

TIME IN QUANTUM THEORY

Interpretation of Quantum Theory

Developing a framework for ToE

History of this framework:

1990: Picking up „Problem of time“ in physics (using Laser Holography)

2006: (Unpublished paper) „Elimination of Time“ : setting ($s \propto t$)

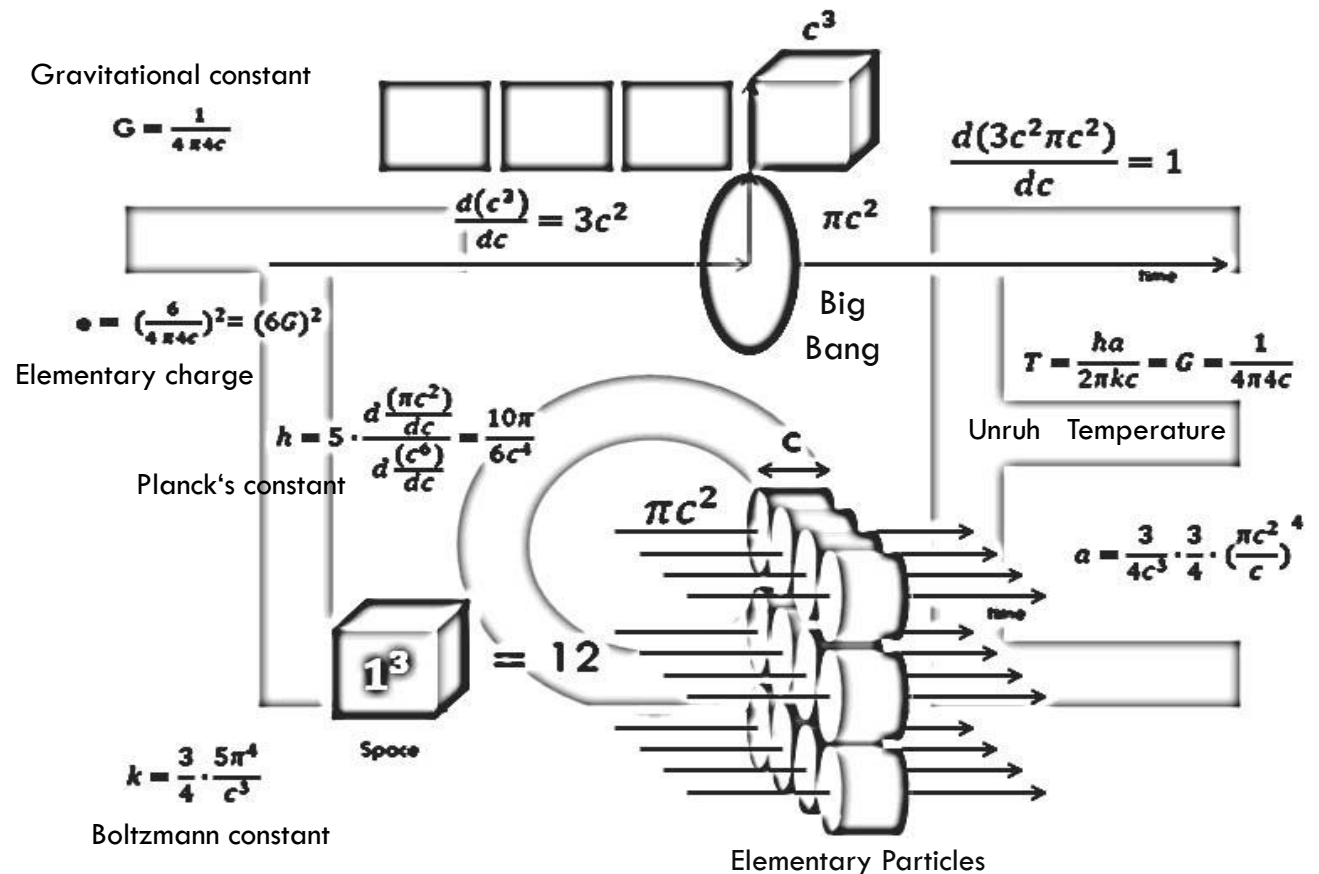
2007: (Unpublished paper) „Principle of invariant velocity“ (Postulate: all phenomenon in nature must travel at same speed)

2011: „Motivational aspects of action competence“ (University of Cologne ; educational science, psychology, economic sciences, computer science)

2018: Introducing concept for a framework of ToE

2019: „Solving the Problem of Time“ : Unified principles of nature

Geometric Holographic Universe (Universal constant: $\pi \rightarrow c$)



Short History of Time

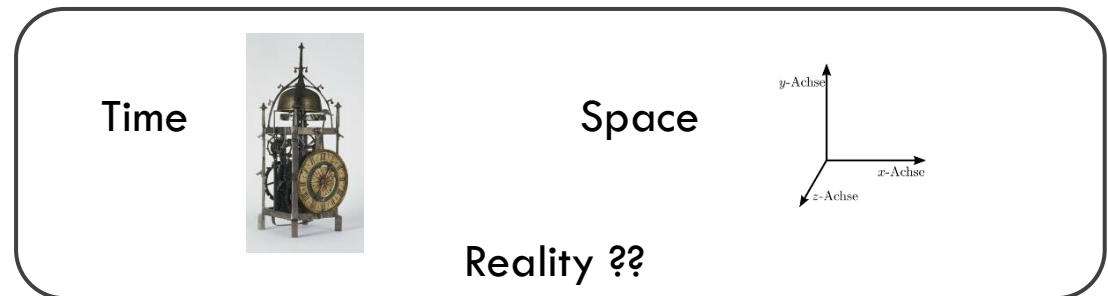
Isaac Newton

Time and space

made by God / properties of nature



GOD



Observer

Short History of Time

Albert Einstein

Time and space are
„influenced“ by the observer



$$t_1 = v_1$$



$$t_2 = v_2$$

Measuring Time and Space (today)



Measuring time:



The duration of 9192631770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium-133 atom.

Measuring Space:



The distance travelled by light in vacuum in $1/299792458$ second.

ORIGIN OF TIME AND
SPACE:

CREATING TIME AND
SPACE WITH RADICAL
CONSTRUCTIVISM



Radical constructivism (Glaserfeld)

- World is constructed within the mind of the observer
- No time : no causality
- Introducing cause: basic ego (desire / genetic programm)
- Emotion (desire) conditions thought / thought conditions emotion (desire) : Circle

Glaserfeld (1984:13) conceptual analysis tries to show “[...] on the one hand, that a consciousness, no matter how it might be constituted, can “know” repetitions, invariances, and regularities only as the result of a comparison; on the other hand, it shows that there must always be a decision preceding the comparison proper, whether the two experiences that are to be compared should be considered as occurrences of one and the same or of two separate objects. These decisions determine what is to be categorized as “existing” unitary objects and what as relationships between them. Through these determinations, the experiencing consciousness creates structure in the flow of its experience. And that structure is what conscious cognitive organisms experience as “reality” – and since that reality is created almost entirely without the experienter’s awareness of his or her creative activity, it comes to appear as given by an independently “existing” world. ”

Going back to Big Bang

- Travelling back to the origin of cognition



Elimination of time and space



Re-Creation of time and space

Elimination of time and space

Question:

Can we observe and measure „time“ in physics ?

It is not possible to measure t_1 and t_2 of same object

- we can't measure / observe time
- time does not exist

Question:

Can we observe and measure „space“ in physics ?

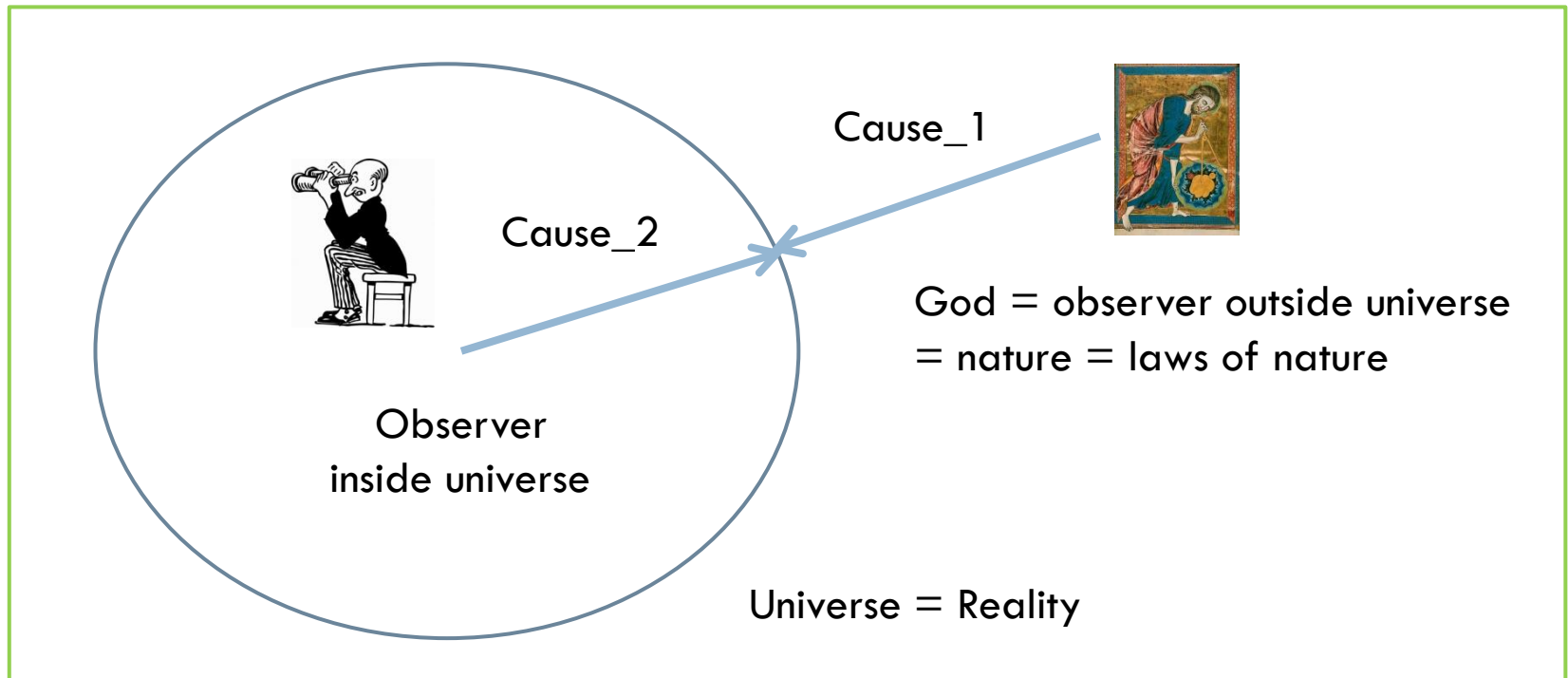
It is not possible to measure space without reference geometry represented by particles.

- we can't measure / observe (curved) space
- space does not exist

Introducing two observers

God: Does observer outside „universe“ knows everything ?

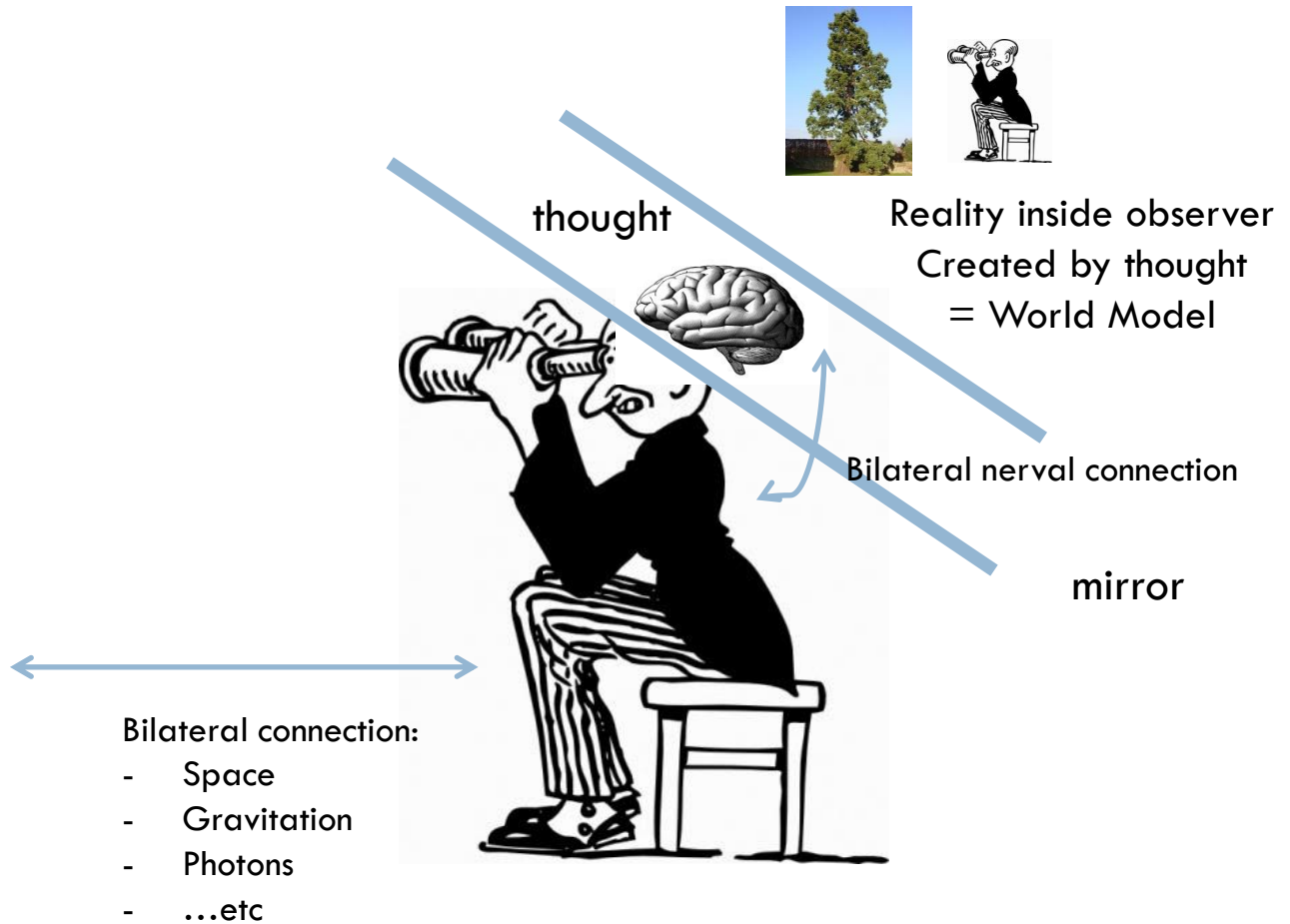
Observer: knowing that knowing is impossible ?



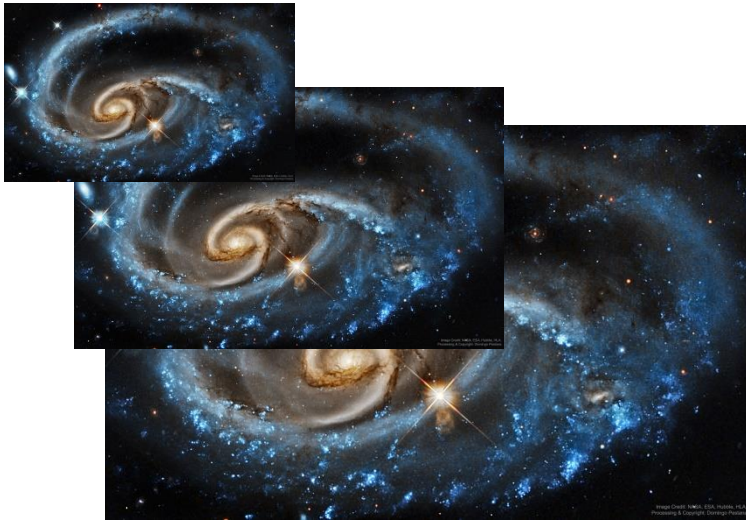
The observer is the observed¹



Reality outside observer
Created by nature
= Self Model



Many World Models



God/nature
Universal
Self Model



God1/thought1
World Model 1



God2/thought2
World Model 2

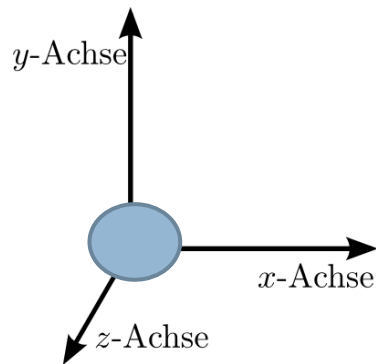
ANALYSING PROBLEMS IN GENERAL RELATIVITY AND QUANTUM THEORY



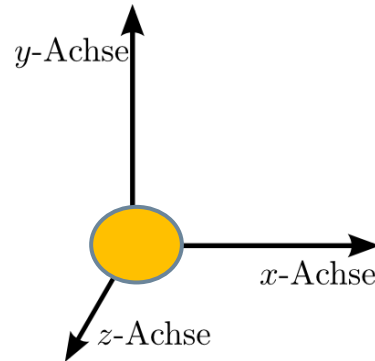
Problem in GR / Astrophysics

What is Space? Definition ?

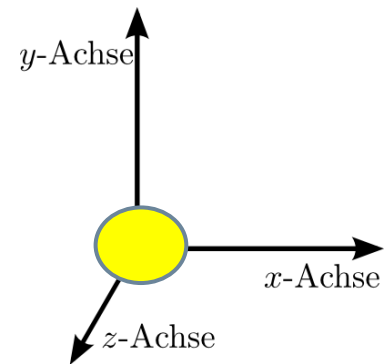
Space = inertial frame of reference



Earth is center of universe



Sun is center of universe



Any Photon is center of universe

Problem in Quantum theory

Wave or particle ?

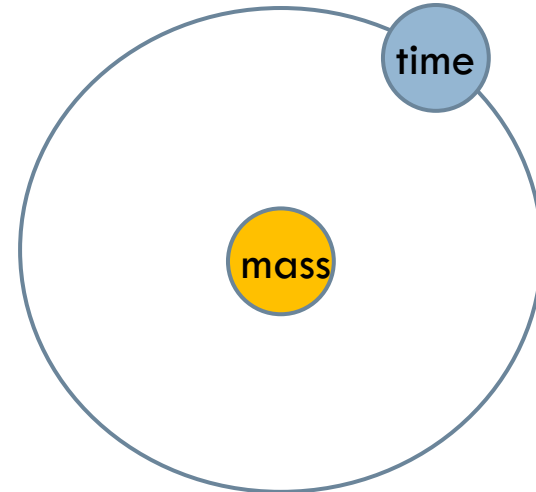
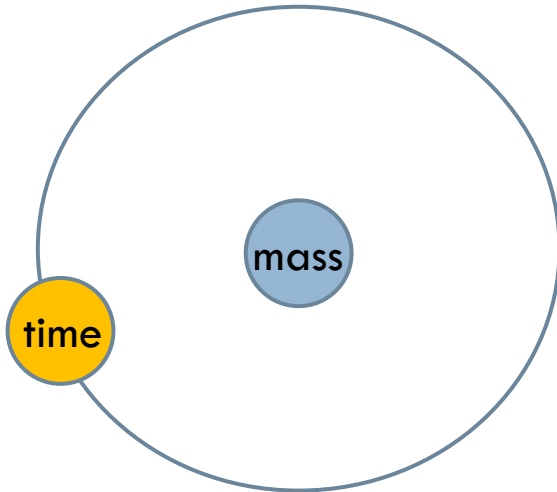
Time = inertial frame of reference

Particle: independent of time (creating space)

Wave: dependent of time (creating time)

Problem in Quantum theory

- What is time ? Definition ?



Problem of time in Physics

There are
two „times“
in reality:

Individual Time = Individual Cause

the observer himself is cause for the observation

(Singularity)



General Time = General Cause

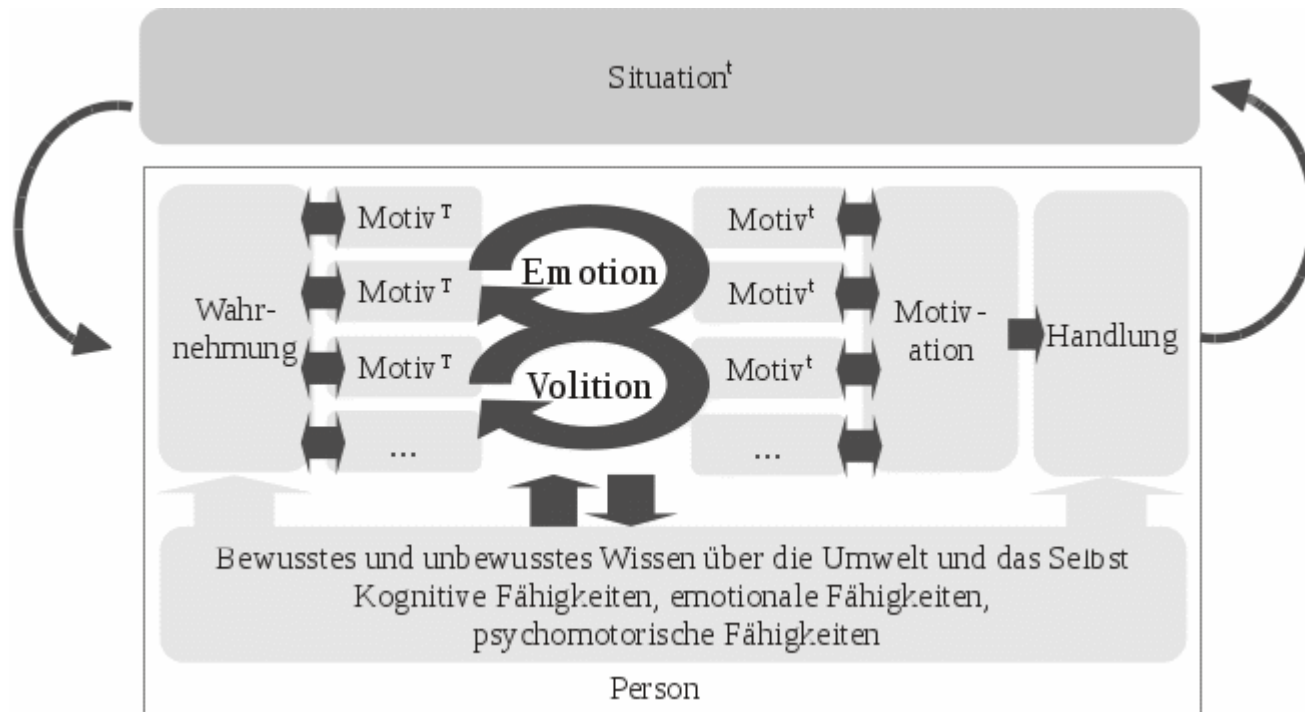
probability distribution

between the observer (human thought) and reality
(representation of nature / „God“) is cause for the
observation

(Duality)

Problem of time in Psychology

There are two „times“ causing „Free Will“ for action



„Motivational aspects of action competence“ M.U.E. Pohl, 2011

CREATING GEOMETRICAL
UNIVERSE BY DEFINING
UNIVERSAL CENTER

HOLOGRAPHIC WORLD
MODEL

Space and time represented by elementary particles

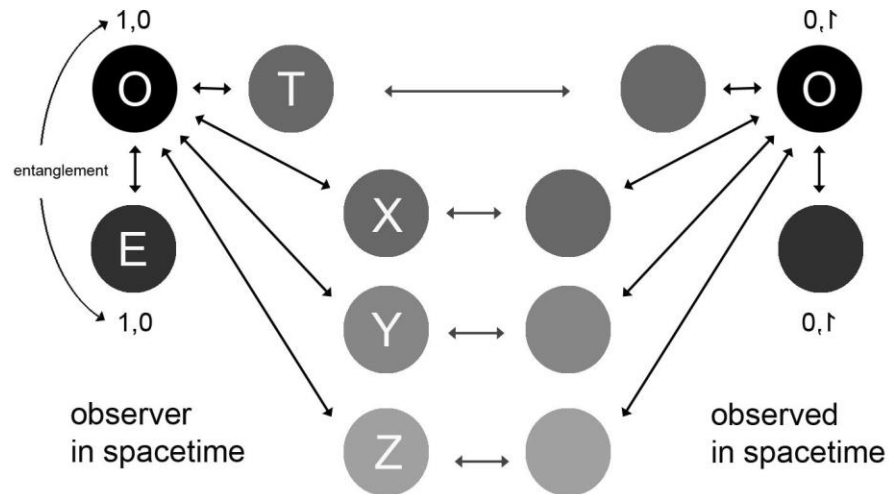


Figure 4. : 12 elementary particles and 4 interactions representing observer in interaction with observed

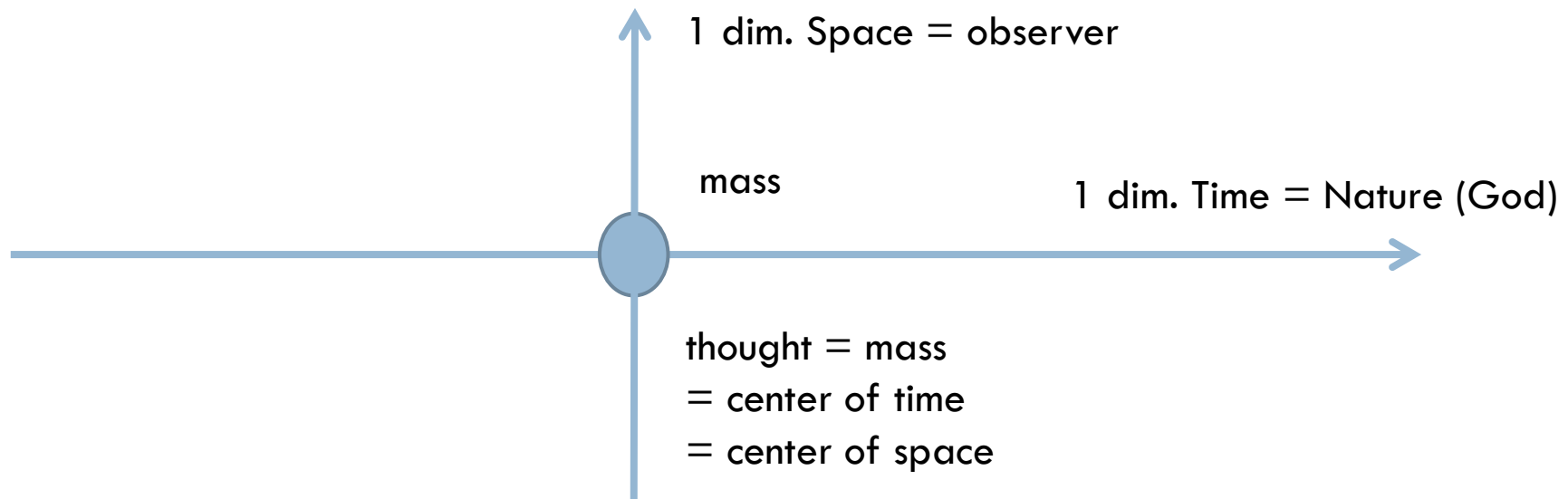
Properties of universe to construct

- laws of nature should be the same in all mathematical inertial systems / references of space (1-dim. space , 2 dim. space, 3, dim. space, 20 dim. space)
- „space“ must have one center (inertial frame of reference for all observers)
- „time“ must have one center (inertial frame of reference for all observers)

Step 1

Creating 1 dimensional universe.

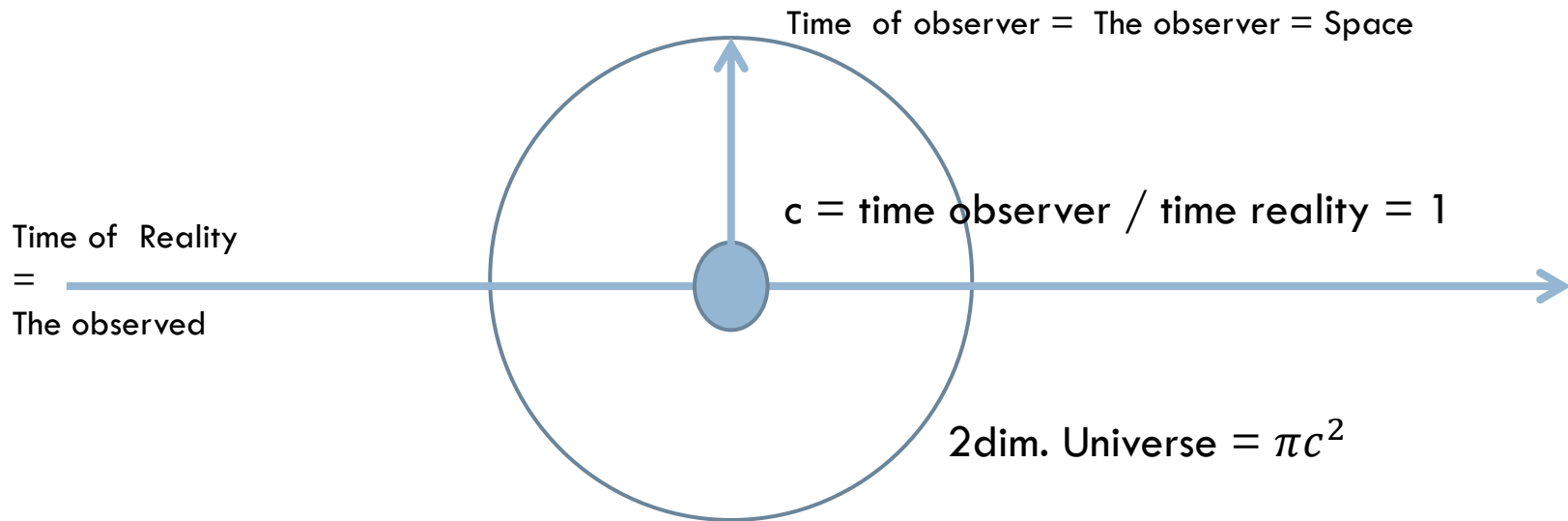
Premise: existence = mass = energy



Big Bang (time meets space)

Step 2

Projection into 2 dimensions:
creating center of universe

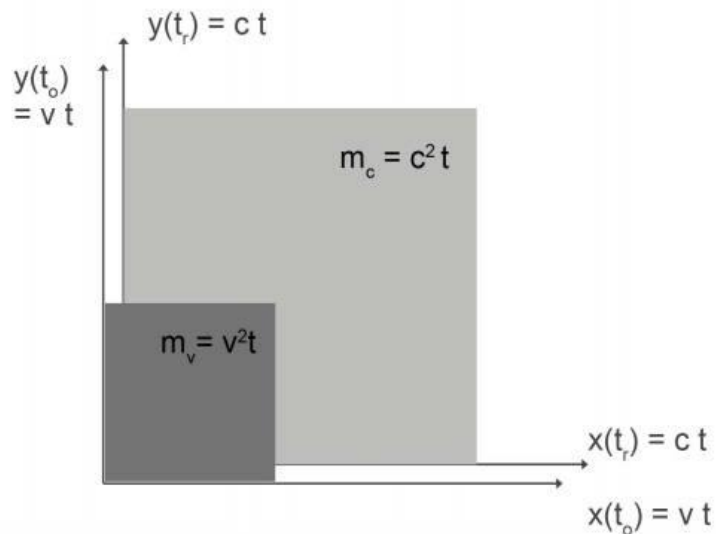


Thought = Mass = center of time = center of space

Action equals reaction : time observer / time reality = 1

(Flat, expanding 2 dim universe)

Looking at 4 dim. Space-Time



Considering that in fact 2 timelike dimensions are included in 4-dim. Minkowski Space, there are no 3 spatial dimensions. (Therefore in GR Spacetime is curved).

Figure 6. : creating 4-dim. spacetime with 2x2 dimensional space

Step 3

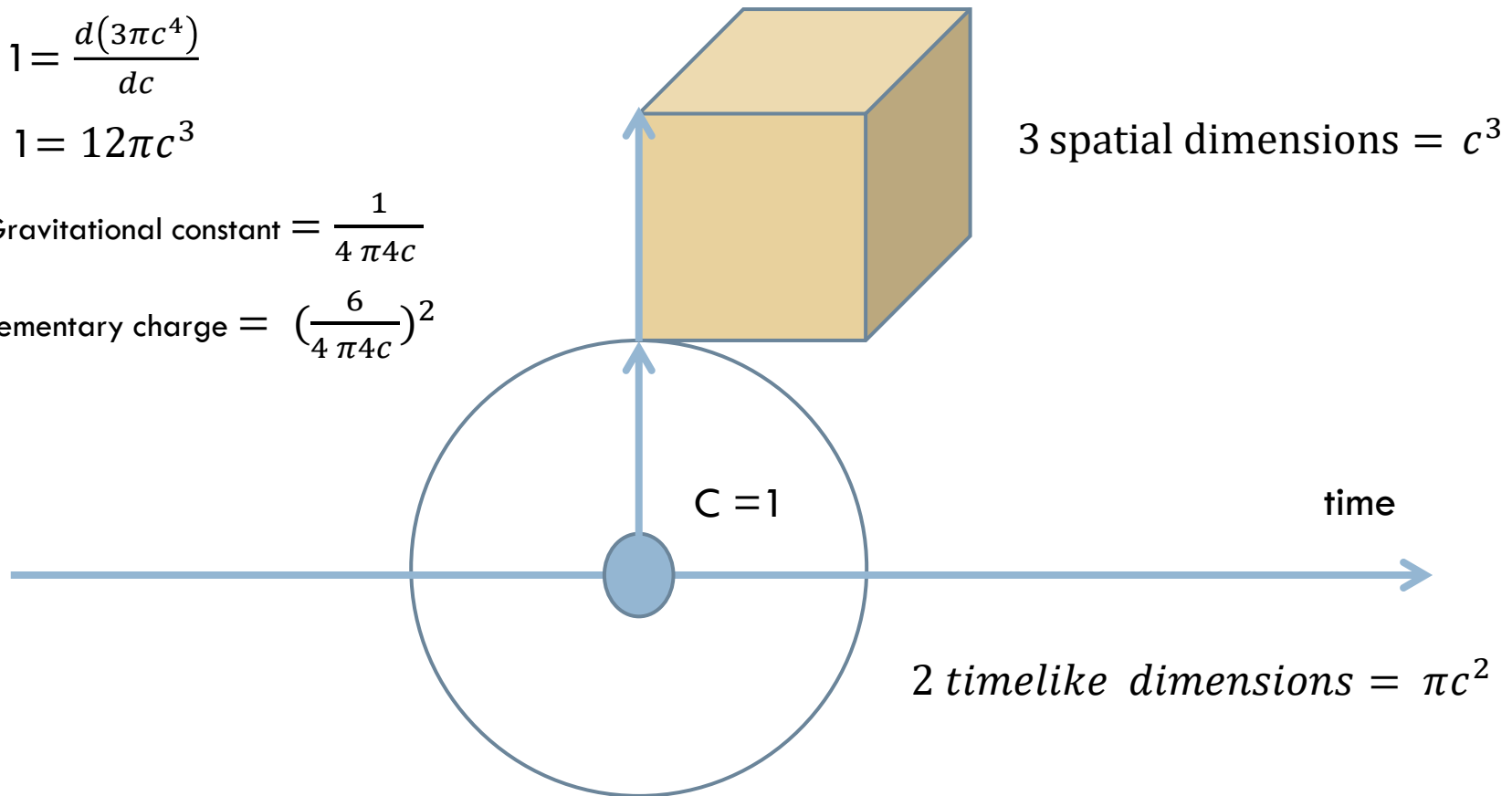
Projection into 3 dim. euclidian space

$$1 = \frac{d(3\pi c^4)}{dc}$$

$$1 = 12\pi c^3$$

$$\text{Gravitational constant} = \frac{1}{4\pi 4c}$$

$$\text{Elementary charge} = \left(\frac{6}{4\pi 4c}\right)^2$$



Definition of Time in Quantum Theory

Understanding the problem in actual SI-System and Time in Quantum Theory:

„Time“ was defined originally as „cause“ that sun is circling earth or earth is circling sun (time was property of the solar system)

As „Time“ is defined now by a property of an „atom“, the total solar system / universe becomes property of an atom !!

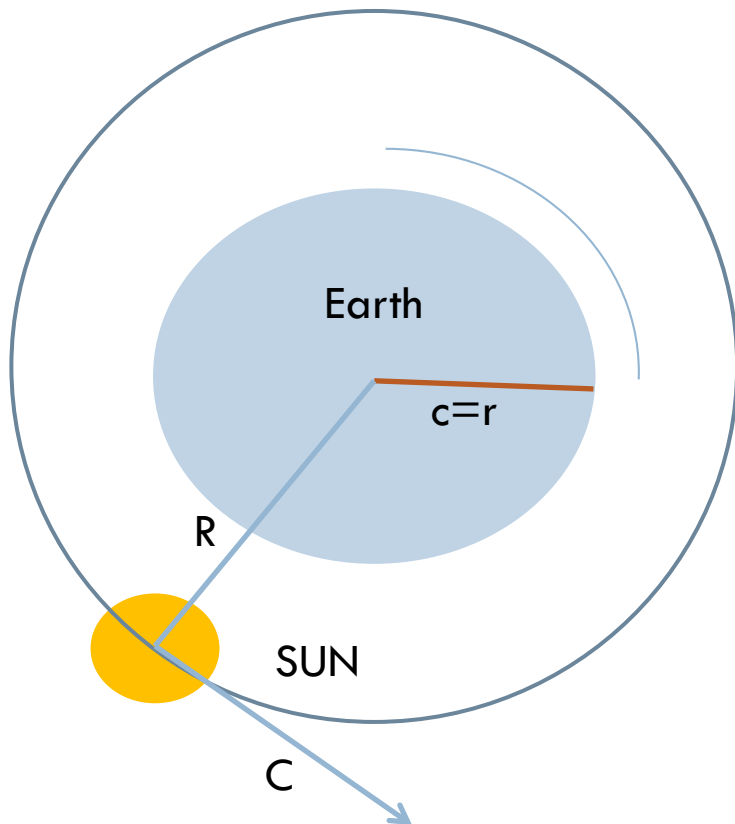
It is not possible to define Gravitation as origin (cause) for time, while measuring time with an caesium-Atom.

Cosmological Time and Space

$1 = 12\pi c^3 \rightarrow c = 0,298233409 \dots$ only 0,5% difference from CODATA

Question: Why does „Meter“ and „Second“ already fit so narrow into „constructed“ World Model ($1 = 12\pi c^3$) ?

Using center of earth to „construct“ center of universe:



$$1 \text{ meter} \sim \frac{2\pi r}{4 \cdot 10^7} \quad (\text{actual SI: } \mu_0 = 4\pi \cdot 10^{-7})$$

$$1 \text{ second} \sim \frac{2\pi r}{365 \cdot 24 \cdot 60 \cdot 60} \sim \frac{2\pi r}{\pi \cdot 10^7}$$

$$c = r \rightarrow 4c \sim 1/T \quad (\text{ca. } 0.5\%)$$

$C = \text{Speed of Light} = \text{Speed of „Sun“ „circling“ the earth:}$

$$C = \frac{2\pi \cdot 149.600.000.000 \text{ m}}{365 \cdot 24 \cdot 60 \cdot 60 \text{ s}} = 298.060.790 \frac{\text{m}}{\text{s}} \cdot \frac{1}{100^2}$$

$$F_{\text{grav}} = G \frac{m_{\text{earth}} m_{\text{sun}}}{r^2} = m_{\text{sun}} \cdot a_{\text{sun}} \rightarrow G \frac{m_{\text{earth}}}{r^2} = a_{\text{sun}}$$

$$G \frac{5,972 \cdot 10^{24} \text{ kg}}{(149.600.000.000 \text{ m})^2} = a_{\text{sun}} \rightarrow 4G^2 = a_{\text{sun}} \cdot \left(\frac{1}{100^2}\right)^3$$

Charge of the Electron = $(6G)^2$ vs Gravitation = $(2G)^2$

Conclusions

Physical World = deterministic

„Will“ of observer = non deterministic

„Will“ of nature = non deterministic

„Will“ of observer = „Will“ nature

UNIFIED PRINCIPLES OF NATURE

Introducing advanced newtonian laws

Postulates

- The speed of light is the same for all observers
(c in vacuum = c in BEC)
- Only natural „constant“ is „ c “ (π)
- *space* \propto *time*

principles of nature

- time = cause
- Action (time = cause) lead to reaction (space = consequence)
- Reaction equals action

DAVID BOHM:
COMPETITION IS A MISTAKE
BY THOUGHT

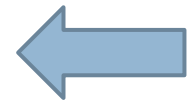
DOES QUANTUM THEORY
LINK TO THE MATRIX OF
THOUGHT?

Bohmian Mechanics

- Possible Configurations of the universe given by classical Schrödingers equation ($t_1 = \text{general cause / nature}$)
- „Pilot“-Wave contains cause of observer (t_2)

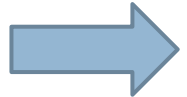
Arrow of Time (Nature):

Past

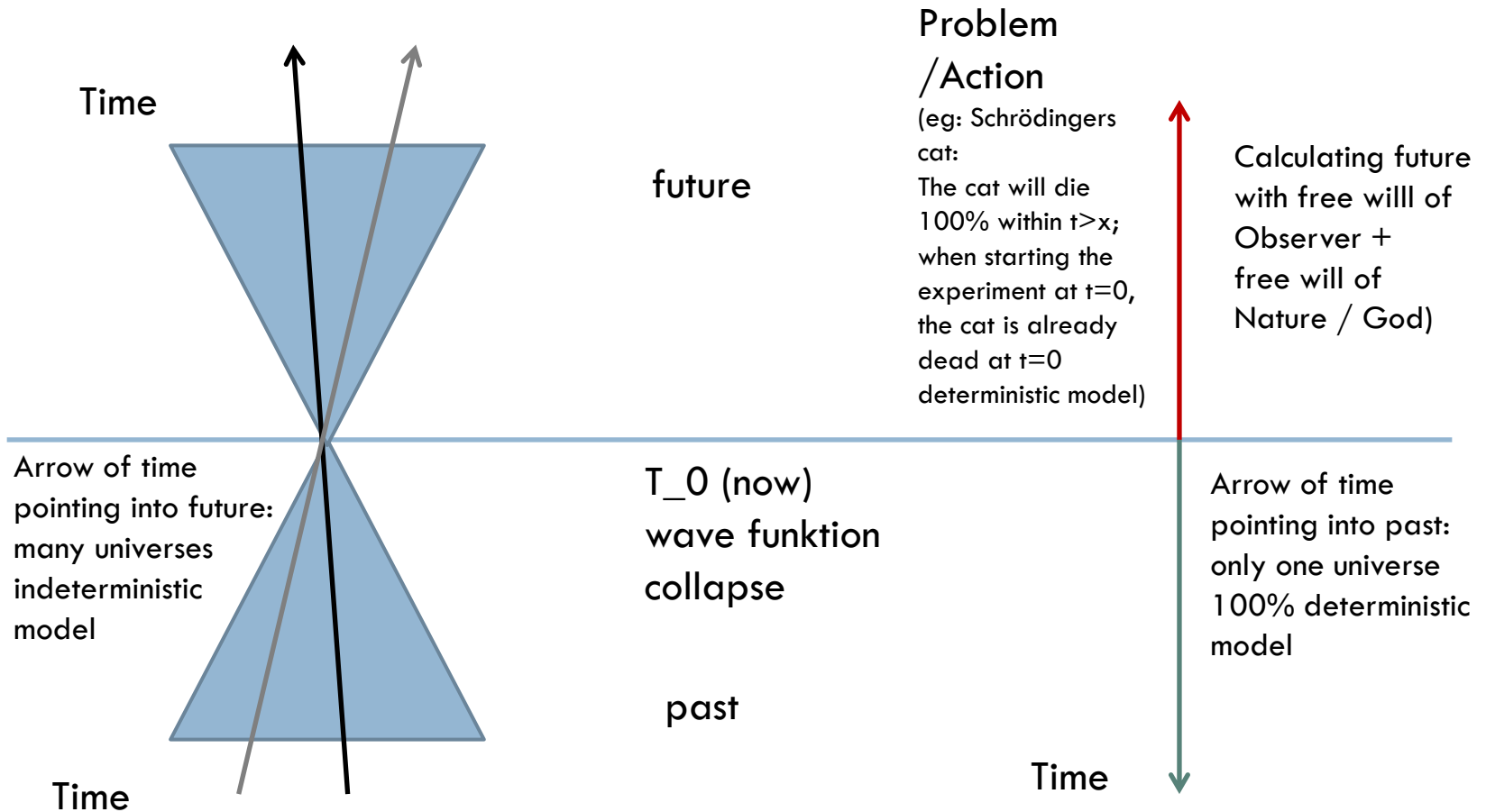


Arrow of free Will (Observer):

Future



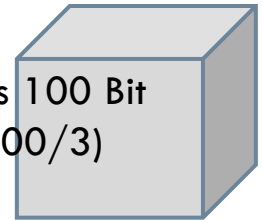
Arrow of Time pointing into past



Quantisation is not property of nature

Projection of 1 dimensional stream of information into 3 dimension, creating „space“

While 1 dimension contains 100 Bit
3-dim Space contains $3 * (100/3)$
Informations



The concept of quantisation is not property of nature / reality, but property of the observer as measuring instrument (thought). The brain models 3 spatial dimensions, and two timelike dimensions (Future = free will = individual time, past = causality = general time)

To add 1 piece / bit of space / information , there are needed 6 „bits“. 1 Bit is to set the status of this piece of space to 1 or 0 (minimum quantum to adress the content) and 5 bits to address the „position“ in 5 dimension (2 timelike dimensions, 3 spatial dimensions). Each minimum bit of information therefore is representing 6 Bits. To describe interaction between 2 pieces of space, another 6 bits are needed.

Status beginning of interaction	1 1 1 1 0 0	1 1 0 1 0 0
Status end of interaction	1 1 1 1 0 1	1 1 0 1 0 1

Plancks Constant

Plancks constant describes the proportion needed between cause (2 timelike dimensions) and consequence (3 spacelike dimensions) in 4 dimensional Minkowski-Space

$$5 \frac{d(\pi c^2)}{dc} \propto \frac{d(c^6)}{dc}$$

$$\text{Energy : } [E] = \frac{m^6}{s^5}; \text{Joule}$$

$$h = \frac{5 \cdot \frac{d(\pi c^2)}{dc}}{\frac{d(c^6)}{dc}} = \frac{10\pi}{6c^4}$$

$$= 6,618711... \cdot 10^{-34} \text{Js}; \frac{s^4}{m^4}$$

CODATA: $h = 6.62607..$

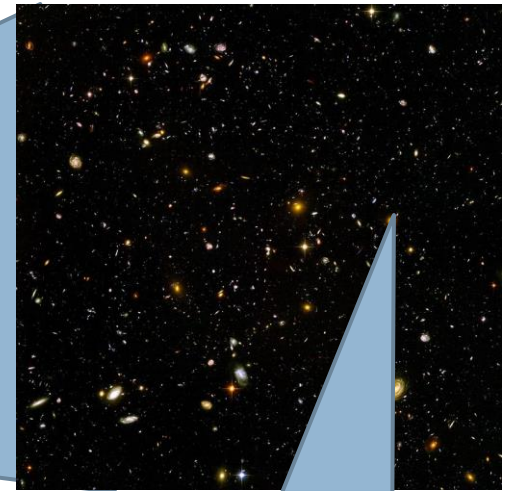
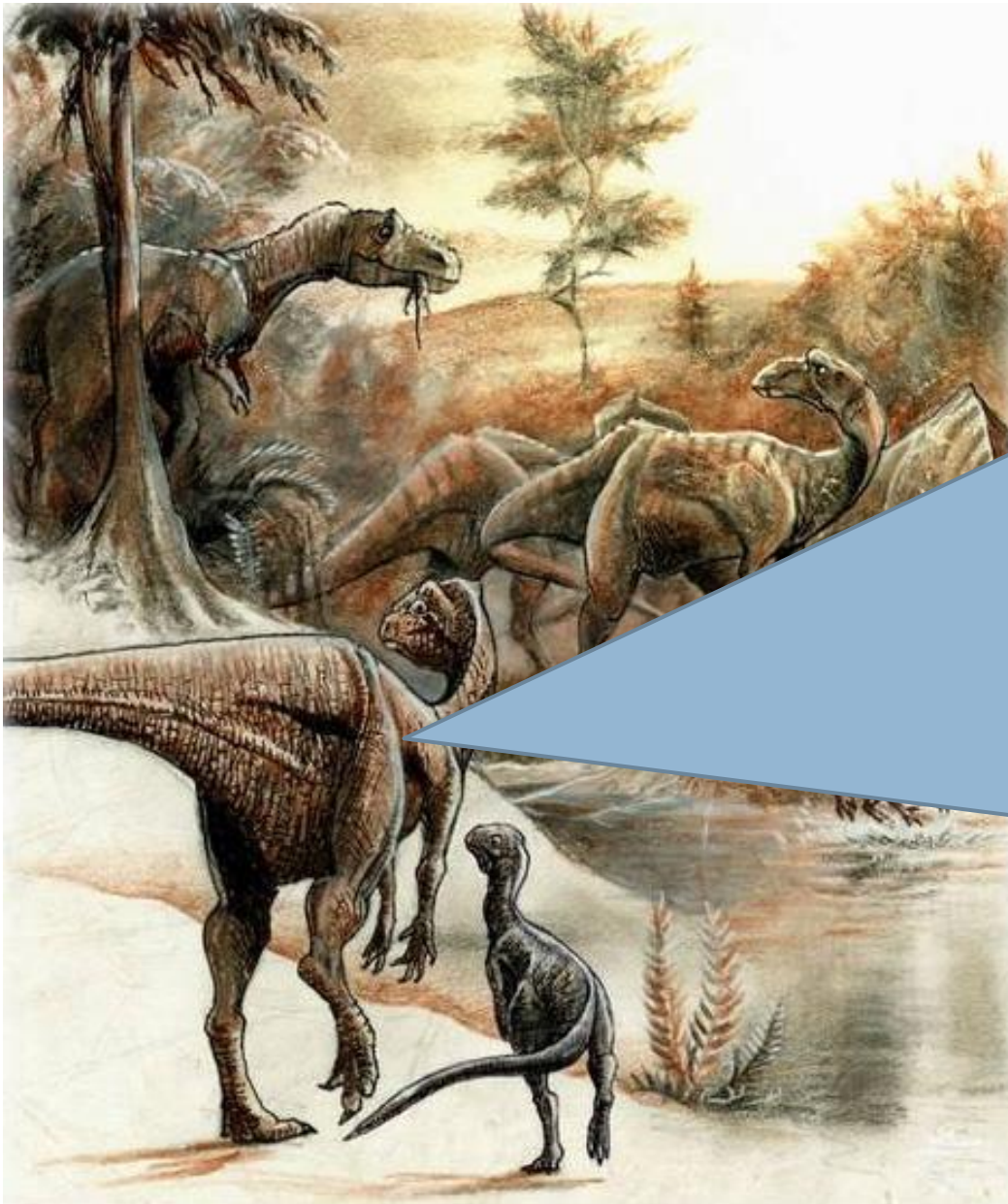
Interpretation of Quantum Theory

- Quantum Theory is not a valid Theory to describe **reality** yet, because **NO** cause (time=gravitation) is included in the theory (= indeterministic = uncertainty)
- General Relativity is not a valid Theory to describe **reality** yet, because **TWO** causes are included within the theory (cosmic time and atom time) (=indeterministic = dark energy = uncertainty)
- The unified „Force“ in nature is Time (= cause = unified force)

GUT – Scale 10^{16} GeV might resolve in 10^7 inverse proportional μ_0 and 10^9 in "c"

$$c = c' \cdot 10^9 : 0,298233409 \cdot 10^9 = 298233409 \frac{m}{s} \quad ; \quad \mu_0 = \mu' \cdot \frac{3}{4} \cdot 10^7$$

Finding life within
universe or finding
universe within life ?



What is the question QT
will give the answer for,
if time is added?