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# On Problems and Errors In Theoretical Physics, Astrophysics, and Cosmology

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## The sub-sciences

Standard literature distinguishes three sub-disciplines that, among other sciences, deal with the study of matter, its states, and its movements. These sub-disciplines are defined in the official literature as described below.

- *“Theoretical physics is a branch of physics that describes and predicts natural phenomena using mathematical models, abstractions, and computer simulations.*
- *Astrophysics is a branch of physics and astronomy that uses physical laws to study celestial bodies such as stars, planets, and galaxies, as well as the universe as a whole.*
- *Cosmology is a branch of astrophysics that deals with the origin and evolution of the universe as a whole. It attempts to describe the universe using physical laws.”*

Currently, these sub-disciplines are increasingly distancing themselves from the status of science. The signs of this can already be seen in their definitions. One cannot study an "entire universe" because there is no such thing as an entire universe, since it exists infinitely in space and eternally in time. An entire universe would be spatially limited; it would be finite. There is no "origin" of the universe because it exists eternally in time. Therefore, the "evolution" of the universe is also a questionable concept. In theoretical physics, mathematical abstractions are often ascribed a real existence, leading to models with which observations of nature and measurement results are misinterpreted. In this way, false theoretical approaches arise, which are then treated as facts. Mathematical considerations are treated as primacy, while observations of nature are relegated to secondary status and ignored if they do not agree with the theoretical assumptions.

Back in February 2020, I already raised the question, "What's going on in theoretical physics?"

<http://hauptplatz.unipohl.de/Wissenschaft/WhatIsGoing.htm>.

At that time, I observed that theoretical physics was failing at the very object of its research, matter, and was increasingly falling into crisis because there was no longer any clarity about it. I had already examined the concept of matter more closely in a paper from December 2017 and derived some consequences of the current misconceptions surrounding it:

<http://hauptplatz.unipohl.de/Wissenschaft/Materiedefinition.htm>.

The crisis in physics has been ongoing for a very long time; Max Planck pointed it out at the time, though without specifying its exact causes.

In January 2021, I wrote another paper on the nature of matter, with which I intended to influence the restoration of the dialectical-materialist concept of matter in physics: <http://hauptplatz.unipohl.de/Wissenschaft/EssenceMatter.pdf>.

## Big Bang and Expansion

A process is currently emerging that is closely linked to the misconceptions described above. It is a process of doubt and increasing ignorance of universally valid laws of nature, which are considered established physical knowledge and are both proven and generally accepted. Consequently, in the evaluation of models and mathematical abstractions, laws of nature are omitted or knowingly ignored.

It begins with the denial of the eternity of matter's existence by claiming that it originated at a "calculated" point in time. This point in time has been determined by calculating back a supposed expansion of the universe to a point at which it was allegedly united in a singularity. This event is called the Big Bang; with it, all matter in the universe is said to have "originated" and spread throughout space. The idea originates with the Belgian Jesuit priest Abbe Georges Edouard Lemaitre (1894-1966), theologian and astrophysicist, who in 1927 described the unification of creation with physics as "...a cosmic egg, a primordial atom, which exploded at the moment of the universe's creation, thus bringing forth all the matter of the universe." At a congress in London, this idea initially provoked laughter. It was dismissed as a "Big Bang," originally a joke, but through the persistent influence of the clergy, this idea became increasingly established as serious. This unidirectional "bomb-fragment movement" of cosmic objects was more and more frequently accepted as fixed, as irrefutable, and less and less questioned. Mathematicians tried to find workable solutions from these absurd assumptions, using calculations from their bag of tricks, but with limited success. After the first successful nuclear fission experiment by Otto Hahn and Fritz Strassmann in 1938, the idea of the cosmic primordial egg gained further traction. More and more physicists subscribed to this misguided theory and claimed that the Big Bang was an established fact.

<http://hauptplatz.unipohl.de/Wissenschaft/FocusOnlineUrknallWiderlegt.pdf>,  
<http://hauptplatz.unipohl.de/Wissenschaft/PhysikerPhysik.htm>.

On November 23, 1951, Pope Pius XII addressed the members of the Pontifical Academy of Sciences and declared in a concluding lecture that the beginning of the world, which can be pinpointed to the Big Bang, originated from a divine act of creation. He argued that this was the best way to integrate the findings of modern science with Church doctrine.

To this end, all facts that do not support this view are ignored, denied, or excluded from consideration. This includes, for example, the "Atlas of Peculiar Galaxies," in which the American astronomer Halton Arp identified 336 galaxies whose motion cannot be described by the Big Bang hypothesis.

But where does the idea that the universe must be expanding come from? Originally, the explanation was simple: if there had been a Big Bang, expansion would be a logical consequence. However, this required attempting to prove that the Big Bang had occurred as predicted. In 1929, the American astronomer Edwin Hubble discovered the redshift of the spectra of distant cosmic objects. This discovery led to the assertion that redshift could only be explained by a Doppler effect resulting from the recession velocity of these objects. Although Hubble rejected this view as early as 1930, others subsequently clung to it tenaciously. It was, after all, a good starting point for explaining the expansion of the universe and thus providing a basis for the Big Bang. Hubble's

discovery had even demonstrated that the redshift increases with the distance of the objects. From this, it was concluded, on the same flawed premise that the expansion was even accelerating. The search then began for a constant that would prove the dependence of the recession velocity on distance – the Hubble constant. The conviction surrounding this constant was so unshakeable that, in the end, it was even claimed that the accelerated expansion of the universe had been observed.

The fact is, however, that no one has observed an expansion. In the calculations for interpreting the redshift, Lambert-Beer's absorption law for radiation, which applies to all radiation, has been disregarded. This law allows the calculation of the energy loss of radiation as it travels across spatial distances. Energy loss, however, leads to a redshift because  $\Delta E = h \cdot \Delta f$ , where  $h$  is Planck's constant and  $f$  is the frequency. Including this law yields a perfectly plausible redshift function of the distance to the objects, but not of their recessional velocity. To date, the Hubble constant has not been determined. Nor can this be expected, because the underlying relationship does not exist. There is no general expansion of the "entire" universe, neither linear nor accelerated. But this fact is being ignored. Instead, the incomprehensible concept of "Hubble stress" is coined, which is used to mask the failures in determining the Hubble constant. However, you won't be able to find a Hubble constant. This is described in more detail in

<http://hauptplatz.unipohl.de/Wissenschaft/HubbleConstantCalculation.pdf>,  
[http://hauptplatz.unipohl.de/Wissenschaft/Hubble-Konstante\\_engl.pdf](http://hauptplatz.unipohl.de/Wissenschaft/Hubble-Konstante_engl.pdf).

The Big Bang hypothesis proclaims a "beginning" of the universe. However, this assumption contradicts the conservation laws of energy and mass, as well as momentum and charge. These laws have been experimentally and theoretically proven to demonstrate that the conserved quantities of mass, energy, momentum, and charge can neither be created nor destroyed; that is, they must exist eternally. There is no longer any doubt about this. This means that there is no beginning to the universe. The so-called singularity, supposedly a point of infinite energy density of "pure" energy, implies that energy without mass could not have existed. This assumption contradicts the mass-energy equivalence  $E = m \cdot c^2$  the validity of which has also been experimentally and theoretically proven. It states that if the mass is zero, the energy is zero, and vice versa; that is, energy without mass does not exist, and every mass has an equivalent energy. Einstein formulated it as follows: "Mass is the measure of the energy content of a body."

However, problems arise at the beginning of the assumed expansion of the Big Bang singularity. There is a period after the supposed Big Bang up to the time  $10^{-43}$  seconds that cannot be explained by the laws of nature – the Planck era. Therefore, more detailed calculations are currently being avoided. However, there are still some highly trained mathematicians who spare no effort in trying to calculate this time.

After these  $10^{-43}$  seconds, the GUT era (Grand Unified Theories – a grand name for little substance) is said to follow, in which the expansion of the universe is likewise not representable by the laws of nature. But a solution has also been found for the unconditional preservation of the Big Bang hypothesis: the so-called inflationary phase, which I will examine in more detail later.

First, another question arises. Because of mass-energy equivalence, a point of infinite energy density would also be a point of infinite mass density, and consequently, would have infinite internal gravity. How could such a point expand? No one can answer this question. Such a point would be the largest conceivable black hole – if it had existed.

## The conservation laws

In recent times, attempts to deny the conservation laws have become increasingly common, for example, with the claim that the law of conservation of energy does not apply to the universe as a whole. This claim is crowned with the assertion that the energy of the universe is neither lost nor conserved—an absurd statement that ultimately abolishes logical thinking. The claim fails, firstly, because of the question of what constitutes an entire universe—a whole would be finite, but the universe is not—and secondly, because of the question of whether there are indeed laws of nature that only apply sometimes. It is certainly a trivial observation that such laws of nature do not exist.

Consequently, this attitude leads to completely unusable theoretical approaches that speak of a "whole" universe and, because it would be finite, subsequently of the existence of "multiple universes", "parallel universes" or "multiverses" (the formation of the plural of the term universe is already linguistically unsuitable) and other oddities, immortalized, for example, in the representations of Frank Tipler (born 1947) or Max Tegmark (born 1967), both in permanent positions at American universities. In my book *[Materie und Physik, die Auswirkungen philosophischer Grundhaltungen auf die theoretische Physik und auf andere Naturwissenschaften](#)* (*Matter and Physics, the impact of philosophical attitudes on theoretical physics and other natural sciences*), September 2020, Cuvillier-Verlag, Göttingen, ISBN-13 (print edition): 978-3-7369-7264-3, ISBN-13 (e-book): 978-3-73696-264-4, I deal extensively with their idiosyncratic theories.

All of this means that there was no Big Bang followed by the expansion of the universe, even though some physicists still steadfastly cling to this idea. Cosmic matter is eternally chaotically distributed throughout infinite space and is inherently in chaotic motion due to its own inherent forces. This statement, based on the cosmological principle, is highly irrefutable. The cosmological principle, formulated by Edward Arthur Milne in 1933, states that the universe is homogeneous and isotropic on large scales.

However, mass-energy equivalence is not the only evidence for rejecting the Big Bang hypothesis. Attempts have been made to determine an energy balance for the universe based on this assumption of motion. The result was that approximately 70% of the required energy is missing. In any other science, this would have led to the rejection of the model because it cannot be correct. But not in cosmology. Here, a completely different, entirely far-fetched theory was adopted. The Big Bang hypothesis was declared an irrefutable axiom. In 1998, astrophysicist Michael Stanley Turner of the University of Chicago postulated "dark" energy, a form of energy "that we don't yet know," as he put it. This energy, he claimed, was the missing component required for the Big Bang hypothesis. Furthermore, it generated a counterforce to gravity, under whose sole influence the universe could not expand indefinitely. No evidence was provided for this assumption; the postulate was announced purely speculatively. Dark energy was subsequently elevated to the status of established fact. To this day, attempts to prove its existence have been unsuccessful.

## Alternative Model

All considerations regarding these and other misinterpretations have led me to a different model of cosmic matter motion, which I have posted as a preliminary draft at [http://hauptplatz.unipohl.de/Wissenschaft/ModellMateriebewegung\\_engl.pdf](http://hauptplatz.unipohl.de/Wissenschaft/ModellMateriebewegung_engl.pdf).

This model requires no mystical or metaphysical speculations beyond the laws of nature to explain matter motion.

## The inflation phase

Perhaps the most curious hypothesis to emerge from the pointless attempt to calculate the size of the infinite universe is the so-called inflationary phase of the universe's expansion during the so-called GUT era. According to this hypothesis, cosmic matter supposedly expanded at multiple times the speed of light, by a factor between  $10^{30} \cdot c$  and  $10^{50} \cdot c$ , during the first  $10^{-35}$  to  $10^{-32}$  seconds after the Big Bang. Although this hypothesis is increasingly met with serious scepticism, even among physicists, papers – notably in scientific journals – continue to appear that attempt to support it by blatantly undermining fundamental physical principles. Such papers operate with the most peculiar theses. The speed of light, as a universal constant governing the motion of matter, is unequivocally established. This can hardly be disputed anymore because it is closely linked to other laws of nature, such as the electromagnetic constants:  $c = 1/\sqrt{\epsilon_0 \cdot \mu_0}$ . Therefore, it is now argued that this faster-than-light propagation of matter does not contradict the theory of relativity, since it does not describe the propagation of matter in space, but rather the faster-than-light expansion of space itself, which the theory of relativity does not prohibit. Space can expand at any speed and, in doing so, takes matter with it.

With such a thesis, any scientific approach is replaced by absurdity. The theory of relativity "prohibits" nothing; it describes the relativity of the motion of matter in space and time. Several fundamental facts contradict the assumption of an "expansion of space." On the one hand, space is not a material object to which one could attribute motion. Space cannot expand. The concept of motion cannot be applied to space. Only matter can be in motion within space.

On the other hand, for a supposed "carrying along" of matter, a force would have to exist between space and matter. Such an assumption, however, is nonsense, because a force is always an effect between material objects.

But why is space not a material object, not an object? Many sources state that space "contains" or "holds" matter, or that matter is "housed" in space. These descriptions are incorrect from a purely linguistic perspective. They suggest that space is a kind of container for matter, which can be empty or not. Space itself would then be a material object, a body. If this were the case, one could "take matter out of space" or "bring it into space." The consequence would be that if matter were removed, there would be a space without matter; conversely, the removed matter would then be matter without space. However, there is no doubt, and it is generally accepted, that neither of these is true. There is no space without matter and no matter without space. Therefore, space is not an object, but a condition for the existence of matter. Space itself is nothing.

All these misinterpretations about matter lead to such curious concepts as the "origin" or "beginning" of the universe, its "early phase," a "young" universe – I've even heard of a "baby phase" – as well as the "origin" and "expansion" of space, the "origin" and "beginning" of time, and even the "origin" of the laws of nature, which supposedly didn't exist at all; they only "came into being" with the Big Bang, and many other curiosities that have nothing to do with natural science. An entire pseudoscience revolves around this "beginning" of the universe, the so-called primordial nucleosynthesis: In the beginning, the universe was dark (plasma); only with the beginning of particle formation did it become transparent. Later, atomic nuclei formed, and then elements. I can't hide

the fact that this strongly reminds me of the Bible: God said, "Let there be light," and there was light (Genesis 1, the creation of the world). What a tribute physics pays to the religious concept of creation! All these bizarre ideas reduce cosmology, and even parts of theoretical and astrophysics, to charlatanism.

## The “age” of matter

More recently, measurements in quantum mechanics have emerged that come very close to proving the eternity of matter. Measurements have demonstrated that electrons do not decay or transform unless particle reactions cause them to do so. According to these measurements, they exist for no less than 66,000 yotta years or 66 ronna years. If decimal multiples are not immediately familiar: this is  $6.6 \cdot 10^{28}$  years. The possibility that they exist even longer is not ruled out. However, this is a timeframe that is indistinguishable from eternity, both conceptually and mathematically (to use a unit of length:  $6.6 \cdot 10^{28}$  times a millimeter is approximately 7 billion light-years). In practical terms, this means that electrons exist eternally; they are neither created nor destroyed. Since negative charge does not exist in isolation, the positive charge, the proton, with which neutral atoms can ultimately exist, must also exist for an equally long time. However, this measured existence time is approximately 5 trillion times longer than the age of the universe, calculated using dubious methods, of 13.8 billion years. This age estimate is therefore irrelevant, because matter has already existed for approximately  $5 \cdot 10^{18}$  times as long. But even regarding this, there are statements from cosmologists attempting to circumvent this finding. One cosmologist made the absurd claim that electrons originated shortly after the Big Bang and have existed eternally ever since. Although this statement is amusing in its naivety, the author apparently intends to be taken seriously. See also [http://hauptplatz.unipohl.de/Wissenschaft/Elektron\\_Alter\\_engl.pdf](http://hauptplatz.unipohl.de/Wissenschaft/Elektron_Alter_engl.pdf).

I will now return to the definition of matter because the loss of the dialectical-materialist definition of matter in recent decades has led to further misrepresentations and pseudo theories.

## Processes of Origin and Transformation

A fundamental misconception is the belief that energy is not part of matter, but rather something separate from it. Almost all sources refer to "matter and energy" when they actually mean "mass and energy." This perpetuates the persistent misconception that mass can be "converted" into energy and vice versa. However, refuting this error is basic and can be convincingly demonstrated using mathematical methods taught in general education:

<http://hauptplatz.unipohl.de/Wissenschaft/MasseEnergieFehler1.htm>,

[http://hauptplatz.unipohl.de/Wissenschaft/Masse\\_in\\_Energie.pdf](http://hauptplatz.unipohl.de/Wissenschaft/Masse_in_Energie.pdf),

<http://hauptplatz.unipohl.de/Wissenschaft/MasseEnergieUmwandlung.pdf>,

<http://hauptplatz.unipohl.de/Wissenschaft/PhysikerUndEnergieumwandlung.pdf>.

As a consequence of this false claim, the mass defect and so-called particle annihilation are misunderstood by attempting to create the illusion, contrary to the laws of conservation that mass can be created or destroyed.

At the Austrian universities of Vienna, Innsbruck, and Graz, highly valuable experiments with particle reactions were conducted between 2023 and 2025 as part of research projects in quantum physics. If interpreted correctly, the results of these

experiments could lead to significant progress in solving quantum theoretical problems, including finding unified explanations for quantum mechanics within the framework of general relativity. Unfortunately, however, they are being used to try to prove claims such as "the creation of matter from nothing" and "the conversion of mass into energy and vice versa." These are endeavours that cannot succeed:

[http://hauptplatz.unipohl.de/Wissenschaft/MaterieAusNichts\\_engl.pdf](http://hauptplatz.unipohl.de/Wissenschaft/MaterieAusNichts_engl.pdf).

## Non-material entities

Another fundamental error lies in interpreting non-material entities such as space, time, and even force as material objects. The consequences of considering space as an object have already been explained above. But force, too, is non-material; that is, it is not a material object, not a body, not an object. It is not subject to motion. In other words, the concept of motion is not applicable to force. The ongoing search for gravitational waves, which are supposed to propagate through space at the speed of light, is the most striking example of this error. Gravity is a force between two cosmic bodies or mass elements. It acts instantaneously, that is, immediately, without delay, independently of time, without any temporal progression. It does not propagate. Therefore, gravitational waves cannot exist.

Gravity is a force between two cosmic bodies or mass elements. Albert Einstein had described gravitational waves on June 22, 1916, in his lecture "Approximate Integration of the Field Equations of Gravitation" at the meeting of the physical-mathematical class of the Prussian Academy of Sciences with the erroneous statement:

*"We will show that these  $\gamma_{\mu\nu}$  can be calculated in an analogous way to the retarded potentials of electrodynamics."*

(Proceedings, June 29, 1916, pages 688 to 696):

[http://hauptplatz.unipohl.de/Wissenschaft/Anmerkungen\\_Einstein.pdf](http://hauptplatz.unipohl.de/Wissenschaft/Anmerkungen_Einstein.pdf):

At that time, he still believed that gravitational fields could be treated like energy fields, although at the end of the same lecture he had already expressed doubts about this description:

[https://articles.adsabs.harvard.edu/cgi-bin/get\\_file?pdfs/SPAW/1916/1916SPAW.....688E.pdf](https://articles.adsabs.harvard.edu/cgi-bin/get_file?pdfs/SPAW/1916/1916SPAW.....688E.pdf)

Later, in collaboration with Max Born, Nathan Rosen, Leopold Infeld, Harvey Percy Robertson, Banesh Hoffmann, Marcel Grossmann, and others, he revised this view and in 1938 definitively proved that gravitational waves cannot exist.

This is why statements like "a mass is surrounded by a gravitational field" or "gravity is emitted by a mass" are completely devoid of physical content. More details can be found at:

<http://hauptplatz.unipohl.de/Wissenschaft/Gravitationswellen.htm>,

[http://hauptplatz.unipohl.de/Wissenschaft/Gravitationswellen\\_Maerchen.pdf](http://hauptplatz.unipohl.de/Wissenschaft/Gravitationswellen_Maerchen.pdf),

<http://hauptplatz.unipohl.de/Wissenschaft/NoHairTheorem.pdf>,

<http://hauptplatz.unipohl.de/Wissenschaft/WeinsteinGravitationEngl.pdf>.

However, it remains incomprehensible why such work and developments by Einstein are ignored in modern physics. Even today, the search for gravitational waves continues using LIGO interferometers, and there was even the implausible announcement in 2015 that they had been found.

In the end, the search for the so-called graviton, a fictitious particle used to try to materialize gravity, will also prove fruitless.

However, the instantaneous effect of the gravitational force is not a modern discovery, nor did I bring about this insight. It was discovered in the 19th century by James Clerk Maxwell (1831–1879), documented in his work *Action at a Distance*, published in: *Scientific Papers of James Clerk Maxwell\**, Volume II (pages 311 to 315) [From the Publications of the Royal Institution of Great Britain, Volume VII]. In that same volume, he also states that many natural scientists before him had addressed this question. I translated this paper from English in 2014 and made it available online: [http://hauptplatz.unipohl.de/Wissenschaft/Assis/Maxwell\\_Seiten\\_311\\_315.pdf](http://hauptplatz.unipohl.de/Wissenschaft/Assis/Maxwell_Seiten_311_315.pdf).

Building on Maxwell's work, the Brazilian physicist and historian of science Prof. Dr. André Koch Torres Assis, Institute of Physics Gleb Wataghin, University of Campinas, São Paulo, developed and published further arguments supporting the validity of the concepts of action at a distance. I made a translation of this work from English available on my website in 2013 with the author's permission: <http://hauptplatz.unipohl.de/Wissenschaft/Assis/Fernwirkung.pdf>.

With the insights into action at a distance and the instantaneous nature of a force, the problem of entanglement of particles that are instantaneously correlated at spatial distances – that is, that have the same or similar states – is also resolved. Such particles have the same or similar states when they are in a gravitational relationship with another massed object, which acts upon them without any temporal progression, provided they are not influenced by other forces. Einstein once called entanglement a "spooky action at a distance." With the current understanding that forces must propagate at the speed of light, it will likely remain spooky, because the nature of entanglement cannot be grasped. More on this in my article: <http://hauptplatz.unipohl.de/Wissenschaft/EinsteinsSpuk.pdf>.

The misinterpretations described above lead to further inconsistencies for which there can be no meaningful answers, such as:

- In which direction does gravity move between the sun and the earth? or
- Does gravity between the sun and the earth have a delay of 8 minutes and 20 seconds ( $150 \cdot 10^6$  km/c)? or
- Do Kepler's laws and Newton's equation of gravitation have a temporal sequence?

It can be seen in a very basic way that the representation of the motion of gravity is incorrect: Neither Kepler's equations for calculating planetary orbits nor Newton's equation of gravitation contain any reference elements or terms relating to any propagation speed or time dependence of gravity. The equations are sufficiently proven and yield correct results in practice, assuming an instantaneous effect of gravity. If this were not the case, the travel time of gravity would have to be included in the equations, as it is of considerable magnitude and could not be neglected as small compared to other quantities. The travel time between the Sun and Earth, for example, would be 500 seconds.

Furthermore, Newton's equation of gravitation reveals something trivial: If one of the two gravitating masses is zero (meaning it is non-existent), then the gravitational force is also zero, i.e., non-existent. For a single mass, a gravitational force cannot be defined; consequently, it cannot be surrounded by a gravitational field that is "radiated" by the mass. Gravity is not radiation; it is not matter. Therefore, the term "gravitational energy," used in many sources, is a contradiction in terms. Gravity is not energy, but a force. Basic knowledge: Force is mass times acceleration ( $F=m \cdot b$ ), and energy is force times distance ( $E=F \cdot s$ ).

And another question arises that cannot be answered: If gravity moved in space, would it move, for example, between the sun and the earth, from the sun to the earth or from the earth to the sun? On closer inspection, one realizes that this is a meaningless question.

## Quantization

The current ambiguities in the definition of matter also lead directly to errors in quantum mechanics. For example, official sources claim that mass is not a quantized quantity. In my papers

<http://hauptplatz.unipohl.de/Wissenschaft/DerWiderspruch.pdf>,

<http://hauptplatz.unipohl.de/Wissenschaft/Fehler%20in%20En-Imp-Relation.pdf>, I demonstrate, in connection with the claim that photons are massless, that this is false. It is mathematical superficialities that lead to erroneous conclusions.

The thesis that mass is not quantized can be easily refuted using mass-energy equivalence. Planck's constant defines the smallest possible unit of energy. This energy has an equivalent mass. Assuming that mass is not a quantized quantity, a mass smaller than the equivalent mass of the Planck constant would have to exist:  $m < E/c^2$ . This would invalidate the mass-energy equivalence.

The masslessness of photons is a mistaken assertion because photons possess momentum. This momentum, however, is demonstrable. Momentum is a quantity of motion, defined as moving mass multiplied by its relative velocity. The statement about a momentum without mass, supposedly arising from "moving energy," is self-refuting, since moving energy is also moving mass. Moving mass, however, is rest mass in motion. If the rest mass is zero, there is no moving mass and therefore no momentum:  $p = m \cdot v$ ,  $p_{\text{photon}} = m' \cdot v$ . This can be easily demonstrated using Lorentz transformations.

## Mathematical Abstractions

At this point in the work, the handling of mathematical abstractions must be addressed once more. In current views, mathematical abstractions are often considered to exist in reality. In this way, they are materialized, even though they cannot have a corresponding representation in reality. For example, the curvature of space is an abstraction used by the General Theory of Relativity to explain gravitation. However, the curvature of space has no representation in reality; that is, it does not exist in nature:

<http://hauptplatz.unipohl.de/Wissenschaft/Raumkruemmung.pdf>.

The frequently used analogy of a stretched rubber sheet curved by weights placed upon it cannot describe the curvature of space because this is a completely different physical phenomenon. This analogy cannot be derived mathematically.

The curvature of space cannot be described using the commonly used analogy of a stretched rubber sheet curved by weights placed upon it, because this is a completely different physical phenomenon.

In an article by Markus Pössel, it states:

*“What is gravity? Einstein’s general theory of relativity offers an unusual answer to this question: Gravity is partly an illusion, partly associated with a property called curvature. Overall, gravity is an aspect of the geometry of space and time.”*

Here again, space is viewed as a material object that can be curved. To see gravity as an illusion is akin to subjective idealism. It supposedly exists only if a conscious mind dictates it. But this is not physics, which is based on dialectical-materialist thinking. And neither space nor time possesses a geometry, because both are non-material. Therefore, this presentation is by no means the answer of the theory of relativity to the question of what gravity is.

*“Albert Einstein revolutionized our understanding of gravity with his General Theory of Relativity by interpreting gravitation not as a force, but as the geometric curvature of four-dimensional space-time caused by mass and energy. Objects in this curved space follow the shortest path (geodesic lines), which we perceive as attraction.”*

Einstein by no means negated gravity as a force; it remains a force even in the theory of relativity. Because the movements of objects in space are not rectilinear due to its effect, curvilinear coordinate systems are defined so that the movements appear straight. These are the geodesics. However, this cannot be understood as a curvature of space, because space has neither structure nor geometry. Nor does it change the movements of objects; they are considered abstractly to simplify or enable their description and calculation. These abstractions have no influence on reality, on the actual processes of motion. To work with such claims is to prioritize mathematics over the observation of nature. This, however, is a metaphysical perspective. The assertion that Einstein's theory replaces Newton's concept of gravity as a force at a distance is definitively false.

## The cosmological constant

The general theory of relativity established the abstract interpretation of gravitation with the field equation in 1915. What role does the cosmological constant, added in 1917, play?

Wikipedia states:

*“The cosmological constant ( $\Lambda$ ) is a physical constant in the equations of the general theory of relativity, which describes the gravitational force as a geometric curvature of space-time. It has the meaning of a (positive or negative) energy density of the vacuum.”*

The cosmological constant was initially introduced by Albert Einstein, but he later rejected it himself as "the biggest folly," partly because he recognized a negative energy density as nonsense. Today, despite better knowledge, its existence is presumed. This presumption stems from the unwavering belief in a Big Bang followed by the expansion of the universe, a belief that is desperately maintained. It is difficult to understand why.

The cosmological constant was initially introduced by Albert Einstein, but he later rejected it as "the biggest folly," partly because he recognized the absurdity of a negative energy density.

Further information from Wikipedia:

*“While for a long time the prevailing opinion in physics was that the value of the cosmological constant was zero, recent observations indicate a very small positive value.”*

The cosmological constant  $\Lambda$  is no longer interpreted today as a parameter of general relativity (as introduced by Einstein), but rather as the time-constant energy density  $\rho_{vac}$  of the vacuum (expressed here as mass density, based on the equivalence of mass and energy):

$$\Lambda = \frac{8\pi G}{c^2} \cdot \rho_{vac} \quad \text{mit} \quad \frac{8\pi G}{c^2} \approx 1,9 \cdot 10^{-26} \text{m/kg},$$

$G$  is the gravitational constant.... Since mass density has the dimension mass/volume,  $\Lambda$  must have the dimension  $1/m^2$ . Its value can be positive, negative, or zero a priori."

This representation fails to explain how a mass density can be negative, because negative mass doesn't exist. It also cannot be zero, because there is no space without matter. The "time-constant energy density  $\rho_{vac}$  of the vacuum" is also incomprehensible, as it contradicts the assumption of an expanding universe. Under this assumption,  $\rho_{vac}$  must decrease because, due to the law of conservation of energy, no energy can be added. If energy – or, by extension, mass – occupies a larger space as a result of expansion, the density decreases. This is basic knowledge. The consequence is that a cosmological "constant" can only exist if one assumes that there is no general expansion of the universe. If expansion is assumed, then it is not a constant.

"In modern cosmology, the dimensionless density parameter  $\Omega_\Lambda$  is usually used instead of  $\Lambda$ :

$$\Omega_\Lambda = \frac{\Lambda c^2}{3H_0^2} = \frac{8\pi G}{3H_0^2} \cdot \rho_{vac} = \frac{\rho_{vac}}{\rho_c}$$

with the critical mass density

$$\rho_c = \frac{3H_0^2}{8\pi G} \approx 8,5 \cdot 10^{-27} \text{kg/m}^3$$

Here,  $H_0 \approx 67 \frac{\text{km}}{\text{s} \cdot \text{Mpc}}$  is the Hubble constant."

This is now completely unclear. Since there can be no constant energy density  $\rho_{vac}$  if expansion is assumed, the density parameter  $\Omega_\Lambda$  is also not constant. The origin of the so-called critical mass density and what makes it critical also remains unclear. It is not constant at best, because there is no Hubble constant  $H_0$ , as has already been shown above. The value of  $67 \frac{\text{km}}{\text{s} \cdot \text{Mpc}}$  used here is purely speculative.

"The assumption that the vacuum energy density remains constant even as the universe expands leads to the equation of state:

$$\rho_{vac} = -\frac{p}{c^2}$$

That is, a positive vacuum energy density leads to negative pressure  $p$ , which drives the accelerated expansion of the universe. This effect occurs with every form of energy where  $p < -\frac{1}{3}\rho c^2$  (although for photon gases,  $p < +\frac{1}{3}\rho c^2$ , but in the general case, the energy density is no longer constant over time. The generalization of the cosmological constant to time-varying energy densities of this kind is called dark energy."

This means, firstly, that due to the assumed expansion, this equation of state is an error. However, the authors now run into conflict with their own interpretations. Initially, contrary to all logic, they assume the constancy of the energy density, even though they assume an expansion in which the energy density must decrease. This maneuver, as can be seen, serves the purpose of establishing an equation of state with which a negative pressure is calculated. At the end, the equation of state then reveals that the energy density is not constant after all. Then, a positive energy density is derived, which supposedly leads to a negative pressure. A negative energy density is no longer mentioned. However, it remains completely unclear where this equation of state,  $\rho_{vac} = -\frac{p}{c^2}$ , comes from, with which this negative pressure is calculated, which miraculously "drives the accelerated expansion of the universe." In this equation, the units of measurement do not match:

While  $[\rho_{vac}] = \frac{J}{m^3} = \frac{kg}{m \cdot s^2}$  we find  $\left[\frac{p}{c^2}\right] = \frac{N \cdot s^2}{m^2 \cdot m^2} = \frac{kg}{m^3}$ . The equation is therefore structurally incorrect. Then, however, this negative pressure for photon gases becomes positive again; no explanation is probably needed for that. Apparently, nobody knows where the strange expressions  $p < -\frac{1}{3}\rho c^2$  and  $p < +\frac{1}{3}\rho c^2$  come from. The units of measurement are also incorrect in these expressions. Finally, there is indeed the time-varying energy density, now no longer a constant, which is called dark energy. But we already know who predicted it. All in all, a great mess.

*"From a number of different observations, the value of the cosmological constant is currently estimated to be  $\Omega_\Lambda \approx 0,7$ , meaning that about 70% of the energy density in the universe is in the form of the cosmological constant or dark energy."*

Here we have the true reason for the manipulations of the cosmological constant: The error that arises from calculations of the universe's energy balance based on the Standard Model – 70% of the required energy cannot be determined – is supposed to be corrected with this mysteriously "estimated" mathematics.

Untangling this hopeless mess seems almost impossible. I am inclined to believe that it is not even necessary, because one is highly certain that a cosmological constant is not needed to explain the motion of cosmic matter if one considers the cosmos on the basis of universally valid natural laws. Why else would Einstein have rejected it as "the greatest folly"? The question posed above regarding the role of the cosmological constant, added to the theory of relativity in 1917, is therefore quite easy to answer: There is none. This kind of mathematical abstraction has no truth content. They are only needed to cling unwaveringly to a standard model that has already been refuted in numerous ways. This has nothing to do with science – or even physics.

## Summary

Science is often not exclusively dedicated to the search for truths in the interrelationships of natural processes. At times, it is dependent on social and political circumstances. These dependencies can be clearly seen and illustrated in the three subfields of physics mentioned at the beginning: theoretical physics, astrophysics, and cosmology.

How can it be that a model which has been proven false by a large number of observational results and overwhelming logic is maintained with great effort and countless speculative postulates, as well as with mathematical gimmicks, all of which

also fail to stand up to scrutiny? What forces are at work here? Why it is repeatedly declared that the Big Bang theory best describes the universe, even though it has been proven to contradict the facts?

The origin of the Standard Model can be traced back to religious influences. More precisely, it is the idea of the Belgian Jesuit priest Abbe Georges Edouard Lemaître (1894-1966), theologian and astrophysicist, who, with the presentation of his cosmic primordial atom in 1927, proclaimed the origin of the universe. This theory was then sanctioned by the Church with a speech by Pope Pius XII on November 23, 1951, before the members of the Pontifical Academy of Sciences. Physics still feels bound to this development today and submits to it despite all criticism and admonitions. The power hierarchy in today's scientific institutions, which still clings to such religious practices in the 21st century, hinders any change in thinking. This is perpetuated by a generation of physicists who have had no other experiences.

Physics still feels bound to this path today and submits to it despite all criticism and admonitions. One consequence of this approach is the gradual dismantling of the dialectical-materialist concept of matter that has progressed in recent decades. This erosion undermines logical thinking in physics. Some scientists find the origin of this concept of matter, which goes back to Karl Marx (1818–1883), objectionable because they mistakenly classify Marx as a communist politician. They refuse to acknowledge that he was not a politician at all, but a philosopher and also a natural and social scientist. Therefore, they strive to reject his philosophical work and instead orient themselves toward the teachings of the Church. I see this misorientation as the main cause of the crisis in physics.

Scientific journalism contributes to this process by consistently excluding critical opinions from publication through the so-called peer-review process. This effectively stifles scientific debate. The Swiss economist Professor Dr. Mathias Binswanger publicly criticized this practice as early as 2010 in his book *Sinnlose Wettbewerbe, warum wir immer mehr Unsinn produzieren (Meaningless Competitions: Why We Produce More and More Nonsense)*. Yet scientific journals continue to boast about their high rejection rates, sometimes reaching 80%. They claim this ensures the high quality of their publications. This is a fallacy that those who support it cannot, or perhaps do not want to, recognize, because the reviewers are almost entirely subject to these influences. Freedom of the press does not exist in scientific journalism. More details in

[http://hauptplatz.unipohl.de/Wissenschaft/WissenschaftUndMedien\\_engl.pdf](http://hauptplatz.unipohl.de/Wissenschaft/WissenschaftUndMedien_engl.pdf).

Thus, we live in a time in which the interplay of all these forces precludes a return of science to the dialectical-materialist method. Presumably, this will only happen when the standard model of cosmology, like the geocentric worldview before it, becomes a laughingstock in public opinion.