




Morguen Rotwang

DPG Konferenz 2017

T 88.5

Adam-Weisenhaupt-Boulevard 23
Bonn



Quo Vadis?
Vanitas!

Die 13.5 Leben der
Planck'schen Konstante

„If any and every failure to fit
were ground for theory rejection,
all theories
ought to be rejected at all times.“



„If any and every failure to fit
were ground for theory rejection,
all theories
ought to be rejected at all times.“

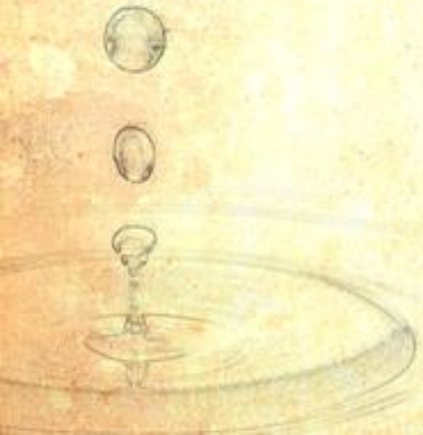
Thomas Kuhn



„If any and every failure to fit
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all theories
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Thomas Kuhn

The Structure of Scientific Revolutions

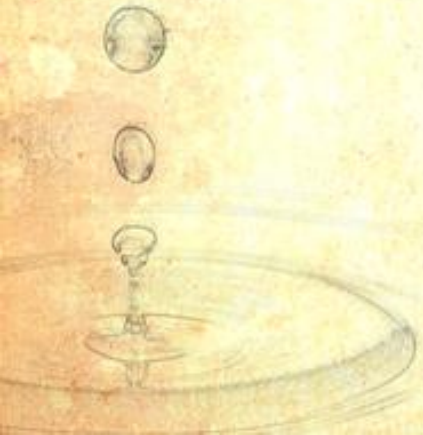


Mechanisms in Science

Hypothesis



Logic



Mechanisms in Science

Rationalism

John Locke

René Descartes

Hypothesis



Logic



Mechanisms in Science

Rationalism

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Hypothesis



Logic

Theory

Deduction



Induction

Empiric Research



Mechanisms in Science

Rationalism

John Locke
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Logic

Empiricismus

Francis Bacon
David Hume

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Deduction



Induction

Empiric Research



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Empirismus

Francis Bacon
David Hume

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~~Induction~~



Empiric Research



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Mechanisms in Science

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John Locke
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Hypothesis

↔ Logic

Empirismus

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Karl Popper

~~Theory~~

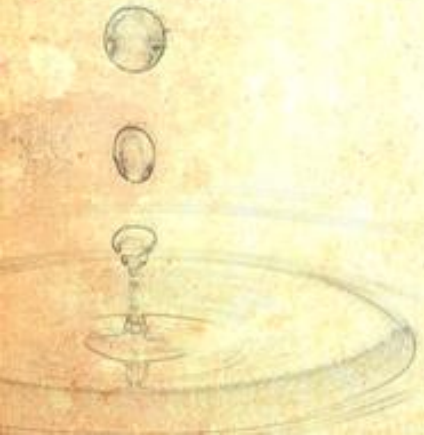
Falsification

Deduction

Empiric Research



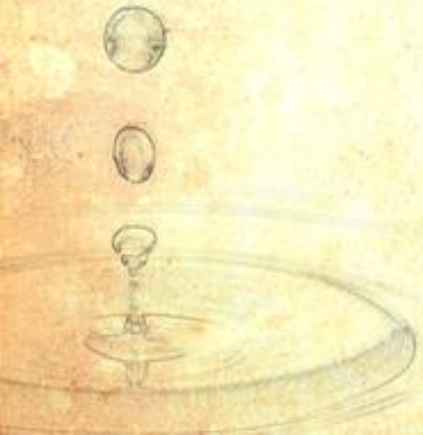
Falsified Theories – An Overview



Falsified Theories – An Overview

Antiquity

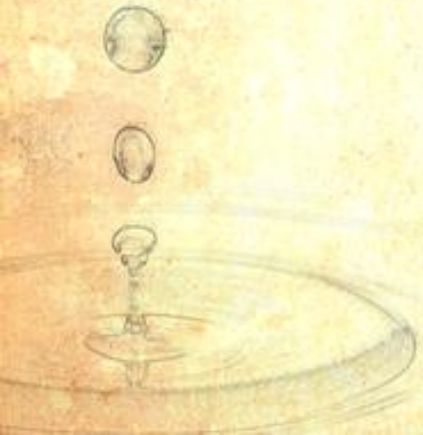
Pre-Modern Era



Falsified Theories – An Overview

4 Elements Theory **Antiquity**

Pre-Modern Era



Falsified Theories – An Overview

4 Elements Theory
4+1 Elements Theory

□ **Antiquity**

□ **Pre-Modern Era**



Falsified Theories – An Overview

4 Elements Theory
4+1 Elements Theory **Antiquity**

Geocentric Universe

Pre-Modern Era

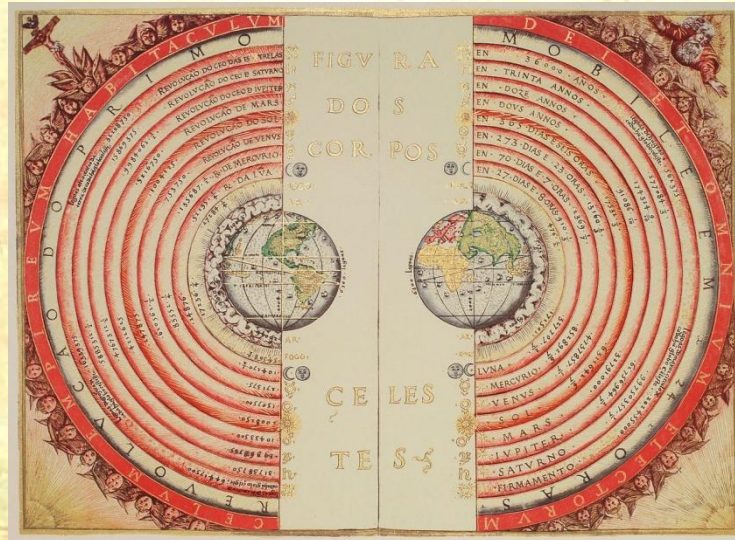


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4 Elements Theory **Antiquity**

4+1 Elements Theory

Geocentric Universe

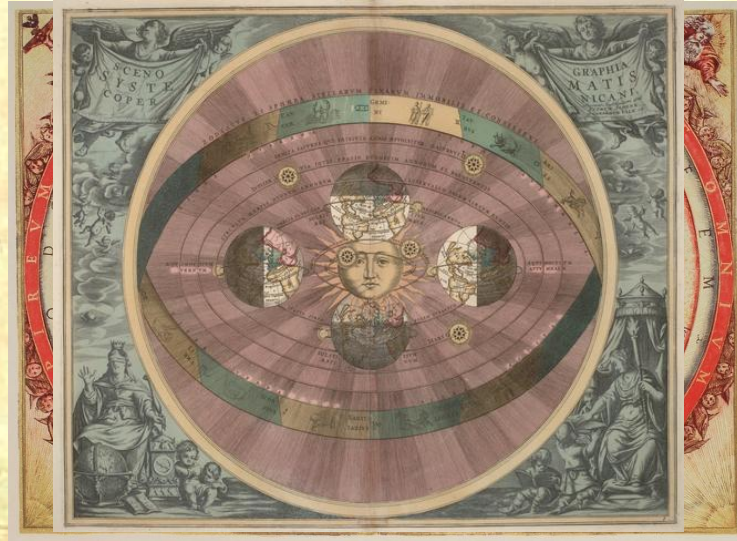


Pre-Modern Era

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4 Elements Theory
4+1 Elements Theory **Antiquity**

Geocentric Universe



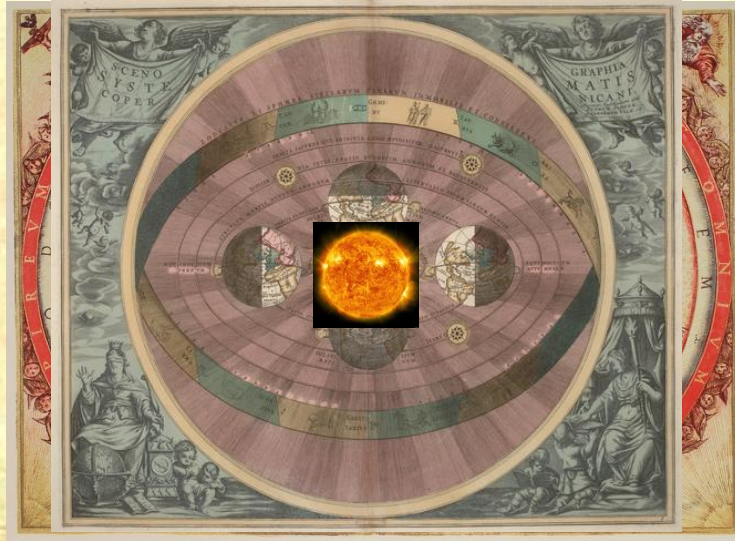
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4 Elements Theory **Antiquity**
4+1 Elements Theory

Geocentric Universe



Pre-Modern Era

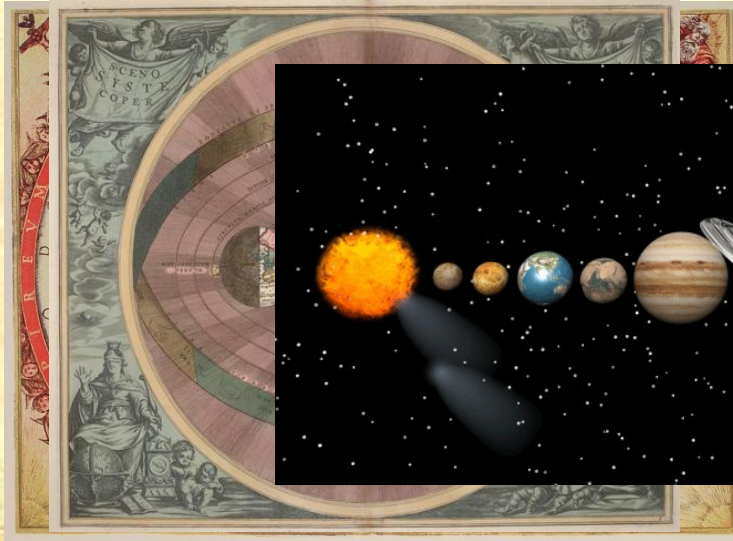
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4 Elements Theory
4+1 Elements Theory

□ **Antiquity**

Geocentric Universe

□ **Pre-Modern Era**

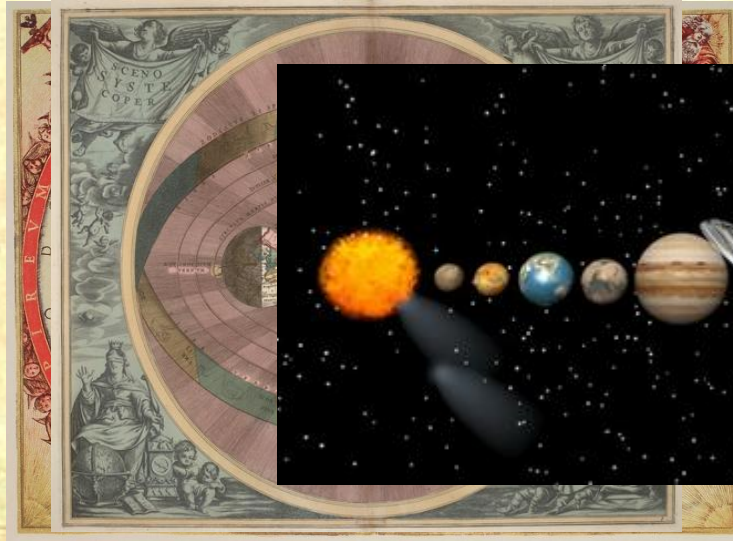


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4 Elements Theory **Antiquity**
4+1 Elements Theory

Geocentric Universe

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Falsified Theories – An Overview

4 Elements Theory
4+1 Elements Theory **Antiquity**

Geocentric Universe

Theory of Inertia

Pre-Modern Era



Falsified Theories – An Overview

4 Elements Theory
4+1 Elements Theory **Antiquity**

Geocentric Universe

Theory of Inertia (?)

Pre-Modern Era



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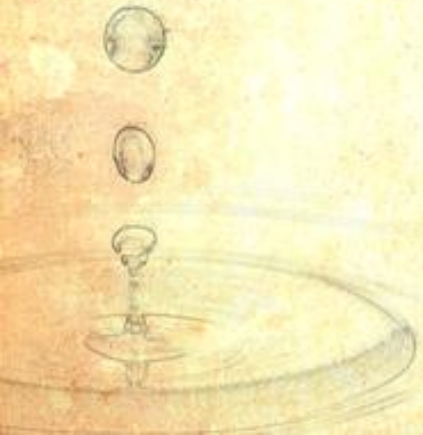
4 Elements Theory
4+1 Elements Theory **Antiquity**

Geocentric Universe

Theory of Inertia (?)

Pre-Modern Era

Phlogiston



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Phlogiston

Alchemy



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4+1 Elements Theory **Antiquity**

Geocentric Universe

Theory of Inertia (?)

Pre-Modern Era

Alchemy



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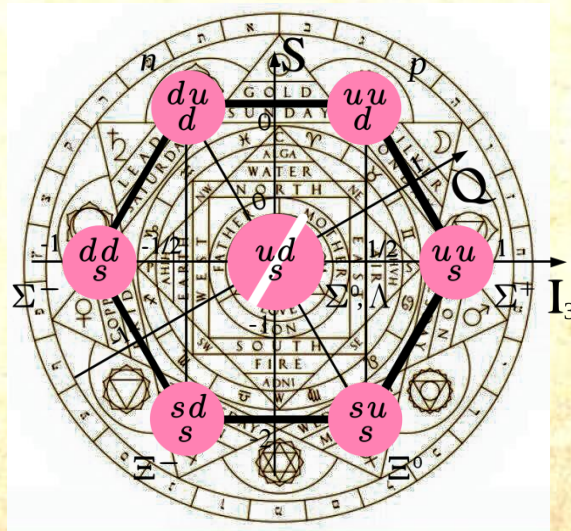
4 Elements Theory
4+1 Elements Theory **Antiquity**

Geocentric Universe

Theory of Inertia (?)

Pre-Modern Era

Alchemy



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4 Elements Theory
4+1 Elements Theory **Antiquity**

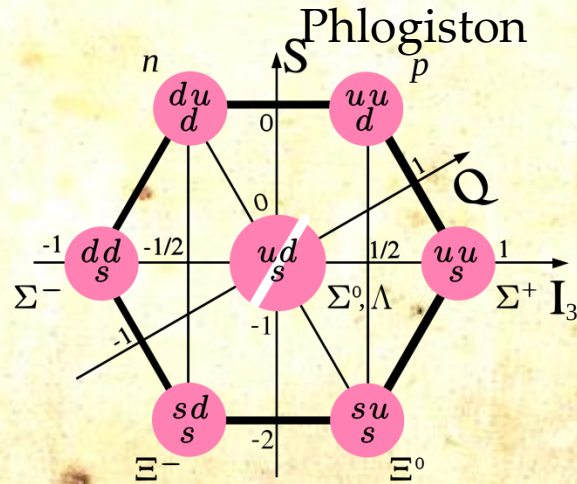
Geocentric Universe

Theory of Inertia (?)

Pre-Modern Era

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Alchemy

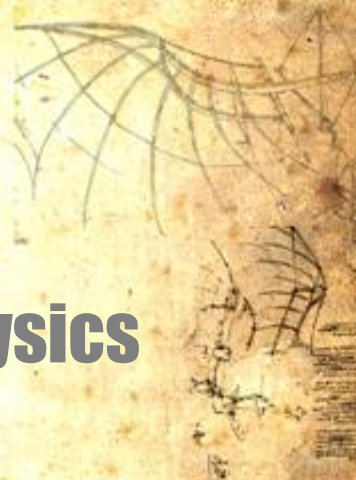


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Classical Physics

Modern Physics

Particle Physics



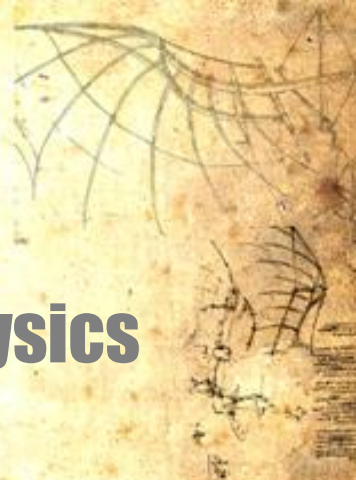
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Classical Physics

Ether Theories

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Particle Physics



Falsified Theories – An Overview

Classical Physics

Ether Theories

Modern Physics

“Only the existence of a field of force can account for the motions of the bodies as observed, and its assumption dispenses with space curvature. **All literature on this subject is futile and destined to oblivion.** So are all attempts to explain the workings of the universe without recognizing the existence of the ether and the indispensable function it plays in the phenomena.”

Nikola Tesla

Particle Physics

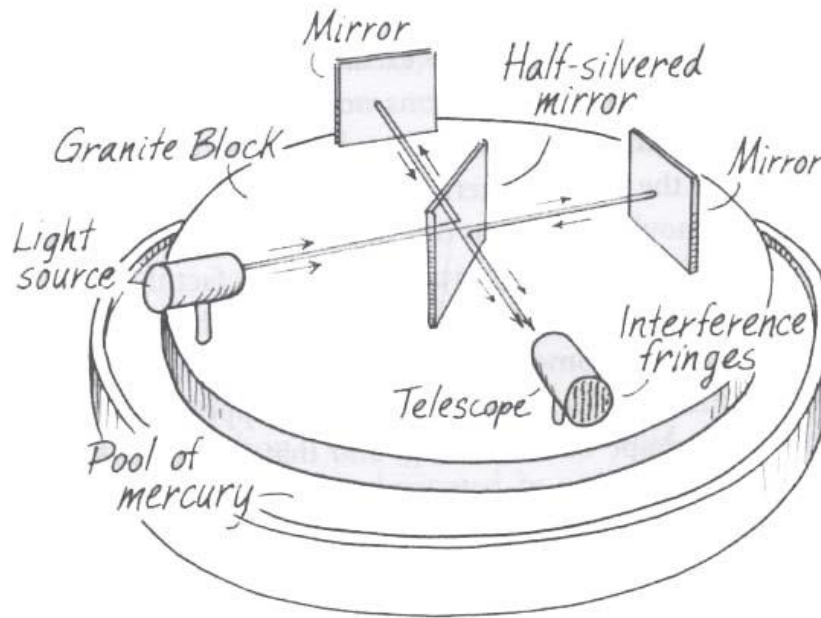


Falsified Theories – An Overview

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Ether Theories

“Only
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Modern Physics

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Nikola Tesla



Falsified Theories – An Overview

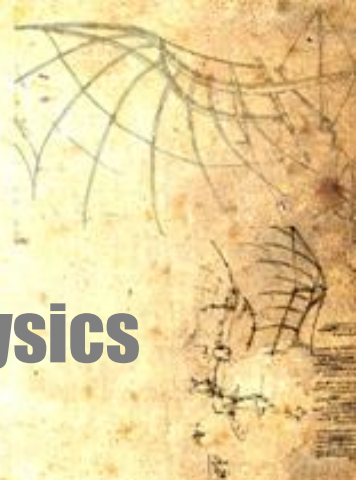
Classical Physics

Ether Theories

Bohr Model

Modern Physics

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Classical Physics

Ether Theories

Bohr Model

Cosmological Constant

Modern Physics

Particle Physics



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Bohr Model

Cosmological Constant „Eselei“

Modern Physics

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Classical Physics

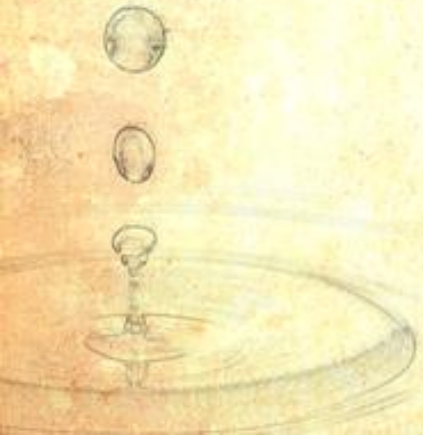
Ether Theories

Bohr Model

Cosmological Constant Λ

Modern Physics

Particle Physics



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Classical Physics

Ether Theories

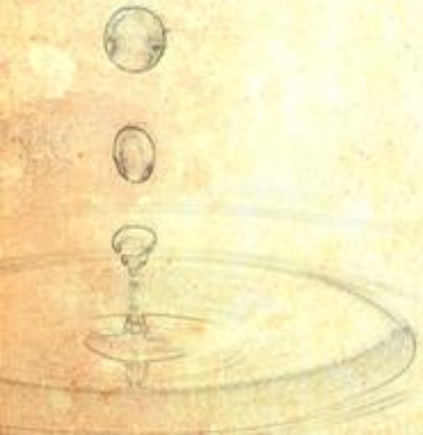
Bohr Model

Cosmological Constant

N-Rays

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Bohr Model

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Cold Fusion

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Cosmological Constant

N-Rays

Particle Physics

Modern Physics

Magnetic Monopoles



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Classical Physics

Ether Theories

Cosmological Constant

- $\vec{\nabla} \cdot \vec{B} = 0$

- Bohr Model

-

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Modern Physics

Magnetic Monopoles



Falsified Theories – An Overview



Classical

Ether Theories

Cosmological Constant

- $\vec{\nabla} \cdot \vec{B} = 0 \longrightarrow \vec{\nabla} \cdot \vec{B} = 4\pi\rho_m$

- Bohr Model

- Cosmological Constant

-

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Modern Physics

Magnetic Monopoles



Falsified Theories – An Overview

Classical Physics

- $\vec{\nabla} \cdot \vec{B} = 0 \longrightarrow \vec{\nabla} \cdot \vec{B} = 4\pi\rho_m$

Ether Theories

Cosmological Constant

- $\vec{E} \rightarrow \vec{B} \text{ and } \vec{B} \rightarrow -\vec{E}$

- N-Rays

-

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Modern Physics

Magnetic Monopoles

Particle Physics



Falsified Theories – An Overview



Classical

Ether

Cosmological

- $\vec{\nabla} \cdot \vec{B} = 0 \longrightarrow \vec{\nabla} \cdot \vec{B} = 4\pi\rho_m$

- $\vec{E} \rightarrow \vec{B} \quad \vec{B} \rightarrow -\vec{E}$

- $F^{\mu\nu} = \partial^\mu A^\nu - \partial^\nu A^\mu$

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Modern Physics

Magnetic Monopoles



Falsified Theories – An Overview



Classical

Ether Theories

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Modern Physics

Magnetic Monopoles



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Classical

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Cosmological

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- „Dirac“ Monopole

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Modern Physics

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Classical

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Cosmological

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Modern Physics

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□ Classical

Ether Theories

Cosmological Constant

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- „Dirac“ Monopole

$$\vec{E} \rightarrow \vec{B} \quad \vec{B} \rightarrow -\vec{E}$$

- 10^{16} GeV

-

□ Modern Physics

Magnetic Monopoles



Falsified Theories – An Overview



Classical

Ether Theories

Cosmological Constant

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- 10^{16} GeV

Oh-My-God Particle $3,2 \pm 0,93 \cdot 10^{20}$ eV

-

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Falsified Theories – An Overview



Classical

Ether Theories

Cosmological Constant

- $\vec{\nabla} \cdot \vec{B} = 0 \longrightarrow \vec{\nabla} \cdot \vec{B} = 4\pi\rho_m$

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$$\vec{E} \rightarrow \vec{B} \quad \vec{B} \rightarrow -\vec{E}$$

- 10^{16} GeV

- $M + p \rightarrow M + e^+ + \pi^+ + \pi^-$

Modern Physics

Magnetic Monopoles



Falsified Theories – An Overview

□ **Classical**

Ether Theories

Cosmological Constant

- $\vec{\nabla} \cdot \vec{B} = 0 \longrightarrow \vec{\nabla} \cdot \vec{B} = 4\pi\rho_m$

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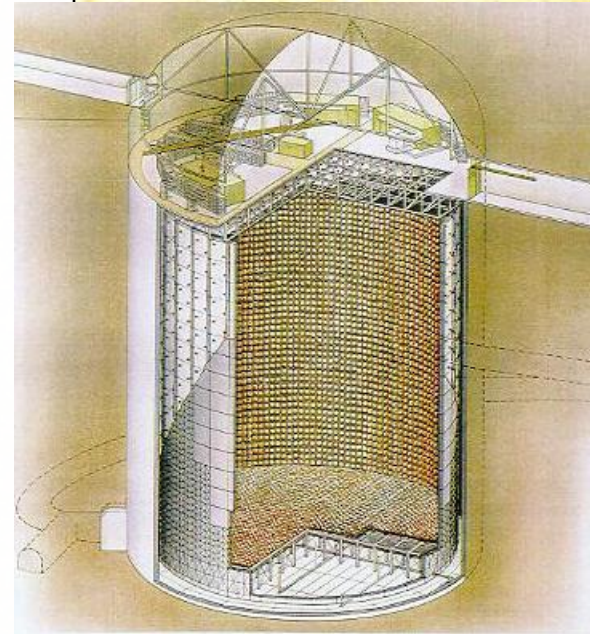
- „Dirac“ Monopole

$$\vec{E} \rightarrow \vec{B} \quad \vec{B} \rightarrow -\vec{E}$$

- 10^{16} GeV

- $M + p \rightarrow M + e^+ + \pi^+ + \pi^-$

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Falsified Theories – An Overview

□ **Classical**

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Cosmological Constant

- $\vec{\nabla} \cdot \vec{B} = 0 \longrightarrow \vec{\nabla} \cdot \vec{B} = 4\pi\rho_m$

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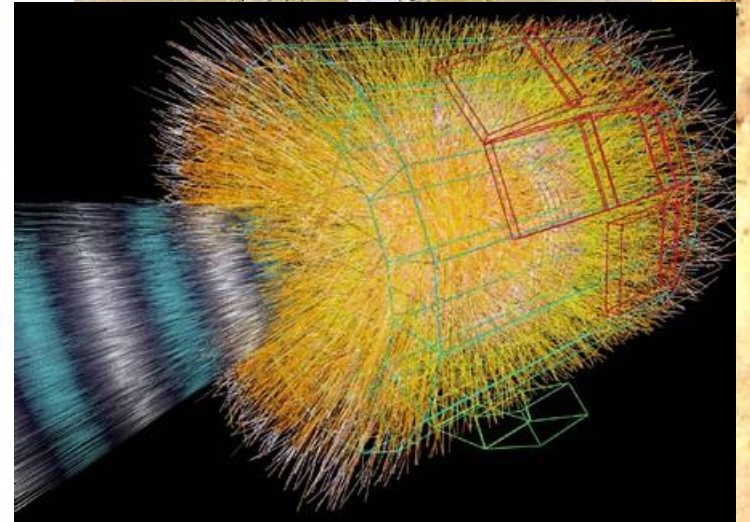
- „Dirac“ Monopole

$$\vec{E} \rightarrow \vec{B} \quad \vec{B} \rightarrow -\vec{E}$$

- 10^{16} GeV

- $M + p \rightarrow M + e^+ + \pi^+ + \pi^-$

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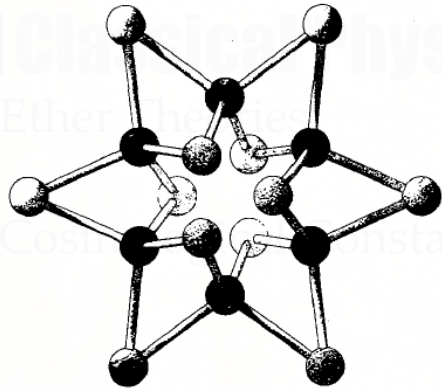
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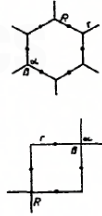
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AGENO, *Theoret. chim. Acta* 17



A $r = 1,15 \text{ \AA}$, $R = 0,96 \text{ \AA}$, $\alpha = \beta = 120^\circ$

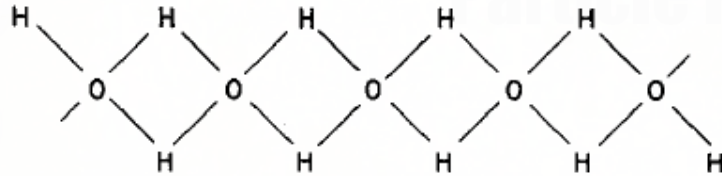
B $r = 1,15 \text{ \AA}$, $R = 1,15 \text{ \AA}$, $\alpha = \beta = 120^\circ$

A $r = 1,15 \text{ \AA}$, $R = 0,96 \text{ \AA}$, $\alpha = \beta = 90^\circ$

B $r = 1,15 \text{ \AA}$, $R = 1,15 \text{ \AA}$, $\alpha = \beta = 90^\circ$

Fig. 1. Cyclic structures of polywater.

AZMAN, *Chem.Phys.Lett.* 5



ALLEN, KOLLMAN *Science* 167

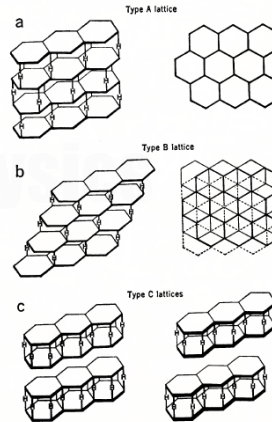


Fig. 1. The three types of anomalous water lattices. (a) Type A lattice; (b) type B lattice; (c) type C lattice.

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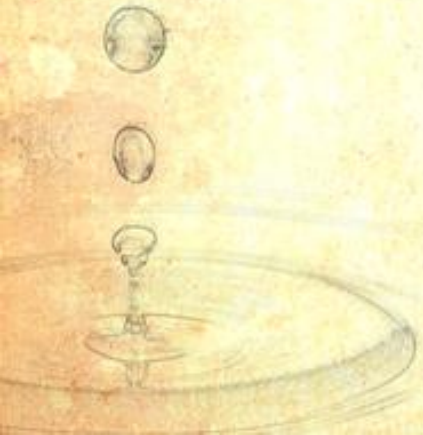
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Double Beta Decay



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Superspeed Neutrinos



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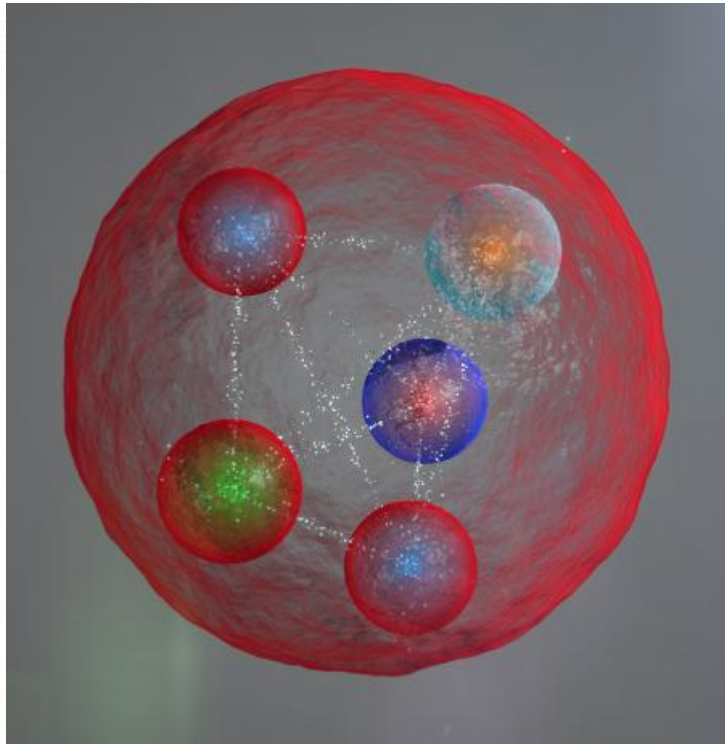
Superspeed Neutrinos

Pentaquarks



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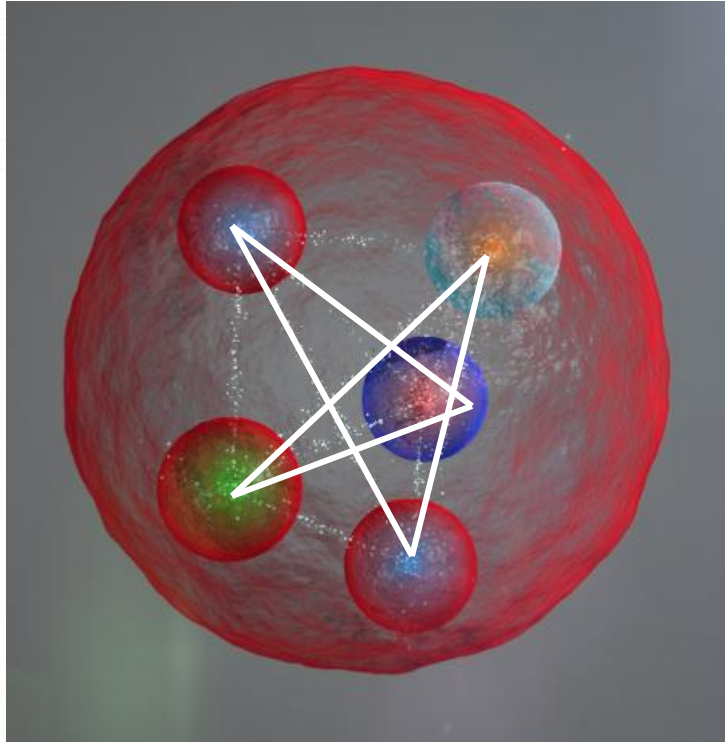
Beta Decay

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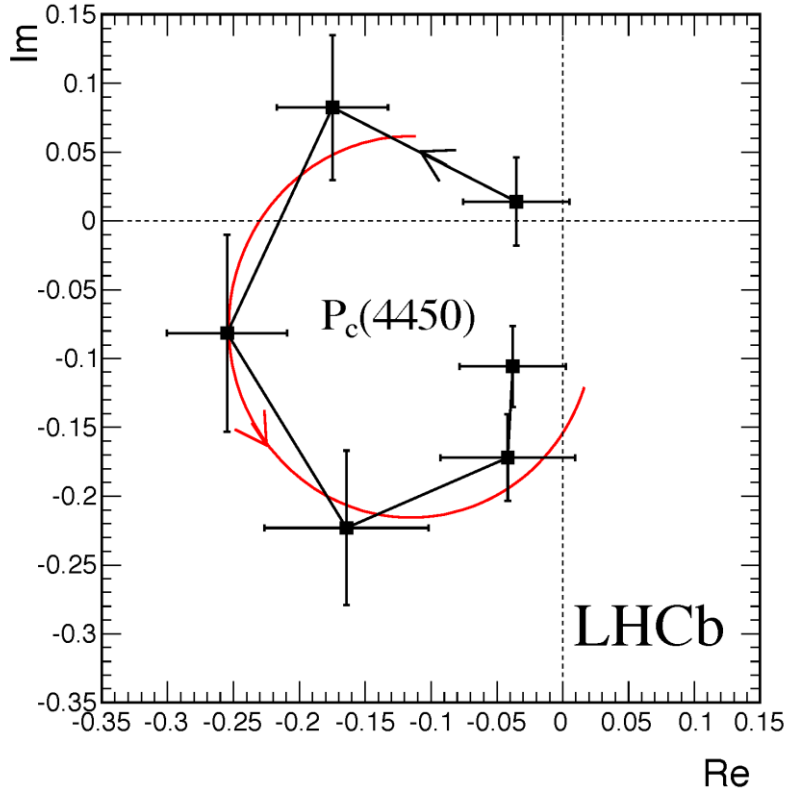
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Superspeed Neutrinos

Pentaquarks

Supersymmetry



List of unsolved theories in physics

All Nuclei > Lithium

GUT

Baryon Asymmetry

Dark Matter? Dark Energy?

Quantum Gravity

Flatness of the Universe?

Graviton

3+1 + X Dimensions

Higgs-Mechanism

Galaxy Rotation Curves

Galactic Horizon Problem

White Dwarf Energy Loss

Cosmological Inflation

Helium Burning Rate in Old Stars

All SM Parameters

Fine Tuning

Some SM Parameters

Extragalactic TeV Photon Transparency



List of unsolved theories in physics

- All Nuclei > Lithium
- Dark Matter?
- Flatness of the Universe?
- Galaxy Rotation Curves
- White Dwarf Energy Loss
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List of unsolved theories in physics

Alchemy



List of unsolved theories in physics

Alchemy

White Dwarf Energy Loss

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White Dwarf Energy Loss

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White Dwarf Energy Loss

Helium Burning Rate in Old Stars

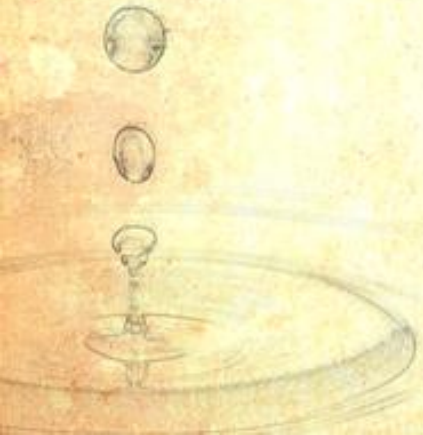
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Social Artefact

Alchemy

White Dwarf Energy Loss

Helium Burning Rate in Old Stars

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Flatness of the Universe?

3+1 + X Dimensions

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Social Artefact

Flatness of the Universe?

3+1 + X Dimensions

Higgs-Mechanism

GUT

Dark Energy?

Gravity And QM Not Understood

Alchemy

White Dwarf Energy Loss

Helium Burning Rate in Old Stars

Extragalactic TeV Photon Transparency

Fine Tuning

Baryon Asymmetry

All Nuclei > Lithium

All SM Parameters

List of unsolved theories in physics

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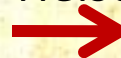
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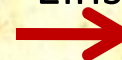
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~~All SM Parameters~~

Heisenberg



Einstein

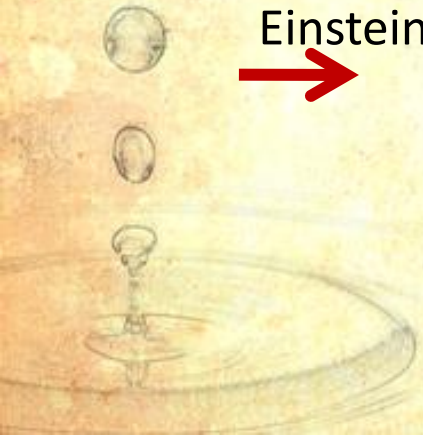


Falsify Einstein and Heisenberg

Heisenberg:



Einstein:



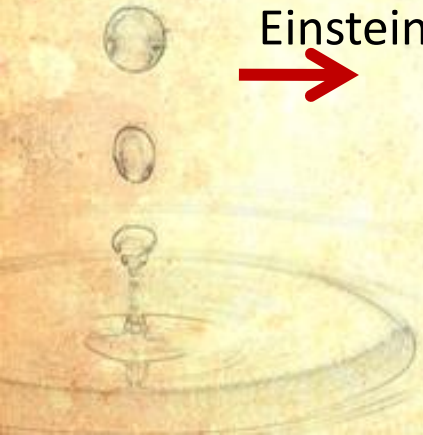
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Uncertainty Principle

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Falsify Einstein and Heisenberg

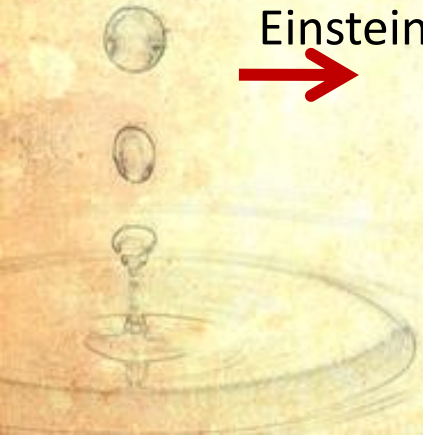
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Uncertainty Principle

h : Energy and Time or Space and Momentum (Time)

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Falsify Einstein and Heisenberg

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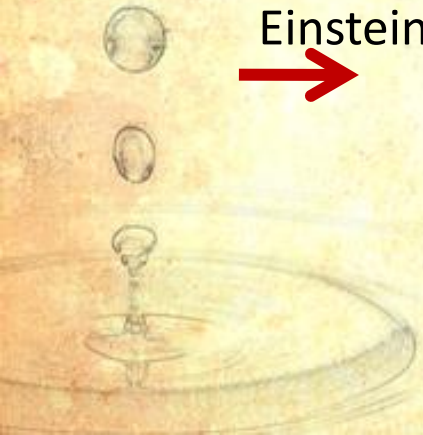


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Operators X and T

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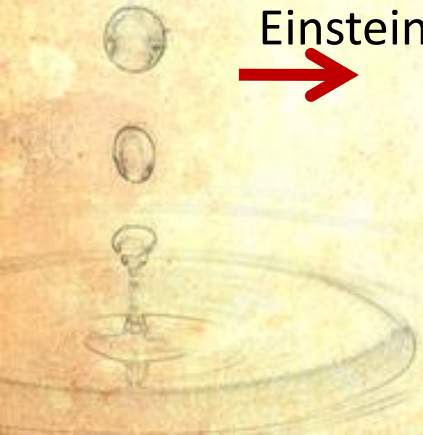
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Ether Theory



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Ether Theory (Light has a curved Space-Time Medium)



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Ether Theory (Light has a curved Space-Time Medium)

„Zeit ist was eine Uhr anzeigt“



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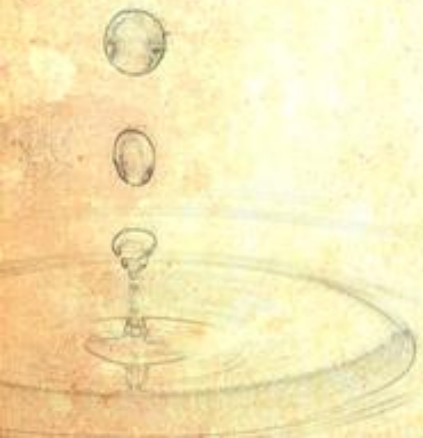


Ether Theory (Light has a curved Space-Time Medium)

„Zeit ist was eine Uhr anzeigt“

No fundamental clocks!

Summary



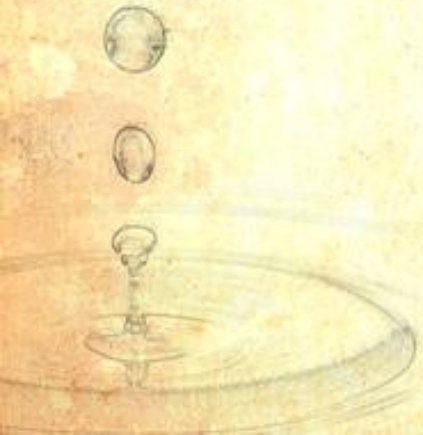
Summary

- Deduced a method to **New Physics**



Summary

- Deduced a method to **New Physics** based on the principle of falsification



Summary

- Deduced a method to **New Physics** based on the principle of falsification of accepted theories



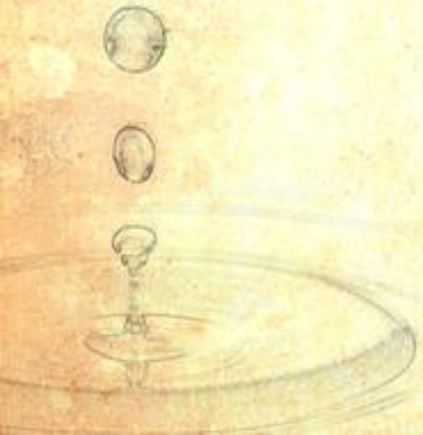
Summary

- Deduced a method to **New Physics** based on the principle of falsification of accepted theories
- Evidence for the feasibility in several examples



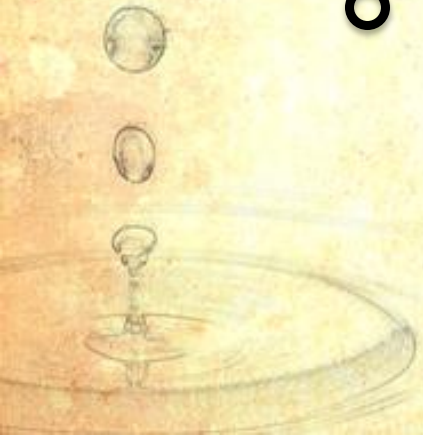
Summary

- Deduced a method to **New Physics** based on the principle of falsification of accepted theories
- Evidence for the feasibility in several examples which proves the principle of disproval



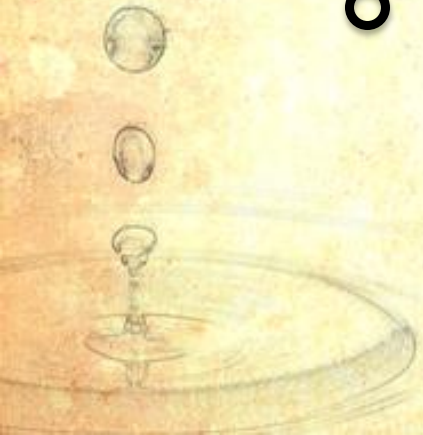
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- Deduced a method to **New Physics** based on the principle of falsification of accepted theories
- Evidence for the feasibility in several examples which proves the principle of disproval
- Shown a new „Golden Road“



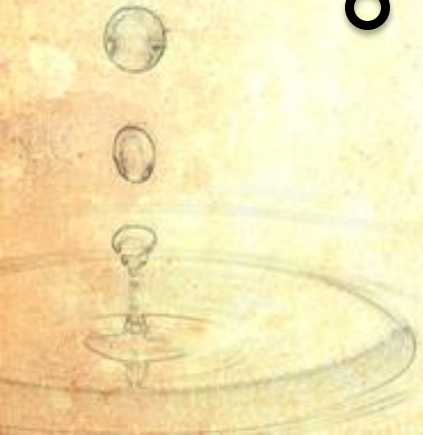
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- Deduced a method to **New Physics** based on the principle of falsification of accepted theories
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Summary

- Deduced a method to **New Physics** based on the principle of falsification of accepted theories
- Evidence for the feasibility in several examples which proves the principle of disproval
- Shown a new „Golden Road“ demonstrated for Quantum Gravity by fundamentally identifying inconsistent assumptions



Summary

- Deduced a method to **New Physics** based on the principle of falsification of accepted theories
- Evidence for the feasibility in several examples which proves the principle of disproval
- Shown a new „Golden Road“ demonstrated for Quantum Gravity by fundamentally identifying inconsistent assumptions like Space and Time

