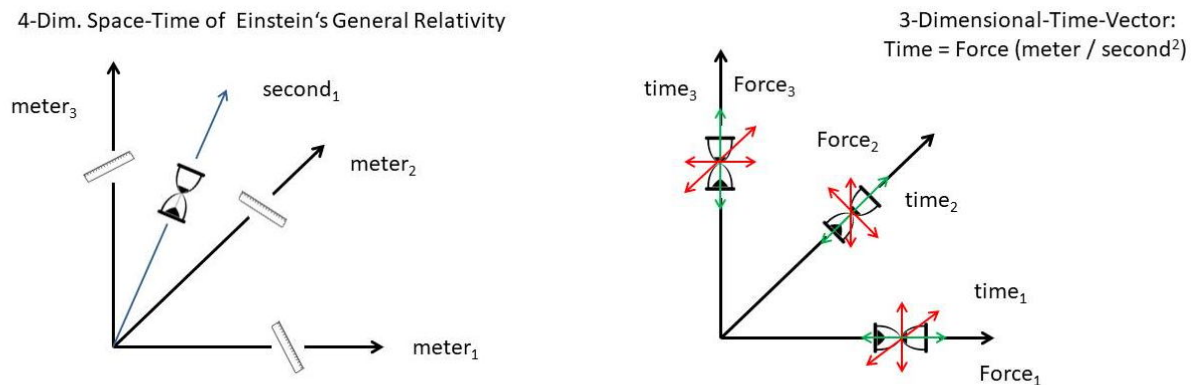


Fig.1: Limited Space-Time as used in General Relativity of Einstein vs. 3-Dimensional "Real" Time unleashed. As Time is proportional to acceleration of mass, time must be measured as full 3-D Vector with a "gravitational" clock, because time is originally defined and perceived as angular motion in Solar System. One can try this using an Hour-Glass: While accelerating the Hour-Glass orthogonal to the axis of measurement, no time is measured. Using an Hour-Glass "time" (as being proportional to Force) has no "arrow", but can point in any direction back and forth.

\* Correspondence: Manfred U. E. Pohl, Independent Researcher, Germany. Email: [contact@manfred-pohl.de](mailto:contact@manfred-pohl.de)

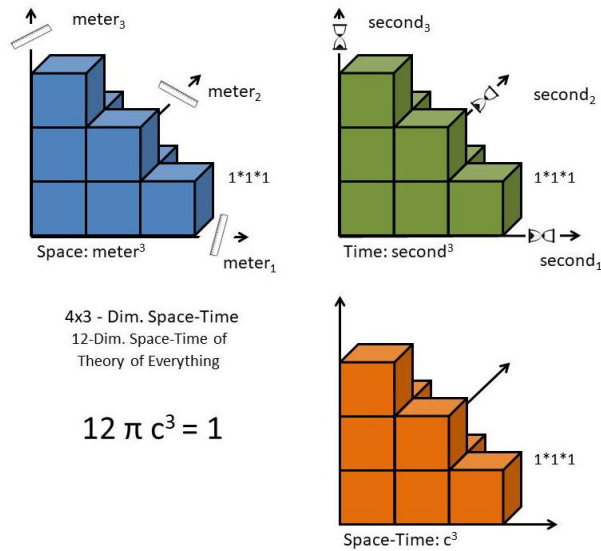


Figure 2.: 3-Dimensional Space meets 3-Dimensional Time – The actor (Universe as living Being ) is represented with another 2<sup>nd</sup>. 3-Dim-Time-dimension “detached” from space : 3\*3 + 3 dimension unveils a 12-dimensional Universe.

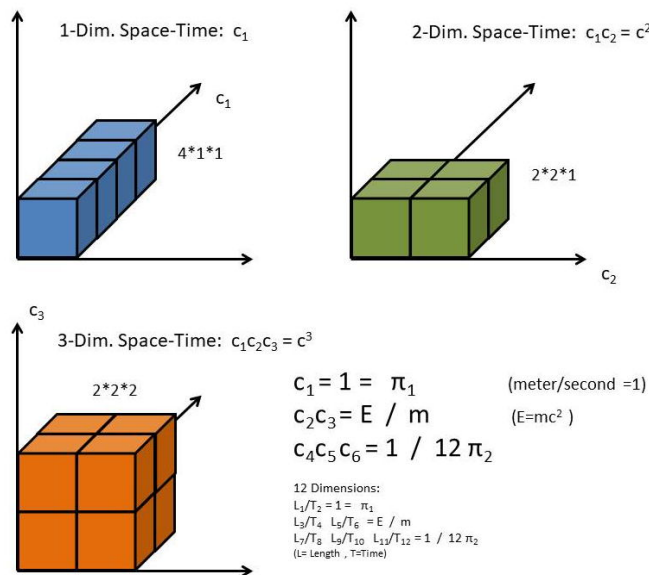


Figure 3.: Energy = Information in 12-Dimensional Space

## 2. List of Physical Units

After a correction of the definition of meter of lengths of space-time-plasma and a second of time in space-time-plasma:

**The second, symbol s, is the SI unit of time. It is defined by taking the fixed numerical value of the speed of light c when expressed in the unit s m<sup>-1</sup> :**

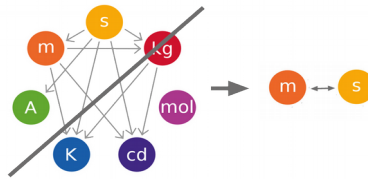
**One second is the duration “Photons” needs to travel c meters.**

**The meter, symbol m, is the SI unit of length. It is defined by taking the fixed numerical value of the speed of light c when expressed in the unit m s<sup>-1</sup>:**

**One meter of length is the distance “Photons” travels in 1/c seconds.**

The list of physical Quantities can be expressed in “Meter” and “Second”, while some Units become obsolete due to the correction of the inverse proportional relation of Energy in today's Quantum-Theory and Theory of general Relativity.

(The author informs that there is a printing error in the original first paper [1], where electric current is denoted as  $s^3/m^2$ , while it must be denoted Ampere =  $s / m^2$ )



**Error in today physics due to wrong Definition of "time":**

Plancks constant wrong	h	Joule s	$m^6 / s^4$
Plancks constant correct	h	$kg^{-1} s$	$s^4 / m^4$

**Table of some Quantities after correcting Definition of "time" in Base-SI-Units:**

Time	t	second	s
Length	l	Meter	m
Velocity	v	m/s	m / s
Electric Current	I	Ampere	$s / m^2$
Magnetic Field Strength	H	A/m	$s / m^3$
Acceleration	a	$m/s^2$	$m / s^2$
Electric Charge	q	Coulomb	$s^2 / m^2$
Temperature	T	Kelvin (K)	$m^3 / s^2$
Entropy	S	J/K	$m^3 / s^3$
Mass	m	kilogram	$m^4 / s^3$
Force	N	Newton	$m^5 / s^5$
Energy		Joule (J)	$m^6 / s^5$
Power	P	Watt	$m^6 / s^6$
Magnetic Flux Density	B	Tesla	$m^6 / s^6$
Amount of Substance	n	Mole (mol)	$m^6 / s^6$
Luminous Intensity	L	Candela (cd)	$m^6 / s^6$
Permeability	$\mu_s$	H/m	$m^7 / s^6$
Magnetic Flux	$\Phi$	Weber (Wb)	$m^8 / s^6$
Electric Field Strength		V / m	$m^7 / s^7$
Electric Potential	$\varphi$	Volt	$m^8 / s^7$
Inductance	H	Henry	$m^{10} / s^7$
Capacitance	C	Farad	$s^9 / m^{10}$
Electric resistance	Z	Ohm	$m^{10} / s^8$

**Units of Natural Constants**

Fine-structure-constant	$\alpha$		m / s
Gravitational constant	G		s / m
Electric Charge	q	Coulomb	$s^2 / m^2$
Boltzmann's constant	$k_B$		$s^3 / m^3$
Planck's constant	h		$s^4 / m^4$

$$F = m * a = [m^4/s^3] * [m/s^2] = [m^5/s^5] = [\text{Newton}]$$

$$E_{\text{kin}} = \frac{1}{2} m v^2 = [m^4/s^3] * [m^2/s^2] = [m^6/s^5] = [\text{Joule}]$$

$$1/m = h f = [s^4/m^4] * [1/s] = [s^3/m^4] = [kg^{-1}]$$

$$a = [m/s^2] \quad \text{inverse time-flux to}$$

$$I = [s/m^2]$$

$$R = U / I = [m^8/s^7] / [s/m^2] = [m^{10}/s^8]$$

$$P = U * I = [m^8/s^7] * [s/m^2] = [m^6/s^6]$$

$$E_{\text{el}} = P * t = [m^6/s^6] * [s] = [m^6/s^5] = [\text{Joule}]$$

$$E_{\text{Capacitor}} = \frac{1}{2} C U^2 = [s^9/m^{10}] * [m^{16}/s^{14}] = [m^6/s^5] = [\text{Joule}]$$

$$E_{\text{Inductance}} = \frac{1}{2} L I^2 = [m^{10}/s^7] * [s^2/m^4] = [m^6/s^5] = [\text{Joule}]$$

### 3. References

1. Pohl M U E 2019, Unified Principels of Nature: Solution to the Problem of Time. Scientific GOD Journal Volume 10 Issue 3 : <https://scigod.com/index.php/sgj/issue/view/93>
2. Pohl M U E 2020, Unified Principels of Nature: Solution to the Problem of Time II +III. Scientific GOD Journal Volume 11 Issue 1 : <https://scigod.com/index.php/sgj/article/view/718>
3. Pohl M U E 2020 : Unified Principels of Nature: Solution to the Problem of Time IV: <https://vixra.org/abs/2002.0238>
4. Pohl M U E 2020 :It takes a Decision to Decide if Decidability is True or False,: [https://fqxi.org/data/essay-contest-files/Pohl It takes a Decision to.pdf](https://fqxi.org/data/essay-contest-files/Pohl%20It%20takes%20a%20Decision%20to.pdf)