Foundations of the New Physics

I

by

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Preface

Science evolves. Every few centuries something happens called a paradigm shift. A paradigm shift is usually accompanied by a change in the viewpoint of the observer. This change of

viewpoint then leads to groundbreaking new insights. With a paradigm shift, everything becomes simpler, clearer, more structured. The finely chiselled world view that was built on a limited subjectivity, that tried to make straight what was crooked, is allowed to go. When Keppler established his four laws on the planetary orbits in our solar system, which together fill perhaps half a page, he made multi-volume works on calculating the orbits of the stars superfluous. So much text had previously been needed to describe what was happening in the sky.

Today we are again facing such a paradigm shift. We are beginning to break our three-dimensional view of the world, and to gain a - initially purely mathematical - view of additional dimensions. But the more we open ourselves to these possibilities, the more phenomena enter our consciousness that demand a consistent rethinking. The term New Physics is still somewhat diffuse because too many cooks try to spice the soup with their ego. Phenomena that cannot be explained with the old physics are giving rise to new terms, such as Wilhelm Reich's orgone or, before that, Gustav Adolf Winter's Orga-Urkraft, or people are invoking worn-out terms from the mythologies: Vril, Prahna, Od, Chi.

At the same time, the search for the so-called unified field theory is haunting the academic world. But under the given axioms, 3 dimensions plus time, it remains untraceable. At least that is the doctrine.

What can we expect from physics in higher dimensions?

- New solutions for energy supply. No one needs to burn oil any more. The laws of conservation of energy are obsolete. In curved space-time, the conservation of energy does not apply - this circumstance has been known since Einstein under the term of the energy problem of general relativity. Besides, in practice there are hardly any closed systems anyway, so there is

nothing to be said against building machines in such a way that they function as higher-dimensional, open systems by themselves. I'll leave it at that, at the risk of overstretching the arc of tension.
- The recapture of ancient knowledge. A higher-dimensional cosmos (+ time) with subjectively experienceable three-dimensional realities that exist in parallel "Worlds of Classical Worlds", the whole played with, animated by fluctuations that seem to come from an initially mathematically abstract 2D, all this is actually old hat. The creation myth in the Bible is based on this model, the fluctuations in this 2D are the breath, the spirit of God hovering over the waters, over the seven heavens and seven hells of the Vedas. The Apocalypse of John tells of the "Worlds of Classical Worlds", as they are called in the latest theories. The task is to put this ancient knowledge into contemporary nomenclature and to base it on modern physics.
- In addition to the reformulation of theories in 5D - from the atomic model to biology - this includes a return to the cyclical view of history, in which the ups and downs of human civilisations, like everything in nature, are also understood as cyclical processes. This can be explained physically, through the concept of information time, which obeys somewhat different laws than the linear concept of time we experience. This can teach us growth maniacs, who think we are on a never-ending trajectory, some humility.
- And when we have understood how extended field physics makes plants grow, we have farming techniques at our disposal that can do without fertilisers, insecticides and pesticides, because the plants can be fed directly with something that can best be described colloquially at this point with the term lifeforce.
- On the basis of higher-dimensional physics, we can also arrive at a New Medicine in which body and soul are viewed and understood as a complex whole, and by being capable of an overall view, healing is finally allowed to start at the causes instead of always

suppressing symptoms and thus only worsening the overall condition.

All in all, this is the healing of a deeply divided world view in which the experience of spiritual worlds was supposedly in logical contradiction to natural science. A legacy from the Enlightenment. It is unbelievable how this collective schizophrenia could stand in the room for so long without it becoming visible that both nevertheless take place in one world and should therefore also stand on an epistemological basis.

However, the most far-reaching realisation - first formulated by Burkhardt Heim - is that what vibrates through our material world coming from the new dimensions to be discovered is nothing other than consciousness itself, which in the same breath grasps reality, and creates reality. This realisation that everything is animate, that nothing takes form unless it is formed by consciousness, is a realisation that can bring back to us the lost respect for creation.

Having embraced the coming paradigm shift in my heart has given me access to a corridor. This book is meant to be a guide through that corridor, with directional explanations of what may be behind which door. Finishing all this and pushing open the doors will be the work of many.

The most uplifting moment for me was when the recursive nature of nature was revealed by looking at the complex field physics with its components running backwards in time. Recursion is the basis of every fractal. And the beauty of creation is an expression of fractal order. Bringing you, the reader, to this point of realisation will be my greatest pleasure. You don't have to understand it now. Later.

The deepest feeling, on the other hand, came with the realisation that on the path of collective spiritual and mental growth, imbalances must be allowed to express themselves. This deepest feeling came with the realisation that every reorganisation also follows strict laws, that the desperate

clinging to the old, like living through a chaotic phase of upheaval, is part of the path to be followed. If this path seems painful, the question is not why, but what for. This seems to me to be precisely the moment when one can slip as a human being from both the role of victim and perpetrator into the role of creator - not with the arrogance of today's science, which wants to put itself in the place of its "creator" with its genetic engineering and its synthetic biology, but in a grateful acceptance and fulfilment of a golden future that is granted to us in the existing creation.

Content

Introduction

The first part of this book deals with scientific basics. The first chapter is first of all an assessment of the current situation - on the basis of Albert Einstein's biography - in order to be able to understand what has already been attempted in the way of theory building in the direction of the much-invoked "unified field theory". A few basics of 4-dimensional mathematics follow. Tools of the trade. Then we take what Einstein formulated in the Special Theory of Relativity for the vastness of the universe and apply it step by step to the microcosm. The didactics and the order of the chapters are not compulsory. I always try to visualise things first, and then to integrate what you have in your head as a visualisation into the theory that builds up in this way. We first look at scalar electrodynamics in Maxwell's notation with a fresh eye. Finally, we want to apply what Einstein mastered so well with spacetime curvature as the basis of gravitation for the vastness of space to processes in the laboratory. This is followed by a chapter on scale invariance, a discovery that introduces us to the universe as a coherent fractal whose order is revealed to us in the logarithmic space of scales. If all goes well, this chapter will give us a sense that and how "everything is connected to everything else". This is followed by a chapter on Topological Geometrodynamics (TGD), Matti Pitkänen's ten-thousand-page theory, which was most likely to attract attention with its mathematically correct description of wormholes. Yet Matti Pitkänen achieved infinitely more: he correctly calculated where Einstein "assumed for the sake of simplicity". And, trusting in his mathematics, he has shown the courage to break with fundamental paradigms. This was precisely Einstein's problem with the Unified Field Theory. It wasn't that he didn't have what it took to formulate it. It was just that he didn't have the courage to throw certain premises overboard, in particular the assumption, which in his eyes was irrefutable, that elementary particles must not have singularities, no black holes in them. Once you get involved with Matti Pitkänen, something wonderful happens: All the trouble of dealing with mathematics that blows up our conception implodes into the conception of the

following chapter, and we can understand how Matti's notation of a world in which a 2-dimensional constituent space "creates" a 4-dimensional experiential space can be understood as a mathematical image of a holofractal universe, in which the two-dimensional surfaces of the black holes project our curved, thus ultimately four-dimensional space-time out into space as a fractally constructed hologram, and we as human beings, as a small holofractal image of the whole, carry the whole universe within us as "consciousness". And also the word as a fundamental structure of consciousness seems to be - as indicated in the Bible - more than a fragment of a late developed system of communication. As we shall see, grammar is the language of DNA, and words carry vibrations whose meanings far exceed their entry in the dictionary.

Not everyone has the same background, likes to work with formulae and enjoys the beauty of mathematics. A decision on how scientific the essays should be cannot be made to everyone's satisfaction. I have therefore decided to write these chapters as a detailed, generally understandable summary, without formulae and calculations. I would like to leave the elaboration of the pure mathematical form, if possible, to those who were the first to accompany us on the path of these insights. Some of the luminaries have already published their basic research - reference is made there to the underlying literature. Where this has not been possible, I have tried to honour their part.

This is not to say that it will be easy. Paradigm shifts are not difficult births for nothing. Moving the earth out of the centre of creation was an act unthinkable to most contemporaries at the time. It was blasphemy anyway, but I think that was just a pretence, basically it was just ecclesiastical herd instinct. Ultimately, every world view is based on habit and a fair amount of pride - pride in having understood and mastered something. If one enters uncharted territory, it means giving up one's hard-won self-confidence and learning to walk anew. It initially plunges everyone who goes down this path into a feeling of helplessness. But that's not all! These are just the

inner struggles. Fortunately, the inquisition is a thing of the past. But on closer inspection, not much has changed. Inquisition today means being ridiculed and ostracised by one's private environment, professionally executed by a merciless media apparatus, locked away by a venal judiciary or, in the worst case, murdered by an economic hitman - if one was well-positioned enough to seriously endanger corporate interests. This has to do with conspiracies only in the extreme. Those who do not want to go down this path of transformation will always and everywhere stand mercilessly in the way of those who embrace the new. This has been the case with every paradigm shift. It is human nature to misconstrue changes that threaten to take us down as a personal attack.

You may feel that a familiar world is being torn away from you, that I am trying to violate your integrity as a reader. That is normal. I mean no harm. I can only promise that - if you allow the jigsaw puzzle of your world view to be broken down into its component parts - this will only be a temporarily unpleasant state. The puzzle will be put back together, more beautiful, bigger, with more pieces. Even more coherent, without the little inconsistencies that we always have to push aside today.

I think it is important to undergo an inner metamorphosis before planning and implementing practical applications can really succeed. I cannot justify this, it is a lesson from 13 years of work in the field of New Physics, in which I have seen the protagonists fail. Sometimes they have failed because of the encrusted structures of order, but most have failed because of themselves. I hope that this metamorphosis will take place through internalising the insights described here. That is a literary aspiration. I don't want to blow away your sails, as is common in controversial debates, I want to bring your ship to the other shore. Hull and keel included. In doing so, it is important that you keep a firm grip on the helm. To want to give you safe conduct is to make a lot of promises. Making such a promise is a responsibility that weighs heavily. But to write this book without being prepared to carry this responsibility would be unthinkable.

Part 1 Mathematical and physical foundations

The first part of the book covers five relatively well-developed special research areas, the quintessence of which can provide us with a coherent picture of the universe.

- A summary of the state of research on unified field theory, this already includes metrised time as the 4th dimension of Minkowski space.
- Scalar electrodynamics defines with the "scalar potential" the value that suggests to us the existence of at least one further dimension.
- The concept of scale invariance gives us qualitative and quantitative access to the fingerprint that the existence of this additional dimension leaves in our world.
- Topological Geometrodynamics (TGD) will then show that this new dimension is quantised, decomposes into planes, into "Worlds of Classical Worlds", which are layered as spacetime sheets like our reality leaf by leaf in the multiverse. What TGD formulates mathematically gains a new perspective in the holographic universe, in which not only matter has a place, but also the spirit, the soul, the imagination, the creative power. If you wish, you will succeed in discovering a world in which the proof of God is a piece of cake.
- The last step may also seem a little daring, here it is a matter of allowing the realisation to fully take hold of us that the entire appearance of our world as well as the experience of time is actually an expression of higher dimensions, to be precise the expression of an 8-dimensional crystal, from which a 4-dimensional quasicrystal emerges through perspectival selection of an intersection space of defined thickness, which in turn is projected onto a 3-dimensional quasicrystal that represents our experienced reality.

But before you start walking you should know where you stand. I.e. we start by determining where we are.

1.1 The state of affairs

There is a fact in nature that has become so self-evident to us that we no longer think about it: the equivalence of inertial and heavy mass. The property of bodies to want to maintain their course once it has been taken, and the force they can exert in doing so, is firmly correlated with the weight of the same body in a gravitational field. That this is really the case was already known to Newton on the basis of his pendulum experiments, but it was only experimentally proven by Roland v. Eötvös.

Inertia and gravitation are nevertheless treated as two completely different phenomena: Inertial forces are apparent forces that occur when uniformly "moving" bodies in an inertial system are "accelerated" by a force independent of them, while gravitational forces are genuine forces that seem to have their cause in the interaction of bodies, yet the effect of gravity unfolds locally, quasi as a vectorial property of the local quantum vacuum.

Albert Einstein took up these matters, which ultimately resulted in the formulation of the General Theory of Relativity. The ART elevated the equivalence of inertial and gravitational phenomena indicated by the equivalence of inertial and heavy mass to the rank of a principle. In order to get as close as possible to the truth behind this fact, he sought a formulation that could describe all known laws independently of the reference frame. This led him to his relativistic field theory of gravitation, the final version of which he presented to the Prussian Academy of Sciences in Berlin on November the 25th 1915[1].

[1] Cf. Einstein, A.:, Die Feldgleichungen der Gravitation, in: Sitzungsberichte der Preußischen Akademie der Wissenschaften, 1915, pp. 844-847. After Einstein had shown that, on the basis of the equivalence principle, gravitation would have to cause both a curvature of the light rays and a redshift of the spectrum (cf. Einstein, A.:, Über das Relativitätsprinzip und die aus demselben ziehenen Folgerungen, in:

For Einstein, this was the second great success. Ten years earlier, he had formulated the special theory of relativity, in which he had used the concept of inertial systems, i.e. he could only describe things in the special theory of relativity if he assumed that there were coordinate systems somewhere in space or flying through space whose zero point one reckoned with. This worked quite well so far, one could look at one inertial system from the perspective of the other, the formulae for converting events in one inertial system from the perspective of the other inertial system worked, but it was clear to Einstein that this subjectivity came from the role of the observer and had nothing to do with cold physics in space. The New Theory brought with it two innovations. The transition to curved space-time, i.e. defacto four-dimensional Riemannian space-time. And the abandonment of the inertial systems, i.e. the renunciation of the role of the observer. This Riemannian space-time world is characterised by a so-called "metric" field, i.e. by a quantity that changes with the space-time coordinates and thus defines the gravitational field.

Of course, giving up the viewpoint of the observer is a double-edged sword. Because at the end of the day, one needs spaces of experience again to describe real processes. Einstein avoided these "snapshots", preferring to speak of the reference mollusc in order to keep the observer's point of view as soft as possible. But in the end, there was no getting around concrete calculations.

Jahrbuch der Radioaktivität und Elektronik, 4(1907), 411-462; ders, Über den Einfluß der Schwerkraft auf die Ausbreitung des Lichtes, Annalen der Physik, 35(1911), 898-908), he presented in 1913, together with Marcel Grossmann, a first version of a generalised theory of relativity with gravitational field equations (cf. Einstein, A.: and M. Grossmann, Entwurf einer verallgemeinerten Relativitätstheorie und einer Theorie der Gravitation, Leipzig 1913), which came close to his later final equations. On a winding path often described in the literature, he finally arrived at the final equations that he presented in the work cited at the beginning.

Thus, Minkowski space[2] established itself as the standard calculation model for calculating in curved space-time. One wrote M4, or M4+, if one wanted to anchor oneself so deeply in the world of human experience that the world perceived at a point (x,y,z) at time t should be meant, i.e. the reality at the top of the respective past-light-cone. This took into account the fact that light takes a while to reach the observer, and that things we see as just happening from great distances have actually long since passed.

From Einstein's point of view, however, this theory did not have only strengths[3]; a few regional cosmological problems could be solved, such as the perihelion rotation of Mercury and the deflection of light in the gravitational field of the Sun[4], but Einstein was still miles away from the formulation of a unified field theory that could also mathematically relate the electromagnetic fields of experience to gravitation, which he formulated so beautifully. The quantum theory that was emerging at the time also aroused desires. It arose from the realisation that all energy quantities involved in atomic processes represented discrete values, natural multiples of a smallest possible unit. This demanded field-theoretical considerations. Einstein wanted to make the particle model superfluous by striving to describe the elementary particles completely from the field theory. Not only in terms of their movement patterns in the fields of experience, but also in terms of their inner structure. Technically speaking, the particles themselves were to result as singularity-free solutions of the

[2] Minkowski space was introduced after the publication of special relativity by the mathematician of the same name in order to be able to make calculations between the different moving inertial systems in Einstein's system. It is a 4-dimensional space consisting of x, y, z and the term ct. c is the speed of light, t the time. In terms of units, ct comes out to the metre, which is practical for this 4D, since it thus forms a metric system, but can still map time as a variable.

[3] Bergmann, P.G.: "Einheitliche Feldtheorie: gestern, heute, morgen", in: Einstein Centenarium, hg. von H.-J. Treder, Berlin 1979.

[4] Buchwald, D.K et al (Hrg.): The Collected Papers of Albert Einstein, Vol. 9: The Berlin Years. Korrespondenz, Januar 1919 - April 1920, Princeton 2004.

field equations. The idea of particles as something "primitively given", as something "physically simple"[5] was abhorrent to him.

Although in the years before 1925 he had played a decisive role in founding quantum physics with his essay "On a Heuristic Point of View Concerning the Generation and Transformation of Light"[6], and was thus actually sitting at the source of the theory that was to revolutionise physics most violently with the long-distance effects it described, in which at least information was able to travel faster than light. In the following 30 years he worked almost exclusively on this dream of a unified field theory.

Presumably, he had in mind during these years the memory of how, in the step from the special to the general theory of relativity, he was able to create something new by generalising while preserving the old. That is, with two small exceptions, he did not deviate significantly from the geometrical basis of general relativity until 1945. The greatest challenge was to integrate the concept of long-range parallelism, which originated in quantum physics, into the theory - in other words, what Einstein called "spooky long-range action" at the time and what we know today in quantum physics as entanglement.

In his 1917 paper "Cosmological Considerations on General Relativity", he first made a small modification to his gravitational equations of 1915 by adding a so-called cosmological term[7]. This enabled him to justify a cosmological model, today called the "Einstein cosmos", in which the mass density of the universe is clearly given by its geometric

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[5] Einstein, A.: Zur allgemeinen Relativitätstheorie (Nachtrag), in: Sitzungsberichte der Preußischen Akademie der Wissenschaften, 1915, S. 799-801.

[6] Einstein, A.:, Über einen die Erzeugung und Verwandlung des Lichtes betreffenden heuristischen Gesichtspunkt, Annalen der Physik, *17(1905),* 132-184.

[7] Einstein, A.: Kosmologische Betrachtungen zur allgemeinen Relativitätstheorie, in: Sitzungsberichte der Preußischen Akademie der Wissenschaften, 1917, S. 142-152.

structure. The work reflects a certain materialism on Einstein's part. It seems that he felt comfortable with a theory that reckoned from cold matter. At the same time, he tried to weaken the gravitational equations of 1915 to make room for a set of formulas that could explain the inner structure of elementary particles. In his second attempt, he formulated the essay "Do gravitational fields play an essential role in the structure of material elementary particles?[8]

This relaxation of the formulae was, however, in open contradiction to the implications of quantum physics, which, with its discrete energy contents proven everywhere, rather demanded a tightening of the formulae. Thus, in 1923, the paper "Does Field Theory Offer Possibilities for the Solution of the Quantum Problem?" was written and presented by Planck to the Academy on 13 December 1923[9].

After working on a more experimental theory by Theodor Kaluza, based on the geometry of a five-dimensional Riemannian space-time, Einstein finally turned back to quantum theory in 1928. With the essay "Riemann Geometry with Maintenance of the Concept of Distant Parallelism"[10], he attempted to geometrise the gravitational field and the electromagnetic field by extending the Riemannian structures. He was later supported in this by the mathematician Walter Mayer[11].

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[8] Treder, H.-J. und Borzeszkowski, H.-H. v.: Einsteins Arbeiten zur einheitlichen Feldtheorie. Fundament und Programm der modernen Physik, Wissenschaft und Fortschritt *29(1979),* 49-52; H.-H. v. Borzeszkowski und H.-J. Treder, On metric and matter in unconnected, connected and metrically connected manifolds, Foundations of Physics *34(2004),* 1541.

[9] Einstein, A.: Bietet die Feldtheorie Möglichkeiten für die Lösung des Quantenproblems? In: Sitzungsberichte der Preußischen Akademie der Wissenschaften, 1923, S. 359-364.

[10] Einstein, A.:, Über einen die Erzeugung und Verwandlung des Lichtes betreffenden heuristischen Gesichtspunkt, Annalen der Physik, *17(1905),* 132-184.

[11] Einstein, A.: Riemann-Geometrie mit Aufrechterhaltung des Begriffes des Fernparallelismus, in: Sitzungsberichte der Preußischen Akademie

But the development of the theory was unfruitful. Einstein - in the meantime in Princeton - ended the collaboration with Mayer and stopped working on his theory with the inclusion of distant parallelism. In 1938, he dealt once again with Kaluza's five-dimensional theory. In two papers with Peter Bergmann and Valentin Bargmann, he presented a generalisation of this theory[12].

Finally, in 1945, Einstein returned to the theses of 1925. They became the mathematical basis of the theory he called the "Relativistic Theory of the Asymmetric Field"[13], which he elaborated first with Ernst Gabor Straus and then with Bruria Kaufman. In the meantime, the existence of anti-matter had long since become an established physical fact, so that it not only ceased to be an objection to such a theory, but rather spoke in its favour. However, Einstein still did not succeed in solving the particle and quantum problem with this theory.

In the last two paragraphs of Einstein's last publication, in the appendix of the book The Meaning of Relativity, one finds very thoughtful reflections on the question of whether it is at all conceivable "that a geometrical field theory will permit the atomistic and quantum structure of reality to be understood". Einstein said that - although this question is usually answered with "no" - no one knows anything reliable about it.

At the same time, however, Einstein also concedes the possibility "that reality cannot be represented by a continuous field at all". This brings Einstein closer to Schrödinger's view on

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der Wissenschaften, 1928, S.. 217-221. B. Subsequently, a number of other works on this subject appeared until 1934 (some with Mayer as co-author).

[12] Einstein, A.: und Bergmann, P.G.: On a generalization of Kaluza's theory of electricity, Annals of Mathematics, *39(1938),* 683; Einstein, A., Bargmann, V. und Bergmann, P.G.: A Generalization of Kaluza's Theory, in: Theodore von Kármán Anniversary Volume, Pasadena 1941.

[13] Einstein, A.: The Meaning of Relativity, Appendix II: The relativistic theory of the non- symmetric field, Princeton 1955.

the question of the continuum[14]. Schrödinger had founded quantum theory in 1926 as wave mechanics, the particle model was subordinate to it. He wanted to prove - completely in the sense of Einstein's view of the elementary particle - discreteness as a structure or configuration arising from the laws of the continuum. From 1943 to 1950, he tried to establish a unified geometric field theory and at times believed that he had achieved this goal[15]. Finally, however, he too turned away from this attempt in disappointment. He came to the conclusion that the reasons for his failure lay in the difficulty of the concept of the continuum. Schrödinger therefore calls atoms and quanta the "ancient counter-magic against the magic of the continuum"[16].

As we shall see later, this is how these problems are solved by dropping some dogmas: If Einstein had accepted the fact that elementary particles also carry singularities within them, the whole story might have taken a different course. Then he would have been able to understand the discrete, the quantisation of states, as harmonies of circularly closed wave packets connected to themselves, and thus bring his dream of the particle constituted out of field structures of space into the world.

Once he came close, when the young Private Schwarzschild from the trenches of the First World War sent him his calculations on the Schwarzschild proton, at least the question of whether a proton fulfils the physical conditions for a black hole was clearly answered with "yes".

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[14] Borzeszkowski, H.-H. v. und Wahsner, R.: Erwin Schrödingers Subjekt- und Realitätsbegriff, Deutsche Zeitschrift für Philosophie, *35(1987),* 1109-1118.

[15] Borzeszkowski, H.-H. v. und Treder, H.-J.: On metric and matter in unconnected, connected and metrically connected manifolds, Foundations of Physics, *34(2004),* 1541.

[16] Schrödinger, E.: Die Natur und die Griechen, Wien 1955, S. 72. Vergleiche auch: Schrödinger, E.: Space-Time Structure, Cambridge 1950.

There is a second missed opportunity: the competition between coordinate-free Riemannian space and Minkowski space, which describes reality from the point of view of an inertial system, could have raised a few questions and led to a few answers. There is, in fact, a process in nature that transforms one system into the other. This process can be described as self-organisation. The underlying principle is self-reference, feedback, the effect of a field on itself. This gap in theory formation was finally closed with the modern chaos theory, but these late blossoms did not manage to "self-refer" to the foundations of established theories in order to fundamentally revolutionise the foundation on which chaos physics has grown.

Since then, little revolutionary has happened in the scientific mainstream. It was discovered that the movement patterns of the outer regions of the galaxies gave the lie to all previous theories. A correction formula was needed, and dark matter was invented. A gravitational source, but one that does not really rest in our reality. However, this revolution had feet of clay, and if you read the latest publications, you will learn that it has basically been disproved.

The close examination of spacetime foils in higher-dimensional models opened up the mathematical possibility of wormholes on all scales, which until now, however, have mainly been the inspiration for science fiction stories.

And someone noticed that some things behave as if they are connected with wire ropes - that forces occur between them that had no place or explanation in the existing models. That's how strings and superstrings came about.

But all these things could not really shake the obviously wrongly laid foundation.

1.2 A view in 4D

As we will see in the following, it is possible to develop another useful higher-dimensional model beyond Minkowski space to describe things. The new, then fifth dimension is correlated with the scalar potential. In terms of units, the scalar potential is expressed as spatial energy density, i.e. in kg/ms2. This quantity should actually be metrised analogously to time in Minkowski space, but it somehow blocks itself against this, since it seems to have more of a logarythmic structure. One can also call scalar potential an electromagnetic field density in extinction, which already shows that we do not encounter this value as another spatial dimension, but as an elusive quality. The 5D is therefore quite bulky in visual terms. Dealing with bulky goods takes practice.

In the 19th century, the Swiss geometrician Ludwig Schläfli thought about how to imagine four-dimensional bodies. The purely algebraic notation is simple. Two- and three-dimensional spaces can be represented by columns of numbers, such as (x,y), (x,y,z), and the graphic view can be created by coordinate systems with two or three axes. Even if we draw the z-axis on paper in the same plane as x and y, our brain is kind enough to create a three-dimensional illusion. We see the projection, so to speak, the shadow cast by a three-dimensional structure on a surface, and the mind reconstructs the original three-dimensional structure from it. We are used to living in 3D. One could now say that a four-dimensional space is a column of numbers with 4 variables (x,y,z,s). That is correct, but there is a problem with the visualisation. We can draw in a fourth axis, but our brain does not give us the illusion of a four-dimensional space, it will stubbornly try to position the fourth axis in the familiar 3D.

Schläfli has therefore taken a different approach to the view. He looks at the possible projections of a four-dimensional structure onto the 3D. Such a projection is geometrically a three-dimensional body. This can be represented in two dimensions,

our eye only sees the projection of 3D onto the surface, onto the sheet of paper, but it can at least imagine the 3D shape.

And then Schläfli lets the 4D rotate, and one can observe how the projection of the 4D changes into the 3-dimensional space of imagination. The result is exciting.

A second possibility of visualisation lies in the construction of the three-dimensional intersecting spaces of the 4D.

The simplest way to illustrate how such a construction can be done is to develop a tetrahedron.

In 1D we have a line. In 2D, an isosceles triangle. In 3D we have a tetrahedron.

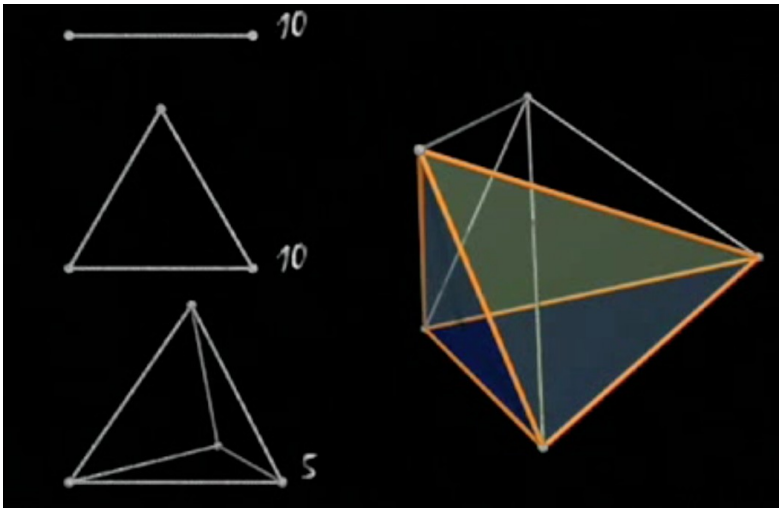
A line has two endpoints and a connecting line. Mathematically noted for the number of possible connecting lines 2!, pronounced "2 factorial "[17]. 2! = 1. The two points are connected.

A triangle has three corners and three (3!) connecting lines, all corners are connected to all.

A tetrahedron has four corners and six (4!) connecting lines. All corners are connected to all of them. It consists of four triangles.

Then the next-higher-dimensional structure (i.e. also its shadow cast in the 3D) logically has five corners and thus ten, (5!), connecting lines. Whereby again all points are connected to all. And it consists of ten triangles and five tetrahedra. Schläfli called the figure a simplex. Let's let this figure rotate in space and look at a possible projection onto the 3D in the following graphic, which jumps out at us spatially from the 2-dimensional sketch.

[17] n! is the mathematical notation for the operation factorial, i.e. the number of permutations, in colloquial language the number of "possible connections".



Now there are two ways to play with these four-dimensional bodies. We can let them rotate as I said and observe the change in its projection, or we can cut them into "slices", lay 3-dimensional profiles through them.

Both operations, rotation and cutting space formation, result in form and movement that seems exotic to us, but to which our mind can find an access. Through contemplation and meditation, one gradually develops a sense of the essence and beauty of 4D.

The most important realisation is that when I rotate a 4-dimensional body, the sides of the 3-dimensional projection intersect, apparently without colliding. In physics, there is such an effect, which has been clearly observed but could not be explained until today: this effect is called "tunneling". The second important finding is that if one shifts the "intersection space", the resulting bodies can effortlessly increase and decrease in complexity without anything changing in the essence of the 4-dimensional body. In physics, there is again an equivalent here that violates all the rules of established 3-dimensional physics to such an extreme that those who can

demonstrate such a thing in the laboratory literally get into hot water in the existing scientific establishment. In physics, this is called transmutation. These transmutation series do not find their paths laterally, from one element to an immediate neighbour, but vertically, for example from H to C to Si: a quantised increase in complexity, while at the level of the elementary resonances, the underlying vibrations of matter, there is a jump of an octave. These two geometrical aspects are something that will be helpful to us later in understanding the 4-dimensional atomic model, in which both tunnelling and transmutation will have their place.

The 5D and all higher dimensions can be conquered mathematically in an analogous way, although trying to develop a view might be an even more audacious undertaking. However, this is not absolutely necessary for everyday physics.

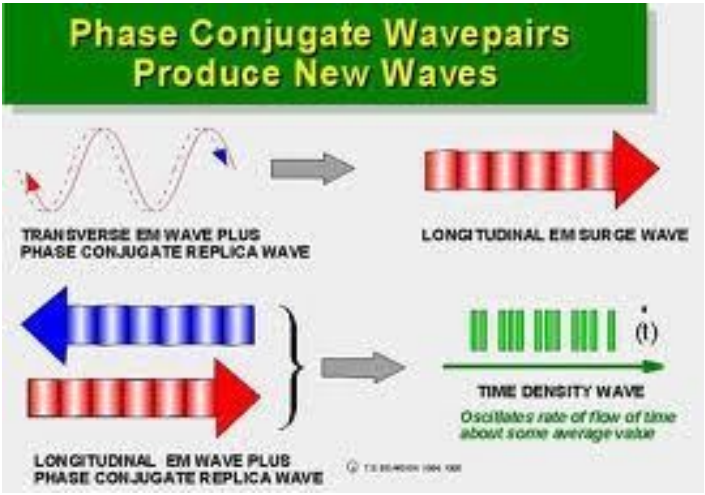
1.3 Maxwell reloaded

The foundation of modern electrodynamics was laid by James Clerk Maxwell at the end of the 19th century. In retrospect, it must be said that this foundation was much broader than the building that was later erected on it. Maxwell had first observed a variety of visible oscillations in nature. This enabled him to find an abstract formulation for the propagation of waves in media capable of oscillating. The laws according to which vibrations propagated - he assumed - would always be similar, regardless of the type of medium. This is how Maxwell arrived at his definition of the general equation of vibration. As a postulate derived from this, he thus also arrived at the definition of the various forms of electromagnetic oscillations. This was initially a working hypothesis. The solutions of the general oscillation equation resulted from the quaternion calculus he used for this purpose, a mathematical notation that was suitable for representing and correctly calculating all possible solutions of the oscillation equation. According to their characteristics, he distinguished and calculated with the help of these quaternions transverse waves (with the plane of oscillation transverse to the direction of propagation), longitudinal waves (with the plane of oscillation in the direction of propagation) and scalar waves. Scalar waves are longitudinal waves in mutual cancellation, which no longer manifest themselves as vectors, i.e. values with a definable magnitude and direction, but only as scalar, i.e. with a value but without a direction, local change of state. For electromagnetics, this is the sum of the spatial energy content of the original fields in extinction. This means that the vectorial, longitudinal fields (E and B) cancel each other out, while their energy content adds up as a scalar potential. Maxwell presented this theory in his early major work "A Treatise on Electricity and Magnetism"[18].

To generate a simple view of the scalar wave, one can consider the phenomenon of sound. Sound waves are longitudinal waves.

[18] Maxwell, James Clerk: A Treatise on Electricity and Magnetism, Oxford University Press, Oxford, 1873.

When they overlap, they partially cancel each other out, whereby the energy content of the sound wave is stored as increased or reduced air pressure. The pressure, a directionless, i.e. scalar quantity, would thus be our equivalent to the scalar value in electrodynamics.



Logitudinal, Transversal- und Skalar waves

The best measurable waves at that time were the electromagnetic transverse waves, and they were also sufficient to understand everyday phenomena such as light. Longitudinal and scalar waves were almost completely forgotten in the early days of theory building, around 1900, due to lack of measurability and technical application in engineering physics.

But the complete notation was not lost. One of the few who continued to struggle with the quaternion calculus and was even able to show that the transverse waves established at that time could be completely represented mathematically as a superposition of scalar waves, i.e. as a secondary effect, was

E.T. Whittaker[19] [20]. It was worth the effort, purely scientifically, after all Whittaker managed to theoretically anticipate the Aharonov-Bohm effect 55 years before his time[21].

It makes sense to consider what this consideration means for visible light. Light is scientifically defined as both an electromagnetic transverse wave and a number of photons travelling together in the same direction at the speed of light, each photon carrying a defined portion of energy according to its wavelength. Strictly speaking, the particle aspect only takes on meaning when the photon completes its journey, when it is captured, absorbed, then the entire energy of the wave of a photon, which was previously finely distributed in space, manifests itself at one point, is transformed there into heat, or, if it hits an electron and stimulates it to jump to a higher orbital, into ionisation energy, or else into chemically bound energy, as in photosynthesis. The wave aspect of light is very illustrative when we consider the continuous emission of large quantities of photons from a source. Light sources, as we know them in everyday life, do not have a high order. The phases and oscillation levels of the individual photons are subject to a chaotic, random distribution. But sometimes nature brings a higher order: light is polarised when all photons have the same vibrational level. Polarisation occurs through reflection from smooth surfaces or through polarising filters, where special optical gratings with a pitch smaller than the wavelength only allow parallel vibrating light to pass through the gratings. Another form of order of photons is coherence. Coherence is when all light waves oscillate in phase, such as in a laser.

Polarisation is order in space, coherence is order in time.

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[19] Whittaker, E. T. : "On the partial differential equations of mathematical physics," Mathematische Annalen, Vol. 57, 1903, p. 333-355.

[20] Whittaker, E. T. : "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372.
edb.

[21] edb.

Let's return for a moment to the particle model: light is understood to be quantised into individual units with a defined energy content, which are called photons. Individual photons, understood as particles, naturally add up in the imagination first in the same way that "objects" would add up, but their ability to interact with matter, their visibility in our world, does not. It adds up according to their common electromagnetic field. This interference of a large number of individual photons results in what is known as a transverse wave.

The simplest process that beats a single longitudinal wave is a single photon emission. The light wave that propagates when a single photon is emitted is like the shock wave of an explosion. Of course, single photons are too faint to see with the naked eye or normal measurement techniques. The longitudinal waves we are familiar with therefore appear in pulsed signals when one tries to multiply the quality of a single photon in the context of a shock wave front, so to speak. The second solution of the general oscillation equation therefore appears in practice at wave fronts of pulsed signals, the third, generally speaking, through the superposition and cancellation of waves. However, this becomes technically relevant especially in the case of interference of such pulsed wave fronts, since a number of exceptional effects appear there: the interfering longitudinal waves are namely able, under certain angular relationships, to firmly couple with each other, which leads to negentropic processes.

With the introduction of pulsed lasers in the early 1990s[22], the first experimental set-ups were created in which the properties of longitudinal electromagnetic waves could be explored. The

[22] In industry, pulsed lasers are state of the art - they are primarily used for cutting or processing materials, as they can be used without the processed material heating up too much.

longitudinal waves [2324], appeared at the wave fronts of these pulsed laser signals. From the interference behaviour of these pulsed signals, one wanted to learn something about the scalar waves that had never been observed before. The shorter and sharper the individual light pulses, the greater the proportion of longitudinal waves. The experiments turned out to be a complete success. In the stage fog of the non-linear optics labs, the coloured lasers showed that Maxwell and Whittaker's theory was correct. All the theoretically predicted coupling patterns of longitudinal waves became visible, just like the postulated ability to form waves that - as we will see in a moment - travel backwards in time.

Because of the bio-relevance of scalar waves, research has essentially continued in the field of the military-industrial complex. If you ask at the universities, you will learn at most faculties - except perhaps theoretical physics - that scalar waves belong to the realm of conspiracy theories. In the civilian sector, practical research takes place exclusively in non-linear optics, and in a special field of biology: biophoton research. Applications can be found in transhumanist research, in which scientists try to influence cell communication with the help of ultra-weak light signals. Transhumanism attempts to create a quasi-biological, light-based artificial intelligence that can then be merged with that of humans.

But before we sink into the annals of physics, let me whet your appetite. Why do we need longitudinal and scalar electromagnetic waves if they are hardly measurable and have no application? To answer this question, let us first look at the phenomenon of sound - also a longitudinal wave - i.e. something

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[23] Pepper, David M., "Nonlinear optical phase conjugation," Optical Engineering, 21(2), March/April 1982, S. 156-183. Siehe insbesondere S. 156

[24] Pepper, David M.: "Applications of optical phase conjugation," Scientific American, 254(1), Jan. 1986, p. 74-83. Siehe insbesondere die fotographischen Aufnahmen der zeitlich rückwärts laufenden Prozess auf S. 75.6

that, according to Maxwell, should behave quite analogously to the theoretically existing electromagnetic longitudinal waves.

Helmholtz-Resonator

And we are looking at a specific application there: the Helmholtz resonator. Helmholtz resonators are used in sound studios, among other places. If I want to record music in a room, it is unfavourable if this room reverberates at its natural frequencies. These frequencies are defined by various acoustic ping-pong effects, caused by the distances between walls or the more complex room geometry. These natural frequencies can be easily determined by playing a sound file that continuously runs through all frequencies over the audible spectrum, but is constant in volume. And then this sound is recorded again via a microphone in this room. Then you look at which frequencies the recorded sound is loud over the measures. That is the first step. So you get a list of resonance frequencies. Then you build a Helmholtz resonator for each of these frequencies. A Helmholtz resonator looks and is constructed like a bass reflex

box without speakers. That is, it consists of a hollow body with a tubular opening. This hollow body has an inherent resonance defined by the volume, the tube measures and the interior geometry. Inside is a rock wool filling that dampens the sound pressure. These Helmholtz resonators are hung in the corners of the room. What happens?

The unpleasant sounds travel from wall to wall until, by chance, they end up in the tube of the resonator and are damped inside by the rock wool. No! Exactly not. That's what our everyday minds would have us believe, but it's wrong! That would take far too long, given the small opening. The mechanism is different: the Helmholtz resonators resonate at the frequency defined by their geometry, which is exactly the frequency I want to damp in the room, and then the box sends exactly this sound into the room like a loudspeaker. But not in such a way that the sound now becomes even louder, but in such a way that the sound produced by the resonator begins to control the sound in the room in its movement and cancels it out by superimposing it along the entire length of the two wave packets. Japanese car manufacturers have used this principle to make mufflers so quiet that people were run over because the cars could no longer be heard. In order for this extinction to occur in the entire room, the sound wave emanating from the resonator and the sound in the room must couple with each other to form a standing wave, which they do readily, as has been proven hundreds of times in practice. The resonator represents a point source. For the sound from the room, however, this means that - guided by the signal from the Helmholtz resonator - it voluntarily concentrates, focuses on the hole in the resonator and runs purposefully into it to be transformed into heat inside the box.

Do you notice anything? Sound running voluntarily towards a point, energy that was just spread all over the room and suddenly turned into heat in a small box in the corner? For some reason, we have just invalidated the second law of thermodynamics, the second most important law of

conservation of energy, or, more precisely, discovered phenomena outside its range of definition.

Now imagine it would be possible to play the same game with electromagnetic waves. Imagine it would be possible to generate a weak longitudinal signal with sharp-edged pulsed currents, tapping into a large-scale reservoir of electromagnetic fluctuations, such as the magma rollers in the Earth's interior, or solar plasma, and letting the energy flow back to the small transmitter with pinpoint accuracy. This is no mental trifle. Anyone who is familiar with the dogmas of physics will now have cold shivers running down their spine. What is described here is a negentropic process, that is, the spontaneous manifestation of higher states of order. The opposite of this, the entropic destruction of higher order, such as levelling out temperature differences in heat-force machines, is used in our technology to provide energy. The effect thus enables the construction of perpetua mobilia of the second kind. However, this faux pas is not too big. After all, one wave did not behave normally, it literally ran backwards in time, did not dissipate but focused voluntarily. And by definition, the laws of conservation of energy only apply to systems with time running exclusively forwards.

Now this is neither a joke nor a rhetorical shyster move. Such are the definitions. The two most important postulates concerning entropy are that 1. all components are forward in time, time reversal is not allowed, and 2. a statistical random distribution is assumed a priori. With the decomposition of the scalar potential into an ordered pair of harmonic double waves, the assumption of a statistical random distribution falls. By phase-conjugate coupling of wave pairs to structures of the quantum vacuum, in which one of the waves becomes a replica wave running backwards in time, the assumption of an exclusively forward running time falls. So entropy is not what it was either, and the second law of thermodynamics is no longer a mysterious incontrovertible law of nature. Simply extending its scope to "everything" is dogmatism, not science. Entropy can

be directly transformed into negentropy under defined conditions that are not unusual in nature.

Let's first translate our Helmholtz resonator, the little box in the corner of the sound studio, into the technical language of scalar electrodynamics. Then it is said that a pump wave conjugates with its pumped phase time-reversed replica wave. The Helmholz resonator's eigenresonance is now our pump wave, and this pump wave tickles the annoying sound out of space as a pumped phase conjugate time-reversed replica wave, and directs it into the resonator's cylinder with pinpoint accuracy. Maxwell and Whittaker's theory was rediscovered in the 1980s by Amnon Yariv and elaborated for the field of nonlinear optics. The symmetrical variant with two equally strong transmitters/receivers is called a phase conjugate mirror; if there is an asymmetry with a resulting negentropic energy transfer, it is called a pumped phase conjugate mirror, which consists of a pump wave and the pumped time reversed replica wave. Here, the energy always flows from the large-scale distributed low potential to the small-scale concentrated high potential and thus creates order by reinforcing the existing imbalances. The theory has been experimentally confirmed[25] by several authors and applies to the entire spectrum of electromagnetic waves. It is therefore a universal phenomenon of non-linear electromagnetic oscillations[26]. The most beautiful photographic evidence, especially of time reversal in optics, was presented by David M. Pepper[27].

The whole thing takes a lot of getting used to. It contradicts our everyday understanding, the idea is unwieldy, and it usually takes three or four attempts to make friends with scalar electrodynamics. Please do not give up at this point. The book

[25] Yariv, Amnon: Optical Electronics, 3. Auflage, Holt, Rinehart and Winston, New York 1985. Kapitel 16: "Phase Conjugate Optics - Theory and Applications."
[26] Pepper, David M.: "Nonlinear optical phase conjugation," Optical Engineering, 21(2), März/April 1982, S. 156-183.
[27] Pepper, David M.: "Applications of optical phase conjugation," Scientific American, 254(1), Jan. 1986, S. 74-83.

will return to this altered basic understanding over and over again.

Sung with Prince'. There is joy in repetition....!" Briefly summarised, one can thus say that such a negentropic, i.e. order-creating, electromagnetic scalar wave is composed of two opposit electromagnetic longitudinal, i.e. sound-like, wave pairs. They are harmonic waves and they oscillate in phase. In each coupled wave/repeat wave pair, a true time-forward electromagnetic pump wave is coupled with a time-reverse reflection of itself - its phase-conjugate replica wave. The two waves are 180 degrees out of phase in time. The sum of their energies affects the time dimension, i.e. it locally changes the flow of time itself. Scalar waves - one could therefore say - are a vibration of the density of space-time. This means both a vibration of the speed of the flow of time and a - in the style of a standing wave - spatially distributed fluctuation of the density of space energy, which in this case quantifies the scalar value. Since the scalar potential gradient conditions gravity according to general relativity, some researchers also speak of gravitational waves at this point. Up to this point, all these are rather quantitative statements. As we will see later, most of the secrets of creation lie in the quality of these scalar fields, in the complex frequency patterns and bidirectional links on which energy is stored and fluctuates in the background field.

The experiments in non-linear optics back in the 90s were a historically significant point, because it was the first controlled process in electrodynamics that included virtual elements running backwards in time[28] [29], thus making it possible to control negentropic processes. Negentropy is the opposite of entropy. Entropy is the tendency of nature to constantly lose order, for heat to distribute itself evenly over a space, for everything to strive for the state of lowest energy differences.

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[28] Sachs, Robert G.: The Physics of Time Reversal, University of Chicago Press, Chicago, Illinois, 1987.

[29] Barus, Carl: "A curious inversion in the wave mechanism of the electromagnetic theory of light," American Journal of Science, Vol. 5, Fourth Series, May 1898, S. 343-348.

Negentropy is the ability of nature to spontaneously build up order and thus to concentrate energy spatially. Negentropic processes take place in nature in biology and fluid dynamics - generally speaking, in non-linear systems that are self-referent and therefore have the ability to organise themselves, building up a mostly fractal order.

These experiments are significant because they provide scientific foundations, understanding and scientific evidence that touch on many other fields of research, thus spurring science towards a more complex, holistic understanding of nature.

- This knowledge can lead to a completely new generation of energy technologies.
- Non-pumped scalar waves - generated by a pair of symmetrically coupled longitudinal waves that cancel each other out - are the key to understanding the non-local interaction observed in quantum physics, where they are referred to by the term entanglement. The most remarkable property of this symmetrical coupling, as observed in quantum physics between individual elementary particles, is that although no energy is transferred in total, information is transferred instantly. Instantly here does not mean at the speed of light, but in absolute simultaneity.
- The fact that negentropy is the physical process that lays the foundation for nature to organise itself applies in particular to biology. Therefore, it is here and only here that we can understand the fundamental principles of animate nature. In particular, the concept of scalar potential is of great importance here. Scalar potential is what can also be colloquially called lifeforce, a measure of the vitality of nature, its capacity for self-organisation. The form in nature, its beauty, seems to be linked in some way to the golden ratio. This reflects the tendency of scalar potential to manifest itself in scalar potential vortices, vortices that are subject to a fractal order and thus reflect the rules of the Golden Ratio as part of their self-organisation in a fractal order.

Once again for differentiation: Electromagnetic transverse waves can of course also get into extinction, but they then generate a longitudinal wave as a composite signal, but only in the case of the coupling of pairs of longitudinal waves can the fixed coupling and thus temporally backward running, order-creating processes occur, and a spontaneous concentration of scalar potential.

The fact that these things have only cautiously found their way into the public consciousness does not mean that they have not been researched in secret. There is a second historiography, composed mainly of a chain of daring military research projects that always sought to exploit the full potential of this physics.

Between Whittaker and Albert Einstein lies about half a generation. Whittaker's most important contributions were published in the first decade of the dawning century. Einstein got going in 1915 with the General Theory of Relativity. In the following years, Einstein tried to work out the General Theory of Relativity into a Unified Field Theory that would finally also relate electromagnetic phenomena to gravity, trying his hand at various geometric spaces, the 4-dimensional Minkowski space, the reference-system-less Riemann space, and some other more or less tempting designs of his colleagues. At the same time, he tried to meet the requirements of quantum physics, which was developing at the time[30]. In these efforts, Einstein pursued,

[30] Einstein, A.: Zur affinen Feldtheorie, in: Sitzungsberichte der Preußischen Akademie der Wissenschaften, 1923. Einstein, A.: Einheitliche Feldtheorie von Gravitation und Elektrizität, in: Sitzungsberichte der Preußischen Akademie der Wissenschaften, 1925. Einstein, A.: Bietet die Feldtheorie Möglichkeiten für die Lösung des Quantenproblems? In: Sitzungsberichte der Preußischen Akademie der Wissenschaften, 1923. Einstein, A.: Riemann-Geometrie mit Aufrechterhaltung des Begriffes des Fernparallelismus, in: Sitzungsberichte der Preußischen Akademie der Wissenschaften, 1928. Einstein, A.: Bargmann, P.G.: On a generalization of Kaluza's theory of electricity, Annals of Mathematics, *39(1938),* 683; Einstein, A., Bargmann, V. und Bergmann, P.G.: A generalization of Kaluza's theory, in: Theodore von Kármán Anniversary Volume, Pasadena 1941. Einstein, A.: The Meaning of Relativity, Appendix II: The relativistic theory of the non-symmetric field, Princeton 1955.

among other things, the idea that it should be theoretically possible to use magnetic torsion fields to locally curve space-time and thus artificially generate either gravitation or levitation - i.e. antigravity. It is historically difficult to judge what exactly happened at that time. Einstein did not advocate this theory very confidently in the years that followed. This may have been because the SS had begun the technical implementation of the theory with its legendary project “Glocke". The research project was headed by General Hans Kammler at the time. It was the only Nazi project that the Wehrmacht considered decisive for the war. Perhaps Einstein did not want to leave any more inspiration for the regime. But perhaps the pressure from the corporations that made their money from oil and coal was already being felt at that time.

The problem at issue - should the pressure have come from the corporations - also had a formulation at that time: one spoke of the energy problem of general relativity. After the formulation of Noether's theorem by the German mathematician Emmy Noether, it was clear at the time that any curvature of space-time locally invalidates the laws of conservation of energy. The world of that time was definitely not ready for this paradigm shift - for so much abundance. Einstein backed down and assumed "approximately locally flat spacetime". After his work on the Unified Field Theory, this must have been like renouncing his true faith before the Inquisition in the face of the stake. There is no other way to explain this compromise Einstein made, this language regulation, which is nothing more than a criminal mathematical approximation against better knowledge.

With this, we have outlined the two most important technical implications of the scalar field theory: Energy provision and antigravity.

It is worth taking a closer look at the already mentioned Project Glocke of the SS in the Third Reich - the experimental facilities for the development of anti-gravity engines suitable for flight were located in the Wenceslas Mine in Poland, attempts to

weaponise the side effects of this technology are said to have been carried out in the Rhine Valley according to John Dering, an American specialist in directed energy weapons. The abbreviation KSK, which stands for Kraftstrahlkanone, (force-beam-kanon) appears in the records of the Wehrmacht towards the end of the war. During the war, however, neither an antigravity engine nor the KSK was used on a large scale. Only so-called foo-fighters caused some confusion in the celestial battlefields. These were small, wingless flying bodies that hovered in a glowing cloud of plasma that could change colour. The foo-fighters were extremely fast and manoeuvrable, but unarmed and presumably served reconnaissance purposes. The existence of two series of flying saucers, the Vril and the Haunebu series, has been relegated to the realm of conspiracy theories by today's public, although there is extensive pictorial and also film documentation on these series, the authenticity of which, of course, no layman can verify. Fortunately, the technical beginnings of this development, the Röntgen-Levitator, designed by Wilhelm Conrad Röntgen and modified by Viktor Schauberger, survived the war. According to the current owner, the model is fully functional and proves that Germany had already mastered antigravity technology at the turn of the century.

There have been a few other attempts to technically implement this physics throughout history. According to sources that are difficult to verify, Nikola Teslas tried to use the hot magma in the earth's interior as a pumped phase conjugate mirror, which is said to have caused the ground beneath him to start shaking, in San Francisco of all places, which was already plagued by earthquakes. Later, he was interested in the wireless transmission of energy through symmetrical phase-conjugate wave pairs. Whereas the Magnifying Transmitter, which was never finished due to lack of money, was supposed to receive more energy at the receiver than had to be used at the transmitter mast.

After the Second World War, the technical implementation of these possibilities lay in various secret projects of the

Americans, which were correspondingly incompletely documented. In the so-called Philadelphia experiment, behind which Einstein is once again assumed to be the decisive mastermind, the aim was to make the destroyer USS Eldridge invisible to the naked eye and to enemy radar by means of scalar wave technology. Here too, similar to the Foo Fighters, eyewitnesses initially reported the disappearance of the ship in a luminous cloud - to the point where only the imprint of the ship was visible in the water. According to the understanding of matter developed above, the scalar potential in the area of the ship was to be increased by powerful coils to such an extent that the matter of the ship no longer interacted with light and other electromagnetic waves such as radar. However, according to unverifiable lore, the organic matter that made up the sailors and the metal of the ship's hull absorbed the scalar potential at different rates, which is said to have led to the sailors sinking into the deck and becoming stuck in the iron when the experiment was lowered. The Canadian physicist John Hutchinson has shown in the laboratory that this is possible in principle, to shift organic matter and metal into each other as two separate hyperspaces and then have them merge again. You can find the documentation online under the term Hutchinson effect.

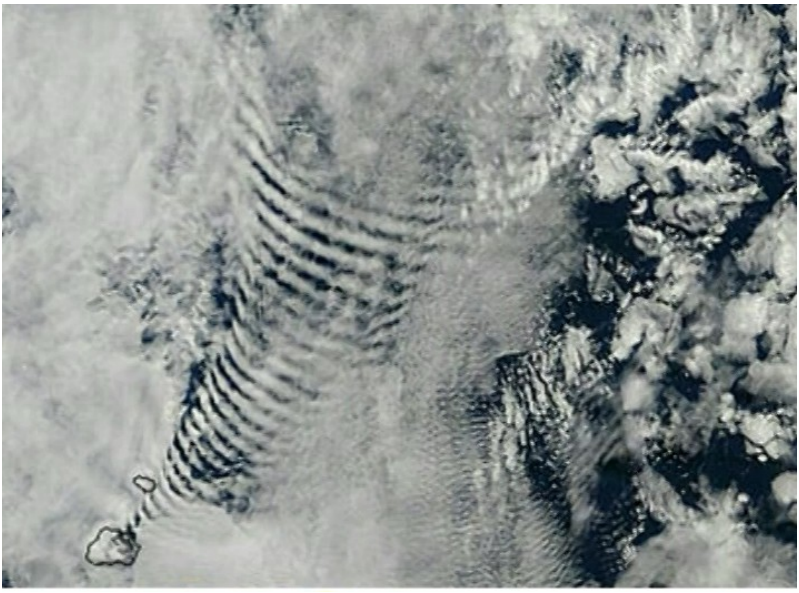
The Russians were in no way inferior to this. The microwave transmitter at Chernobyl in the Ukraine, a further development of German technology, called woodpecker because of its knocking, i.e. pulsed signal, started in 1983 - in the heyday of the Cold War - the attempt to trigger an earthquake by addressing a phase conjugate mirror in the area of the St. Andrew's Trench. Such a quake could have destroyed Los Angeles and St. Francisco. According to the then microwave weapons specialist Colonell Tom Bearden, this attack was repelled with the help of a small country. Other sources name Israel explicitly. The tremendous energies that had already accumulated as scalar potential in the established bidirectional field struck back. According to Bearden, the discharge of the field took about two days. However, the fuse elements installed for such a case, which were supposed to destroy the recoiling

energy behind the antenna systems in Chernobyl, burnt out after 12 hours. The longitudinal fields discharging from the scalar potential then travelled undamped back along the conductor paths and hit the feeding nuclear power plant. This caused the uranium in the first reactor to spontaneously and completely react. The meltdown in Chernobyl was thus not an accident, but a consequence of an averted scalar wave attack by Russia on the USA - just to record that for the history books. Perhaps this debacle was the reason why, after 1983, the Russians looked for other energy sources to power their directed energy weapons. According to measurements by Frank Golden, in May 1985 the Soviets are said to have drawn energy from the Earth's interior via 27 pairs of electromagnetic pump-wave frequencies spaced 12 kilohertz apart, i.e. with a further development of Tesla's earthquake-triggering device - again for gigantic directed energy weapons. The show was part of the May Day celebrations marking the 40th anniversary of the end of World War II against the Nazis.

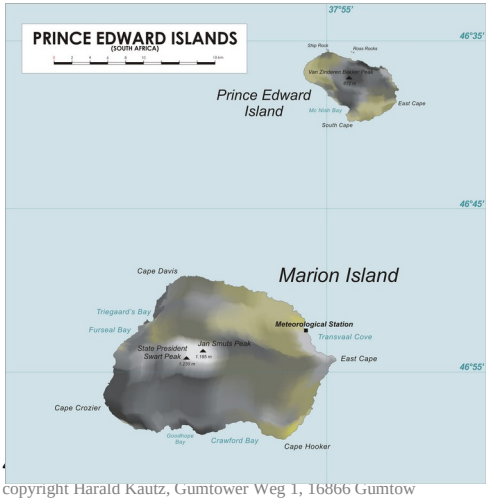
Scalar wave technology is now routinely used by various powers for military purposes. By the US, Russia, probably China, where the news is bad, Israel and, thanks to the work of the Keshe Foundation, Iran. The Iranian state news agency is in the habit of posting reports on the progress of this arms programme, which is purely defensive in nature, online for a day, only to remove all evidence of the programme from its pages afterwards. The programme reportedly involves building unmanned flying discs with tractor beams, successfully tested to pluck drones from the sky, but also with the potential to capture ballistic missiles and send them back to sender. The programme includes the ability to remotely disable - non-shieldable - any electronics, successfully tested on two American fighter planes that ended their attempt to violate Iranian airspace by "synchronously jumping" into the Persian Gulf, as well as the ability to remotely detonate fissile material by longitudinal waves, as happened at Chernobyl, which makes the American long-range missile and warhead stockpile quite an Achilles' heel. Especially if it is true that Iranian sourcer technology takes only 10 minutes to fly from Tehran to New

York. In this context, one can assume that - if all this is true - we have Mr Keshe to thank for the fact that the Third World War cannot take place in its planned form, since Iran is unassailable thanks to this programme. May Allah bless Mr Keshe for this.

Certain forms of exotic broadcasting technology are under the central administration of the UN. They are or were primarily used for airspace surveillance by the various major powers, which at least until November 2013 had coordinated their national missile defence programmes internationally, but presumably also for weather manipulation, and as an earthquake weapon. With the help of the weather and earthquake weapon, interests of the globalists behind the UN are enforced. Those who are interested: The capabilities of this interconnected system of transmitters are marketed in the intelligence community as Integrated Geospatial Intelligence Solutions. At the heart of the system are the HAARP and GWEN transmitters, as well as systems disguised as weather radars, which apparently transmit pulsed signals at a frequency of approx. 42,000 Hz, which, measured against the cloud patterns that form, couple to form world-spanning scalar fields. This frequency is calculated from the speed of light and the mean wave spacing of the cloud bands of 7.123 km.



The satellite image shows such a weather radar station in action. It was taken with a westerly wind, and the image is aligned, i.e. the cloud ripples that form are clearly of technical origin.



The small picture shows the topographical map of Marion Island with the weather station marked on it. The geographic orientation of the permanently

installed antenna technology to the north-east already clearly shows that this cannot be about Antarctic exploration, as stated in the official statutes.

If you want to know how these internationalists work, you can read into the opening speech at the inauguration ceremony of this weather station as an example:

> The ten-year construction period on the far-out Marion Islands, which has stretched the endurance and skills of the construction teams to its limits, comes to a climax today with the opening of this 200 million rand research project.
>
> "The base on this sub-Arctic island provides adequate technical facilities to provide the researchers with the technologies necessary to conduct high-end research that will help South Africa meet its international obligations under the Antarctica Treaty, thereby elevating the country's geopolitical weight beyond its geographical importance in the all-important Southern Ocean region," said one of the senior scientists.
>
> "Strategically it is very important for us to be in the Antarctica Treaty system and we need to participate if we want to remain part of it," said Prof Steven Chown, Director of the Stellenbosch University Centre for Invasion Biology and former Chair of the Prince Edward Islands Management Committee.
>
> "It's also important to do world-class research because our status in the geopolitical system depends on the quality of our work."

But military radar technology, with its Cloverleaf radar systems, also seems to play a role in the overall context. The cloverleaf-shaped antennas are capable of generating torsion fields.

It is important to know that this exotic transmitting technology relies on the presence of a particle plasma in the atmosphere that is able to react intelligently to these radio signals. It is usually composed of Al_2O_3, CaF and $(Ba,Sr_x)TiO_3$, a piezoelectric mineral suitable for self-pumped phase conjugate applications, i.e. which responds electrophysically to scalar waves.

However, the alliance to maintain a global particle plasma fell apart in November 2013. The Russians apparently terminated their cooperation, within the USA there was probably a conflict between the NSA and the CIA, which had developed these programmes together with NASA, and the CIA's own fleet with the cynical name "Evergreen International" was "grounded". Officially, the company was said to have gone bankrupt, which is absurd considering that it had been financed by the BlackOp money earned by the CIA in the drug business.

What triggered the apparent collapse of the so-called Cloverleaf project is unclear. It is possible that the realisation that the piezoelectric nanocrystals, i.e. barium strontium titanate in particular, were about to destroy the entire biosphere prevailed, which was in Monsanto's interest but not necessarily in the interest of all the other protagonists. It is also possible that some protagonists were irritated by the CIA's black magic connection.

Exactly how the sceptres are distributed at the UN and in the NATO member states that continue to run the programmes at this point is unclear. It is possible that in the alliance between NATO and some affiliated non-NATO countries under the label "NATO Partnership for Peace", technologies are used collectively that are not available to the smaller member states. The leader in technology here is the Canadian-American defence company Raytheon, which developed and produces radar technology, which was also involved for many years in the construction of aerosol spray aircraft with its longstanding subsidiary Hawker-Beechcraft, and which also openly acts as sponsor and organiser of the international conferences at which the possibilities of integrated geospatial intelligence are

marketed to the international intelligence community. Just for the sake of completeness... there is an interesting corner in Silicon Valley: NASA's headquarters, Google's headquarters and Singularity University, the headquarters of the Transhumanist movement, are right next to each other. Other protagonists are Bell Labs, the most important chemical and biological weapons factory in the USA, and MITRE, the corporation responsible for the industrialisation of the secret test technologies developed within the framework of transhumanist research.

A use of the technology based on scalar waves in the civilian sector - for example as a solution to the world's energy problems - has apparently not been projected to date; instead, the airspace surveillance technology successfully tested in the military is being extended to all of humanity, i.e. as part of the 5G expansion with the Gemini radar chips produced by Raytheon (e.g. in the USA). e.g. in the USA), an area-wide battle simulation (Sentient World Simulation) is being rolled out as part of the SENSR programme to cover all building complexes and the private individuals inside them - which is primarily a statement about the quality of Western democracy as well as the other forms of regime on this planet.

But back to pure physics. One thing that seems to make sense for a general understanding of this theory is to link here metaphorically to the notion of the quantum vacuum. Whittaker introduced the separation between internal and external electromagnetism. Internal is all wave pairs in extinction, external is the measurable or visible range. The quantity ratio is interesting. We can assume that the largest part of the waves travels in the invisible range - about 96% - bidirectionally and in extinction. The sum of the invisible oscillations now makes up the quantum vacuum. It is - metaphorically speaking - as if the quantum vacuum were an ocean, and the visible reality is then the waves on its surface. It is not for nothing that the English physicist Paul Adrien Maurice Dirac coined the term Dirac's Sea of Energy. As it seems, the waves on the surface of the ocean run in a defined

direction, but when you look beneath the surface, this movement turns out to be an illusion. Time - as a counterpart to the wave running in one direction on the surface of the ocean - does not exist down there. In the ocean below the surface of things, there is an unmoving back and forth of pressures, a back and forth whose material expression on the surface only creates the illusion of a forward movement: this is exactly how it is with our forward moving time.

Another concept from quantum dynamics that becomes very tangible against the background of scalar electrodynamics is the concept of entanglement. Quantum physicists have found that two elementary particles sometimes behave as if they were one; not separated from each other. If they changed the state of one of the individuals of an entangled pair in the laboratory, such as the spin of an electron, the spin of the entangled particle would change at the same time. Simultaneously here means at the same moment. Independent of the distance. Einstein called these effects "spooky action at a distance". If we now assume that matter is in permanent scalar wave exchange, this property can be explained. Changes of state in scalar waves, whether in the electromagnetic range or in standing sound waves, manifest themselves instantaneously, independent of the speed of propagation of the two composing waves.

And also the sometimes weird mathematical constructs that cosmology had to invent to explain the deviations of the actual trajectories of the outer planets from the trajectories that would be predicted by Keppler's laws, namely dark matter and super strings, are crying out to be put on the basis of proper scalar wave physics. The first fruitful approaches can be found online under the term "The electric Universe", which takes into account not only gravity but also electromagnetism in interstellar plasma fields as an interaction. But this is not necessarily the end of the line. If matter is connected to each other by bidirectional waves, this can also apply to the matter of two different solar systems. And since suns are point-like masses in a cosmological context, these masses are now

connected by a superstring. A highway for longitudinal radio traffic, bidirectionally coupled, in cancellation, or in the nomenclature of quantum physics, "entangled". One could not wish for a better visualisation of a superstring. One could then formulate the approximation: Gravity as we know it is the averaged sum of scalar interactions with statistically uniformly distributed alignment of the underlying bidirectional wave pairs. If the statistical uniform distribution is omitted, I must automatically search for the most powerful strings. Or I consider locally only the sum of all scalar potentials, and simply calculate the local gradient, then gravity is quasi the change of velocity of light (circularly trapped in matter) in an optically anisotropic medium. We can already see: to regard gravitation as a plump value, as a force between mass A and B, is daring. Gravity is a consequence of a local quality of the vacuum, which is determined by the interaction with defined distant bodies, and in a much more filigree way than the conventional theory of gravity approximates.

However, the Russian astronomer Nikolay Alexandrovich Kozyrev was able to prove that our cosmos is roughly structured exactly as implied by the scalar wave theory. Using crystals grown in weightlessness, which he had ground as lenses for one of his special telescopes, he detected non-optical signals emitted by the Andromeda Nebula. Now the Andromeda Nebula is 2.5 million light years away, which means it makes a difference in terms of its position in the sky which waveform transmits the image from the spiral nebula. Kosyrev therefore found these non-optical signals of the Andromeda Nebula with his telescope three times at different locations in the sky. There where we would expect to find it, that is, an image that has travelled to us at the speed of light and shows the position of the nebula 2.5 million years ago - this corresponds to the distance in light years. A real-time signal showing the nebula where it is right now, and - this was the biggest sensation - a signal that came to us from the future at negative light speed, showing the nebula where it will be in the sky in 2.5 million years. This third signal was comparatively a bit fuzzier, as if there were probably still some unresolved things about the future in detail.

If you did not succeed in internalising the explanations in this chapter, read it again and keep the picture of the Helmholtz resonator in the sound studio in mind. This small example from the field of acoustics basically carries all the essentials.

The most agile exponent of scalar electrodynamics currently published is Tom Bearden. He has countless books on the market, some of which have already been translated into German. In Germany, Prof. Dr. Konstantin Meyl has devoted himself to the subject, even though Prof. Meyl has a hard time with time reversals and instead attributes energetic effects to neutrinos. Prof. Meyl does good work elsewhere, especially in information medicine. Anyone who wants to explore the implications of scalar electrodynamics on the existing worldview in more detail is recommended to read these works. This book, however, takes a more complex approach and seeks more radical solutions.

Repetitorium/Glossary

Maxwell, James Clerk: Founder of modern electrodynamics. Maxwell published his main work, A Treatise on Electricity and Magnetism, in 1873.

General oscillation equation: Mathematical formula for calculating the possible wave forms in any oscillating medium.

Quaternion calculus: Mathematical method for the complex calculation of the solutions of the general equation of vibration.

Transverse waves: Transverse waves, with the plane of oscillation at right angles to the direction of propagation. Figuratively, a transverse wave can be thought of as the oscillation of a whip.

Longitudinal waves: Longitudinal waves, also called shock waves. With the plane of oscillation in the direction of the direction of propagation.

Scalar waves: In electrodynamics, the pure fluctuation of spatial energy density. A consequence of the complete coupling of two longitudinal waves travelling in opposite directions. As a standing wave, a scalar wave can no longer be assigned a vector locally. It only represents the local fluctuation of a numerical value. In the case of sound, this would be the local air pressure; in the case of electromagnetic waves, it would be the spatial energy density.

Helmholtz resonator: A kind of loudspeaker with a bass-reflex opening but without a sound system. The inside is stuffed with rock wool so that sound is attracted by the resonator on one side according to its own resonance, but swallowed by the rock wool on the other side.

Entropy: The property of nature to constantly reduce imbalances and thus lose order.

Negentropy: A term that is defined by classical physics, but is nevertheless something that actually has no place in the conventional world view. Negentropy is the opposite of entropy. The ability to build up order through self-organisation. In the classical doctrine, this usually needs an external source of energy that is consumed. Like the sun in plant growth, or food in animals.

Perpetual motion machines of the first and second kind: A perpetual motion machine of the first kind is a self-contained device that continually performs work without recourse to an internal or external source of energy. A perpetual motion machine of the first type contradicts the first law of thermodynamics. A perpetual motion machine of the second type uses negentropic processes to supply itself with energy. A perpetual motion machine of the second kind contradicts the second law of thermodynamics.

Pump wave: Longitudinal wave generated to create a resonance effect that should lead to scalar wave formation.

Pumped phase conjugate replica wave: Returning longitudinal wave from an addressed source field that couples with the pump wave.

Time reversal: Processes that behave as if they were running backwards in time. The concept scratches heavily at our concept of reality. In some manifestations, such as sound, it does not challenge our view of the world, because we perceive running backwards only as a geometrically somewhat unusual running forwards. As if. In the realm of cosmology, however, we must conclude that time reversal is real. That waves actually run backwards in time, showing us things where they will only be in the future.

Whittaker, E. T: British physicist, main creative period early 20th century.

Scalar potential: Level of spatial energy density defined by the energy content of electromagnetic fields.

Project Glocke: Secret Nazi research project under SS General Hans Kammler, with the aim of developing antigravity drives and scalar weapons.

Energy problem of general relativity: Mathematical calculations show that the conservation of energy does not apply in curved space-time. However, since the laws of conservation of energy are understood by science more as dogma, this is a "problem" instead of a reason to rejoice.

Noether's theorem: Mathematical formulation with which Einstein was able to prove the "energy problem". Named after the mathematician who developed the formulas: Emy Noether.

Nikola Tesla: Croatian-born physicist, main creative period 1900 to 1930. One of the greatest inventors of all time. The alternating current, the radio and countless other achievements in electrical engineering can be attributed to Tesla. His work on the subject of free energy, among other things he is credited with a car engine that managed without fuel, is lost or under lock and key in military archives.

Kraftstrahlkanone (KSK): Alleged weapon development of Nazi Germany. A beam weapon of unknown type.

Foo-Fighter: Unidentified missiles that appeared in the air battles of the Second World War. They were too small to be seriously manned, shrouded in an aura of different colours and flew daring manoeuvres. Otherwise they were unarmed.

Woodpecker: Nickname of the Soviet military microwave transmitting station near Chernobyl.

Keshe Foundation: Foundation of the Iranian-born nuclear physicist Meheran Tavakoli Keshe, which allegedly successfully backengineered the antigravity technologies of the German

Reich. The Foundation has stated as its goal the development of peaceful space travel, develops propulsion technologies as well as methods of physical medicine, and is known for offering defensive weapons systems to non-aligned states against a threat from the US and/or NATO. The Foundation runs a university in Sierra Leone and has encouraged the establishment of an African space programme.

HAARP: Microwave transmission facility in Alaska with a transmission power of several gigawatts. Officially, the facility is used for stratospheric research. However, it is operated by the Canadian-American arms company Raytheon. The term HAARP has come to refer to the type of transmitter, not to the location of the largest facility of its kind in Alaska, as would be correct. There are currently about 17 serious HAARP-like facilities in the world, but the trend is towards cluster antennas with greater spacing.

Integrated Geospatial Intelligence Solutions: Complex intelligence programme for surveillance and mind control of all Earth's citizens, under UN administration. The spraying of aerosols as a reflective plasma background for the three-dimensional radar detection of military targets but also of private individuals, which is carried out under the guise of climate protection, is to be understood in the context of this programme.

Internal electromagnetism: Conventionally non-measurable electromagnetic waves.

External electromagnetism: Conventionally measurable electromagnetic waves. The terms are correct in the context of laboratory experiments.

Dirac's Sea of Energy: Figurative description of the quantum vacuum. The term was coined by the French pioneer of quantum physics, Paul Adrien Maurice Dirac.

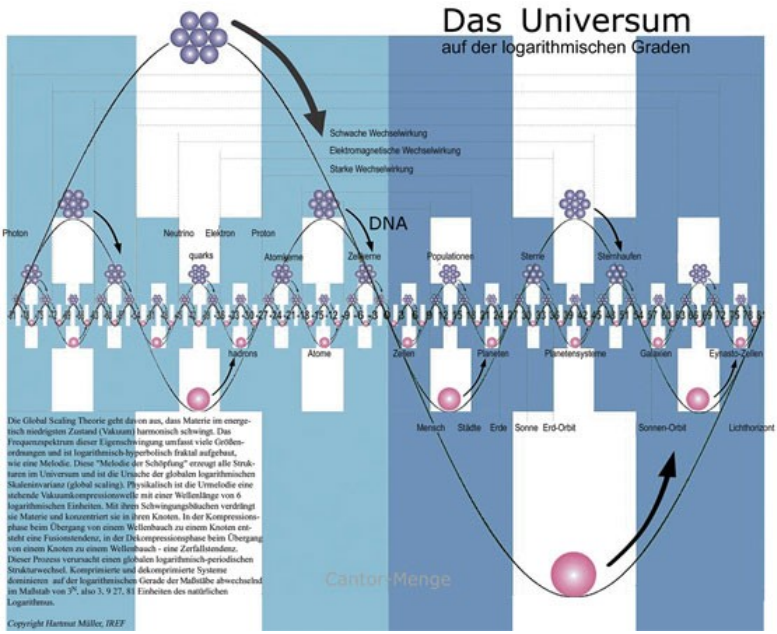
Kosyrev, Nikolay Alexandrovich: Russian astronomer. Found experimental proof of the importance of scalar waves and time reversal in cosmology.

Bearden, Tom: US Army Lieutenant, expert on Russian radiation weapons. Today he is considered one of the pioneers of scalar electrodynamics. For years, Bearden propagated small, easy-to-replicate prototypes of free energy devices in the developer scene. His most famous toy is probably the MEG, a small "transformer", which does not need a primary power source, however, but which builds itself up and thus supplies enough energy for a small light-emitting diode. After all.

Meyl, Constantin: German physicist specialising in scalar electrodynamics.

1.4 Scale invariance

Scale invariance is a term that briefly flared up in scientific discussion at the beginning of the millennium in the context of global scaling theory. However, the concept of global scaling has been badly discredited in the course of its emergence. Perhaps it is better to tell the story of global scaling in advance, before risking exposing physical findings to slander. Global Scaling was coined as a discipline in the late Soviet Union. There is a large body of individual research, internationally. Physicists all over the world have found that things are correlated that should not be correlated because they do not interact with each other at any known field level. The appropriate colloquial term for this is synchronicity. Anyone who has studied the first chapter carefully will have guessed: it is entanglement at the quantum level. This concerns chemical processes, electromagnetic noise processes as used in random generators and especially biological processes. The second class of discoveries concerned inexplicable statistical accumulations of the measures of stable structures at certain values. The relevant classes are weights, frequencies, lengths. Everything from elementary particles to metagalaxies was stuffed into the first Russian high-performance computers in terms of size, mass and frequency. The result was astounding. If one plotted the abundance of values on the logarithmic scale to the base e, a frequency distribution pattern emerged that showed maxima at intervals of "3", with stronger, respectively superior maxima at intervals of 9, 27, 81.



This frequency distribution behaved mathematically like a swinging string of pearls, which could be mathematised in a continued fraction method according to Leonard Euler - which ultimately provided the mathematical calculation basis for global scaling. This discovery has some exciting implications: for example, it forms the proof for the sentence: "Everything is connected". For the mathematics of the vibrating string of pearls describes nothing other than a single, coherent fractal that seems to condition the size of all things in the universe and harbours an inherently harmonious oscillation, even if here the oscillation is only visible on an abstract and, moreover, logarithmically distorted mathematical dimension. To be precise, Müller found two such fractals, which were shifted against each other by exactly 1.5 or vividly $\pi/2$, of which one represented matter and the other rather the oscillation behaviour in the field range or in the quantum vacuum.

As a simple example that anyone can calculate: The vortex tubes of whirlwinds, tornadoes and hurricanes always have similar diameters. Hurricanes that lie somewhere in between do not exist. If you project the average diameters of these "stable" structures into the logarithmic space of the scales, you will always find a multiple of the distance "3" between the values.

ln (30,000m) = 10,308

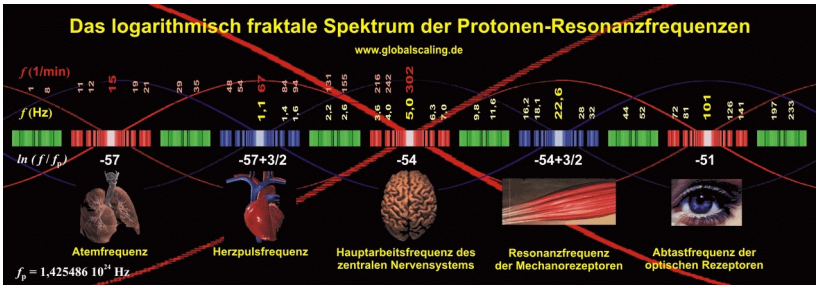
> ≈ 6

ln (50m) = 3.912

> ≈ 6

ln (0.15m) = -1.897

In this mathematical universe, there were incredible things to discover: all biology is based on global scaling frequencies, our breathing frequency, the heartbeat, the brain waves, the clock frequency with which our eyes see. And the most unbelievable thing: DNA lies exactly in the central node of the fundamental fractal, both in terms of weight and the frequency of its natural oscillation as well as its size. So we can say that everything that is part of our reality, as a vibration in this logarithmic space of scales, actually in the size of our DNA, has a common vibration node.



But technical measures also obey structure - things that have proven stable, like the clock frequencies of the ever faster processors in computer technology.

The technical term that describes this circumstance is scale invariance. These two facts, the inexplicable synchronicities and the statistical accumulations that always show a harmonic order in the logarithmic space of scales, could not and cannot be denied. This is the basis of Global Scaling, which is beyond any doubt. The synchronicities are relatively easy to explain - the reader of this book has already been initiated to this extent - via scalar waves or quantum physical entanglement. Hartmut Müller speaks of proton resonance at this point. This is remarkable because official quantum physics experiments exclusively with photons in its experiments on the subject of entanglement. The recurrence of certain values, weights, frequencies, lengths, apparently has something to do with these resonance frequencies, with "in-form-ation" in the broadest sense, with the frequency-defined fine structure of the quantum vacuum. The frequencies are primary, from which, at a given speed, the length dimensions result, including various diameters, and from these, in turn, the masses. This at least explains the similarities of the structures found in the various logarithmic spaces of the scales.

To visualise this, one could say that the universe is a guitar. With strings (pure vibration in the quantum vacuum), the body (measurable vibration in matter) and the dust on the guitar top, which, depending on the distribution of the vibration bellies and nodes, forms accumulations of defined sizes at defined distances, just like the matter in the universe. Now what happens when I roughly strum this guitar? First of all, I will have all possible tones and overtones, then the overtones fall silent in favour of the fundamental vibrations, which brings me to the concept of prime numbers, because a prime number is not divisible by anything and thus represents an absolute fundamental vibration. The prime number density distribution on the logarithmic scale, in turn, is a fairly accurate reflection of the standing global scaling wave. Altogether, in the logarythmic space of the scales, the picture of a vibrating string of pearls emerges.

The physical synchronicities, if they could be technically mastered, promised new possibilities in the field of communication technologies. Data transmission far beyond the speed of light was suddenly conceivable, in real time, without significant transmission power, completely independent of distance.

Müller left the USSR in 87, was contracted by his employers for 10 years and then tried his hand at private research in reunified Germany. He needed start-up capital to gain a foothold in the West. He signed a contract with Siemens, promising the company the rights to a technology that had not yet been developed and that was also based on Soviet knowledge that was not entirely his own. The deal was not entirely clean in either direction. Siemens promised to invest - but broke this promise and let the technology disappear into the drawer. Thus Müller was financed, but his hands were tied.

He otherwise tried to stay clean, quoting and honouring his colleagues who had done the basic research, especially Leonard Euler, who had developed the mathematics to describe the movement patterns of swinging strings of pearls. He even christened his institute in Memoriam Leonard Euler. His very own achievement, he claimed, was the development of a continued fraction method based on Euler's mathematics, with the help of which seemingly random sequences of events could be analysed mathematically: the Müller continued fraction.

The first technical application to come out of this school was the Bioguard, which calculates the underlying global scaling waves from the white noise of a forsterite crystal using Müller's continued fraction method. These harmonic structures from the quantum vacuum, which Müller understood as a finely scaled biorhythm, were emitted by the Bioguard as a mobile device in mobile phone format as an electrical signal to the body in order to give these natural signals an advantage over the technical whirring that surrounds you day in and day out. There were people who swore by the Bioguard.

By chance, it turned out that switching on a Bioguard in the twin brothers of the same series caused a crackling sound - over considerable distances. This was the actual birth of GS-COM, Global Scaling Communication. The transmission of the crackling was completely independent of the distance, did not happen at the speed of light, but merely shifted by half a phase length of the underlying harmonic signal, and that with a transmission power of e.g. 66 mW from Austria to Australia. It was only a few steps from the crackle to the analogue voice connection.

The other exciting thing about Müller's mathematics was that this Müller continued fraction method could be calculated uniquely in both directions. You could use it to mathematise chaotic patterns, calculate the harmonic background structure, extrapolate it - since it is harmonic - and then predict at least the near future with a relatively high degree of certainty using the inverse method. In other words, he had found a way to calculate chance in the future - albeit with an increasing fuzziness with the time span skipped.

Since communication technologies were denied him and the Bioguard did not bring in enough, he concentrated for a while on the lottery numbers, all correct within the bounds of probabilities with no guarantee of success. But then a solution to his problem began to emerge.

Since Siemens simply did not fulfil its promise to develop the technology, the next commercial project from Müller's technology forge was "offline banking", in which two computers, one in the bank, one at the customer's home, synchronously pulled a TAN out of the quantum vacuum to encrypt a transfer order. This, Müller hoped, would narrowly miss the legal definition of the communication technology sold to Siemens, and would keep the large corporation out of the running. Müller had private investor money collected, secured it with a bank guarantee via the Cypriot Yesilada Bank, which was also the first customer for the system, and was from then on financed again as a private researcher.

Scientifically, however, the story became somewhat unedifying at this point. Due to a lack of trust in patent offices and colleagues, Müller kept his formula work under lock and key. The second was that in the synchronous drawing of random numbers, certain effects could not be explained even by Müller. The matter seemed so creepy even to him that he decided to conceal the truth. I can tell this story because I worked close enough to Müller's core team at the time to have heard these internal details.

To do this, you have to understand how the synchronous pulling of identical random data was supposed to work. Müller took a forsterite crystal and split it in half. Two halves of a crystal have a high degree of mutual entanglement. The two halves were now spatially separated and each served a computer as a noise source for a random generator. These two random generators generated white noise, the noise was analysed using Müller's continued fraction method and the result was broken down into its harmonic sub-waves using a type of Furier analysis. Then Müller took one of these harmonic components on the first computer, interrupted this wave in a zero run via a programming language sequence by mirroring the whole wave across the x-axis and henceforth running it with the opposite sign. Because of the entanglement of all waves, however, the same unnatural mirroring on the x-axis also appeared in the other crystal, i.e. on the other computer. Now it was possible to observe exactly the same subharmonic there. The change of the sign did not change the information content. So it was now possible to have the two computers spit out identical columns of numbers simultaneously on one and the same wave, so to speak. With the first 128 numbers of this random series as the TAN, the bank transfer data was then encoded and decoded again with the same column of numbers on the second computer. Without the slightest chance of intercepting the TAN on the way and cracking the connection. Quantum cryptography at the very highest level.

That sounds logical so far. The scary point was the rebound from inverting in the processor to the noise of the crystal. It worked, but without being able to say why. Basically, it was like the effect of the characters according to the teachings of the Kabbalah. The processor thought a sequence of numbers, and the magical effect of this sequence of numbers made the random processor do completely unnatural capers. With this, Müller thought, with technical number and letter kabbalistics, he would immediately be discredited as a charlatan.

But the decisive blow did not come from Esowatch (now psiram) or other critics, it came from the Federal Financial Supervisory Authority (BAFIN). The collection of investor money had not met all the formalisms that apply to such a business, and there were also technical difficulties. What worked perfectly in the prototype with small quantities of forsterite crystals from a single crystal, refused to work in the first large-scale production run. And that was not all. The technical failure was probably not really communicated to the investors as it should have been.

So BAFIN intervened. One of the managing directors of the company that had financed Müller was found hanged in his cell, the second managing director, a former Stasi operative, was rumoured to have died in a car accident, the third - who had outed himself to me as a Trojan horse of Western regulatory structures - disappeared without a trace. I am deliberately not mentioning any names. At that time, Müller had already clearly distanced himself from his backers. That is why he was only tried after some delay. Nevertheless, Müller was sentenced to several years in prison without parole, fled to South America and was imprisoned there. Because of the life-threatening prison conditions in South America, he is said to have asked to be extradited to Germany and was then released relatively quickly in Germany, which possibly indicates that he made a deal.

I don't believe that the proceedings as a whole were fraudulent. I had the pleasure of scouting and inviting the cryptographer

community for one of Müller's big conferences, and had several conversations with the cracks of the scene, who confirmed to me the spooky behaviour of processors and random generators. In other words, exactly that difficult point where it wasn't clear what Müller didn't want to reveal and why. But that doesn't change his fate. Anyone who googles the name Hartmut Müller will find a character assassination campaign that is ostensibly directed against Müller, accusing him of an incorrect translation of scientific titles from the Russian period, i.e. a stolen doctorate, scientific imposture and fraud. Ultimately, however, the media campaign discredits the entire branch of science.

Let us not be irritated by the worldly intrigues. It is worth keeping in mind some of the scientifically proven aspects of the Global Scaling Theory. It is the fact that non-local interactions occur over large distances, on all scales:

- Between photons - this is the domain of university quantum physics and today underlies various medical applications such as the Time Waver, which use this effect for remote healing.
- The fact that there is also a non-local interaction between protons was the domain of global scaling research. The technical applications used the entanglement of the two halves of bisected forsterite single crystals, i.e. of a certain olivine variety, which produce an electromagnetic white noise that can be read out and entangled with each other. By mathematically analysing this white noise according to Müller's continued fraction method, it is said to have been possible to make the synchronicities bound to the proton resonance visible, to control them and thus to use them for communication purposes.
- And as a third remarkable finding, it should be mentioned here that there is also likely to be a non-local interaction between circularly moving masses. The third statement is not necessarily comprehensible in terms of classical field theory. But a simple thought experiment makes it compelling: simply consider the sum of all protons of any rotating mass, they represent circularly moving charge and thus generate an electromagnetic field. Then imagine the sum of the electrons of the same circularly moving

mass. They generate an electromagnetic field of the same size and in the opposite direction. The two fields cancel each other out, the energy content of the longitudinal components adds up and builds up its own scalar potential. Fluctuations in the circular motion pattern, such as rotating subscales - think of magma rollers inside planets - then form scalar waves as overtones, which should be equally capable of non-local interaction with similar structures. The principle was proven in Bavaria by the caretaker of a university who brought a 50 kg disc to 40,000 revolutions and was able to prove a reduction of the earth's gravitational field along the axis of rotation. Of course, the privately financed experimental setup was confiscated by the university and destroyed.

And all these entanglements, spooky long-distance effects, as Einstein called them, are scaled by nature, according to a fractal system that reveals itself in the logarithmic space of scales as a vibrating string of pearls.

1.5 Topological Geometrodynamics

There are two approaches to understanding Matti Pitkänen's work, or to entering the mathematical stage he has set up. Via Einstein and via pure number theory. Einstein, with all due respect, had chickened out of the energy problem of general relativity. Matti Pitkänen has faced the problem. Where Einstein "assumed flat space-time for the sake of simplicity", Pitkänen has calculated correctly.

From this starting point, certain mathematically compelling implications arise. The problem that Einstein wanted to solve at that time by means of a language rule cannot be solved within this world. It must be extended by at least one dimension in order to arrive at a solution.

The first steps even have a certain degree of clarity. The following chain of thoughts is helpful to understand the logical steps - for the time being unmathematical for this publication:

If spacetime in our reality is curved, then I can conclude the following:

> - We live in a 4-dimensional entity. Here the notation is somewhat misleading, because on the one hand we have Minkowski space, notated M4, where the "4" here is actually a notation for metricated time. If we assume that time is an illusion, however, 4-dimensional means another, non-spatial and non-temporal dimension.
> - This world thus comprises three spatial dimensions, the illusion of time and "behind it" another initially scalar value, i.e. a pure numerical value assigned to each point of space. What nature this value is cannot be said ad hoc, our senses do not register it, our brain does not visualise any spatial dimension. However, one can identify this scalar value somewhat roughly expressed as the scalar electromagnetic field potential, or the spatial energy content, whereby the energy content of

the scalar fields must be included in the same way as that of the normal electromagnetic fields.
- Let's leave out time for a moment... In this 4-dimensional structure (x, y, z, s), s for scalar potential, there are, according to the nature of a 4-dimensional space, 3-dimensional subspaces that are not flat but intersect the purely mathematical intersection spaces. They represent areas of identical spatial energy density.
- Quite obviously, such a "planar" subspace, is not identical to the reality we experience. If it were identical, we would not experience any curvature of space-time in our reality. I.e. we automatically arrive at a structure in which realities, Matti calls them Worlds of Classiscal Worlds, with their curved spaces, their gravitational funnels, intersect the 3-dimensional "planar" spacetime foils. Like a knife across the puff pastry of a croissant. In flat space-time, i.e. cosmologically in weightlessness, a "World of Classical Worlds" runs exactly parallel to a space-time foil, there the knife splits the dough of our croissant, so to speak, but the moment we move into a gravitational funnel, the 3-dimensional experiential spaces "cut" the 3D foils in 4-dimensional space.
- There is no reason why there should be only one World of classical Worlds in the overarching 4D. Like everything in nature, realities are quantised, so many similar yet distinctly different realities lie on top of each other in our croissant allegory.

From this perspective, we recall once again the adventure with the USS Eldrige. The field generators pumped field energy into the Eldrige until it left our World of Classical Worlds and became invisible from our perspective. The only problem was that organic matter and metal absorbed this field energy to different degrees, and suddenly even the soldiers and the ship were no longer on the same plane of reality, the soldiers' feet stopped interacting with the metal deck and they sank into the metal, freezing there again elsewhere. Hence all the deaths. I wish there were a more beautiful view of hyperspace, but

perhaps this is the best possible one, since it contains a warning not to experiment with the basic pillars of creation.

So much for Minkowski space extended by the scalar potential. But that is not all. The other approach to the subject comes from pure number theory.

> - Such a 4D structure would be mathematically dead, it would have no form, no content, no dynamics, if it only stood for itself. For such a space, mathematics needs an accompanying mathematical entity, in this case 2-dimensional, that structures this four-dimensional space, fills it with life. In other words: we live in a fractal, and that is based on a formula with two further variables, let's just call them k and l. That makes two further dimensions. That makes two more dimensions. We note CP2 with Matti Pitänen.
>
> - In purely mathematical terms, we end up in an 8D in this combination (2 × 4). This eight-dimensional space is then sufficiently complex to be able to describe the properties of the reality we experience.

Matti's notation for the world in which the "World of Classical Worlds" (WCW) we inhabit is embedded is thus: H = M4 × CP2, or H = M+4 × CPS if one wants to consider the "future light cone", i.e. the world we perceive taking into account the fact that light from distant events has been travelling to us for a while.

The quantisation of the spacetime foils he recognised as M4 follows from pure number theory. The starting point are the prime numbers in CP2. They define discrete states of the system, with each prime number forming the basis for a system of p-adic-numbers, from which the respective M4s arise. The primes - as we have learned from Global Skaling - are also the basis of the fractal nature of the universe.

A close look at the CP2 and the concept of pi-adic-numbers leads into a mathematical view in which the number-level reality created out of the CP2 breaks down into two realms. If I understand it correctly, there are equations at work in a range of number spaces in the CP2 that allow for multiple solutions above a certain complexity. What mathematics does here has great similarities with imagination, dream, creativity. Below this level of complexity, the hierarchy is the other way round, there the results in the M4 are clearly determined, there the CP2 rules strictly over the M4, i.e. determinism rules in the M4.

This structure, which leaves room for the spiritual, for imagination, dream and creativity, is similar to the findings of Burkhard Heim, even though Heim used up to 12 dimensions. Heim's mathematical experiments were also of a rather hypothetical nature - in the sense of: what would reality look like if it were x-dimensional?

I hope that I have thus been able to give an idea of Matti Pitkänen's theory. It is perhaps conditionally correct in this vividness. So far, I have not named any of the mathematical tools he cites, and thus have not presented any concrete computational models - but illustration is what has actually always been lacking in Matti's work, and I hope to have served the reception of his mathematics best in this way.

This model is captivating in many respects. Absurd things, such as the adventures of Admiral Richard Evelyn Byrd, who in 1947 claims to have come through a kind of luminous fog at the South Pole in a single-engine plane to an inhabited area rumoured to be inside the globe, suddenly make sense. That is, the Hollow World theory based on his experiences is a misunderstanding. The core of this myth could be true, except that the conclusion that a central sun shines inside the earth and that people live on the inside of the earth's surface, this interpretation would be a completely misguided attempt to project the completed change onto another space-time foil into our 3D. Logically, if I go inside a sphere in my mind, I would not expect to see a sun outside. But against the background of

Matti's world view, Byrd's adventure makes sense: the tangled scalar fields at the poles of the Earth possibly bend spacetime so much at times that we can move through these field densities out of our reality into the neighbouring World of Classical Worlds, where we find another Earth, and another sun.

Even the huge spaceships that NASA photographs plunge into the poles of the sun would be decidedly less suicidal on the road in such a worldview. What happens there - if NASA doesn't put cheap fakes on the net - are journeys from one to the neighbouring World of Classical Worlds; no more and no less.

At the risk of not being of any use to most readers, I will try to tie this view at least somewhat to the mathematics Matti uses. Those readers who know higher mathematics can then better assess whether they want to venture into reading the original manuscripts.

According to Matti, the extension of Einsteinian physics to the 8D can be derived in three different ways:

> - as a direct derivation of the Kähler function;
> - the second way follows the construction of the Kähler form and metric, where the high degree of symmetry plays a role that is necessary to maintain the mathematical existence of the Riemann connection;
> - the third derivation follows the construction of spinor structures, based on the hypothesis that complex WCW (World of Classical Worlds) gamma matrices are representable as linear combinations of fermionic oscillator operators for secondarily quantified free spinor fields on the spacetime surface, and on the geometrisation of super-conformal symmetries of the WCW spinor structure[31].

[31] Pitkänen, M.: Physics as Infinite-dimensional Geometry I: Identification of the Configuration Space Kähler Function. Prespacetime Journal July 2010 Vol. 1 Issue 4 Page 543 -564.

In this context, Matti succeeds in explicitly calculating the WCW-Kähler function as a sum of Chern-Simons terms, which throw up a mathematical formulation of the wormholes as a result.

From the number theory pursued by Matti Pitkänen, the following insights emerged.

- That one can assign to the 4-dimensional tangential space T(X4(Xl3)) ⊂ M8 a subspace M2(x) ⊂ M4, which can be understood as a plane of non-physical polarisation. This is in particular the case if the induced metric carries a Minkowski signature. If this is not the case when co-hyper-quaternionic space is in question, the same concept can be applied to our experiential space, which would lead to the model of super-strings[32].

- Suppose the X4(Xl3) has a Minkowski signature: then one can assign to each point of the M4 projection PM4(X4(Xl3)) a subspace M2(x) ⊂ M4 and its complement E2(x), and the distributions of these surfaces are integrable and define what Matti Hamilton-Jacobi called coordinates, which can be assigned to the known extreme values of the Kähler function with Minkoswski signature. This decomposition allows to divide the spacetime foils into string-world foils and their two-dimensional counterparts. Also, a decomposition into 1-dimensional structures and their 3D counterparts Y3 (parallel to l Xl3) becomes possible, which may follow the induced metric of X4(Xl3). Physically, this means that 4-dimensional space (vividly 3D) is actually due to a 2D, which points to a holographic principle underlying our reality[33].

For most people, pure mathematics is quite torturous. I'll stop now, too. What one should take away from this chapter is

[32] edb.

[33] edb.

perhaps the idea that other parallel realities exist to which we are connected through wormholes. And that in some way we live in a hologram. Because those are the things that are currently being discovered in cosmology.

1.6 The holographic universe

The original idea for the holographic universe arose in discussions between Steven Hawkins, Gerard t'Hooft, and Prof. Leonard Suesskind. The three physicists suspected that the reality we experience is linked to the surface of the black hole at the centre of the universe by a holographic principle.

In order to understand this a little better, one has to keep in mind what exactly a hologram is. A hologram is created by a kind of slide, a holographic foil, which is exposed in a certain way. In this exposure, each pixel is not defined by a proportional reduction of the colour dots of the depicted reality, as on a normal slide, but each pixel contains the information of the entire image, as a stereoscopic image. Which point of the image one sees when looking through it depends on the angle at which one looks through the hologram. Since you look with two eyes, i.e. each eye creates its own angular reference system, and thus sees its own image, the hologram is able to create the illusion of a three-dimensional image. The hologram itself, what we see, is created as an illusion behind the holographic foil.

If the image carrier of the hologram is broken into pieces, each individual fragment is still capable of creating the entire three-dimensional image in the eye of the observer - only with somewhat lower resolution.

Transferred to cosmology, the holographic foil corresponds to the surface of the black hole, and the "seen" reality corresponds to the physical reality experienced by us. The surface of the black hole is so naturally non-existent, non-material. The surface of the black hole is the "event horizon". It is defined by the distance that is so close to the black hole that no light can escape from it. Everything beyond this event horizon is irretrievably decoupled from our reality. If you were to approach this horizon with a camera, the flow of time observed there would become faster and faster, or put another way, the closer you zoom in on the horizon, the older the events you observe there are, until the point where the observed past

asymptotically approaches infinity and the space "beyond" ceases to give anything of itself. This is because when light escapes from a gravitational field, it loses energy; when it falls into a gravitational funnel, it gains energy. But since the speed of light remains constant, it gains or loses frequency. The perspective is interesting when you finally arrive at the event horizon. There, all of time exists out there, simultaneously, in a single instant.

What we get is a 2-dimensional surface in which everything that has ever fallen into it is, from our point of view, stuck in a time swamp, literally to an absolute standstill, i.e. this surface is, from our point of view, capable of swallowing entire Milky Ways, but it is not capable of destroying information. What manifests itself here is the difference between a spacetime foil and a simplified 3D imagination. If we think along the 3D-imagination and extrapolate it criminally, we go into the interior of the black hole.

Those who still believe that black holes are the only ones, the final rubbish bins and recycling stations of the universe, are possibly buying into the logic of the derailed human consumer society. Nothing is destroyed, nothing is created. Everything fluctuates around states of equilibrium.

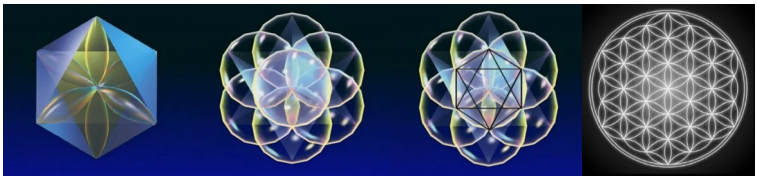
This basic structure is universal, appears on all scales. Every human being carries a small black hole somewhere in the region of the heart, surrounded and manifested by the light of the biophotons, possibly the seat of the immortal soul, the instance in which nothing can be forgotten because everything that has ever been experienced and will be experienced is frozen in the time swamp of the event horizon.

In purely mathematical terms - as can be calculated on the basis of the Schwarzschild equation - every proton is also a small black hole.

The first computational evidence that here and in this way lies the essence of our living world came around the year 2011 from

an absolute outsider in physics, Nassim Haramein, who approached the questions of cosmology from basic geometrical considerations that he had encountered in early historical symbolism.

Starting from the construction rules for Platonic solids and 2-dimensional projections of the resulting figures, he was able to recognise the basic geometry of the quantum vacuum in the flower of life. This beautiful symbol was known in almost all ancient cultures of mankind. It can be found in Egyptian as well as South American temples, and on the sphere under the paw of the lion guarding the temple precinct of the holy city in Beijing.

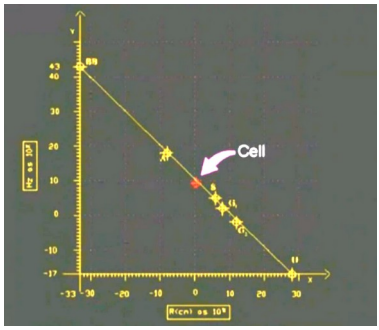


With these basic geometric considerations, he put the material world of the macroscopic in relation to the quantum dynamic structure inside the elementary particles and thus found the basic rules of holographic projection in nature. In calculating such quantum physical quantities on the proton, more precisely on the so-called Schwarzschild proton, he was able to score his first direct hit. He was able to prove that the total amount of energy trapped in the Planck oscillatins of a proton corresponds exactly to the energy trapped in the total mass of the universe according to E = mc2. To do this, he simply calculated the number of possible Planck oscillations based on the geometry of the flower of life, assigned the smallest possible energy unit to each oscillation and added up.

Once he got a taste for it, he found other correlations that proved the importance of the holographic principle:

> - He looked at the mass of a proton (measured by the number of Planck spheres of its surface) - i.e. the energy trapped in the Planck oscillations - and lo and behold,

the gravitation producing this virtual mass corresponds exactly to the Strong Force previously postulated only from internal contradictions of Bohr's atomic model.
- He calculated the ratio between the number of Planck circles on the surface and the number of Planck spheres in the calculated volume of the black hole for the existing and well-researched black hole called Cygnus, and the result was: the mass of the black hole - as described by Einstein's gravitational equation for black holes.
- He also found this purely geometric relationship in the proton: he divided the surface of the proton measured in Planck circles by the volume in Planck spheres and obtained the mass of the proton. To the nearest 4 decimal places!



- Nassim Haramein then ennobled this ratio between the number of Planck circles on the surface and the number of Planck spheres in the volume with the title of a new natural constant, ϕ (Phi), not to be confused with the golden section, and lo and behold: 4 times ϕ 2 yielded exactly the value of the coupling constant of gravity.
- Nassim Haramein's most recent important discovery concerns the role of biology in the geometric interplay of the cosmos. It is the quantum physical equivalent of Hartmut Müller's finding that DNA lies on the central principal node of the standing wave in the space of scales in terms of weight, frequency and size. Haramein plots size against frequency on the logarithmic scale (base 10), and lo and behold: all the forms that carry a black hole at their heart line up dutifully on a scale, and - if one takes the oscillation frequency of the

microtubules as a basis - the basic building block of life is found exactly in the centre of these scales: the cell.

I hope that was illustrative enough. Now it is time to remember what we have learned so far. We know our three-dimensional space, our 3D, in which we live. Minkowski metrised time, so we came to the first mental model of a 4D. We learned that for the electromagnetic field energy density, we assign another value, a scalar, to each point in space. Hartmut Müller discovered that the logarithmic space of physical scales behaves like a two-dimensional, oscillatory medium, and Matti Pitkänen deduced from pure number theory that we need an SP2 in addition to the four-dimensional Minkowski space M4 to explain what is happening.

And now cosmology offers us an M4 including scalar potential, an SP2 on the surface of black holes, and a wonderful harmony between the fractal and the holographic principle that confirms two ancient wisdoms: "everything is connected" and "as in the big, so in the small". Cosmology also offers us a system in which consciousness, which is linked to biological life, finds itself at a constituent, order-creating point in the overall system, in Müller's case at the centre of the logarithmic spaces of physical scales, in Haramein's case at the centre of the scaled cascade of structures that carry black holes at their heart. These singularities form a complete holographic fragment of the entire hologram, that is, consciousness of the universe is nothing more than a holographic splinter projection of the entire universe. These singularities have a connection to an immortality that is fed by time coming to a standstill on the event horizons. And, if we follow the logic of Matti's more complexly organised pi-adic-numbers, we find ourselves (from a certain complexity of our being) in the creator role of the reality we "perceive".

1.7 Quantum Gravity Research

In the previous chapters, we approached things from observed reality. The starting point was the experiential fields, gravitation, electromagnetism, as well as the theoretically postulated other, more exotic field forms. We have tried to understand and integrate the exceptional phenomena in cosmology, the black holes, the curvature of space-time itself, and have thus arrived step by step at a mathematical understanding that is in itself free of contradictions.

There are, however, a few things that continue to balk, that remain a mystery: The fractal structure of our universe, time & consciousness.

Quantum Gravity Research is a theory that has developed in California in a group of researchers around the physicist Klee Irvin, to have mentioned only one exposed name. Quantum Gravity is the theory that takes the decisive step of the paradigm shift: the change of the observer's point of view.

The starting point of this world view is an 8-dimensional crystal. This crystal exists outside of any concept of time. This is where we anchor our perspective. This 8-dimensional crystal contains 4-dimensional intersection planes or "slices" of the thickness of a basic structure defined by Planck lengths. In the next step, an observer defines, so to speak, the angle at which this 4-dimensional slice is projected into a 3-dimensional space, just as the angle of the sun would draw the shadow of a slice of a 3-dimensional crystal grid on the ground.

This theoretical derivation implicates a number of properties that can explain precisely the remaining mysteries of reality.

> - If one takes the basic cell of the 8dimensional crystal, a structure called the Gosset Politype, and projects this structure onto 4D, one obtains two spatially separated geometric figures, one small and one large, whose size ratio is exactly 1.618..., so Φ is a natural constant that

appears everywhere in nature without anyone having been able to provide an explanation for its dominance so far. This becomes particularly clear when considering black holes, where quantum and relativity converge.
- Also, the theoretical quality of time in this derivation is as paradoxical as it actually is in reality. In the 8D crystal, every point in time affects all other points in time, both future and past - as it cannot be otherwise in a world where there are wave packets travelling both forward and backward in time, as we have learned with scalar physics.
- The third striking point is that our very complex reality is derived from a rather simple basic structure, in that an angle of observation on a relatively simple structure in 8D, in other words a consciousness, creates a projection that looks many times more complicated than the structure of the 8-dimensional crystal itself. Observation creates reality. This is one of the basic insights of quantum theory.

Thus, this theory integrates the concept of information, causality loops, non-determinism, consciousness, the pixelation of reality into Planck lengths and times, and the predominance of the golden ratio, i.e. the fractal order of our universe. This is far more than all other theories before offered, while the computational effort for this is only a fraction due to the changed perspective. A typical feature of a successful paradigm shift. Reality appears as a mosaic-like code, or language, formulated in the smallest possible length units, the Planck lengths. Experiments in particle accelerators have confirmed exactly this, that the smallest elementary particles are geometrically related to each other via the 8-dimensional crystal, and that their actual appearance in this reality corresponds exactly to different possible projections of this crystal into the 4D. This geometric language has rules, but also syntactic degrees of freedom, like any language, which requires the presence of a choosing consciousness. There is little room here for the concept of chance. And this is precisely what global scaling has shown us, that behind the white noise of a crystal

lie hidden harmonic structures that allow us to make statements about the coincidences of the future and the past.