MFT Part 1

"No point is more central than this, that empty space is not empty. It is the seat of the most violent physics." - John Archibald Wheeler

Preamble

I originally was only interested in the medium, the fabric on which field theory is based. I had a geometric structure in mind, which I wanted to test in terms of field theory. Surprisingly, this geometry showed me that virtually all physical questions are explained by mere Platonic thinking. However, it changed the old paradigms.

From the prospect of physics, a new theory with new paradigms should make no sense, especially if the new values do not alter the old ones. The matrix-field theory (MFT) does not show any new mathematical solutions for predicting experimental values, but the interpretation of these values changed radically.

When I read Rodney A. Brook's book "Fields of Color," an excellent book on Julian Schwinger's Quantum Field Theory, I realized that he had completely tied his theory to existing physical values. Instead of particles he said fields and actually improved the existing physics only with a new angle of view. On the other hand, the theory of a geometrical matrix, what is presented here, seeks to reinterpret the paradigms themselves in order to see what new insights arise from them. The pure logic itself should guide us, not the stamp collection of physics, the vast sea of experiments and lists. We should finally wake up.

A look into future requires a completely different view of physics. It is a matter of time when explanations become necessary when we see missiles that accelerate from zero to 10'000 km/h without inertia becomes deadly.

What is the new field theory?

In short: It is based on harmony and balance of the primal phenomena that generate space-time-pulse. These phenomena (axioms) exist from the beginning, but because of this balance or equilibrium they form a void, a non-visible, non-interactive substance of empty space. Only the disturbance of this system generates the reality of space-time-pulse. In contrast to today's physics, the Matrix-Field-Theory (MFT) does not begin with an absolute chaos of a big bang scenario but with an almost absolute harmony, which forms an apparent emptiness by the equilibrium of space-time-pulse axioms. The empty space is not empty; it is a system of space-time-pulse that in the state of equilibrium, in perfect balance, has no effect outside its system.

Space is defined here by a geometric structure, the matrix, a vector-equilibrium,
Time through a perfect cycle of (+) to (-) in the matrix system and
Pulse by the resistance of leaving the original state.

Field theory has the advantage that it is from the beginning a GUT (General Unified Theory) and all further determinations from this point are like the branches from the trunk, while classical science is a mix of experimental results and the search for theoretical affiliations what often leads to different theories. The classical science thus has many planting sites,

which then it tries to unite in a trunk. The recognition of MFT would not overturn physics, but the picture of the physical world would fundamentally change. The excitement is that by the geometry of field space, its specific cycles in at least **4 space dimensions** and its field tension, the extremely difficult to imagine things such as fermions, bosons, mass, inertia, gravity, etc. can be explained.
"Nothing is more important than the fact that space is not empty. It is the substance of the most powerful physical forces. "- John Archibald Wheeler
"What we receive as material bodies and forces is nothing other than the forms and structures of space and time" - Erwin Schroedinger."Everything we consider as real is made of things that cannot be considered real" - Niels Bohr

Space time pulse are concepts of human imagination and therefore not real.
Space: It is not real without time and pulse. … it is without distance and size.
Time: It is unimaginable without space and pulse. … is timeless without size.
Pulse: It is not real without space and time. … a point size in zero time.
Mathematically, they are used separately but always form a continuum.

Einstein only used the space-time continuum, because he built his theory on the constant speed of light and speed is defined only by time and space. In his formulated field theory, which he was using to explain gravity, he spoke of space curvature, an irritating thought because space only could be bending in the prospect of a 4. space-dimension.

2 Thinking about axioms of space-time-pulse as concepts of our consciousness does not bring us to reality, what it is all about in physics.

Space only becomes real if it consists real space particles. 1, 2 or 3 dimensional shapes are only tools of our intelligence, but not physically real. The zero-dimension must therefore be physically real. There lies the heart of matter. It is the smallest size that cannot be measured in any way. Although it is not exist in physical sense, it must have physical values. A world dimension of the zero dimension must be able to fit into the 1st. 2.; 3. or multiple dimension. The recognition of this fact leads to the conclusion that the third dimension must be able to multiply into the fourth and this into further dimensions.

Time only becomes real if it consists of time cycles. A smallest time cycle is recognized as real when measured from a larger cycle. In the cycle itself, time is just a concept. Like space, which can develop in all directions, time can also go forward and backward. This sounds amazing, but logically fulfills the rule of the continuum of smallest particle. The sum of all axiomatic values must be zero to describe the "empty" space. In Feynman graphs, this is freely applied today in experimental physics, but without being explained. In addition, a cycle would not be a cycle if its values do not complement each other and sum up to zero.

Pulse is the most mysterious component that characterizes the fabric of our world. The space-time becomes the real continuum only through the concept of pulse. After all, it is the resistance that makes the events in our world real. It is the tendency of the fabric of our world to return to the harmonious state after every disturbance. It is the reason of Planck's constant *h* (*h* = energy / frequency). This is basically a moment (pulse x wavelength). The

moment, on the other hand, is the elasticity. It is the elasticity of a field that defends itself against the compression / depression phase.

The matrix

The first step to explain the structure of empty space is the answer to **WHY**. The space and later the space-time-pulse (the continuum) can only become real if it consists of the smallest space cells of size zero (non-measurable) and still possess all the physical properties of the continuum.

The continuum has a certain geometry, which results from the condition of filling the (theoretical) space by an optimal filling way. A plastic bag filled up with little balls of equal size, it will fill up in a way, that the center of each ball, joined by a line, creates a space of tetrahedral and octahedral. All centers are spaced by equal distances. With 4 tetrahedral, a space is formed what has a gap as an octahedron in their center. It is the densest filling of the space.

In our 3 dimensional world, this geometry (see below) shows that 4 states are needed to form a cycle as equilibrium. These are represented here by 4 colors (white, green, yellow, red)

3

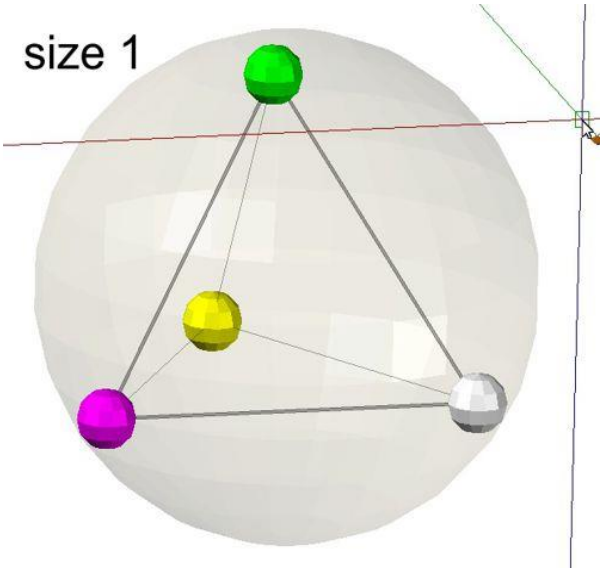
State 1	(color white)	Compression in the (+) time (+) side of the cycle
State 2	(color green)	Depression in the (+) time
State 3	(color yellow)	Compression in the (-) time (-) side of the cycle
State 4	(color red)	Depression in (-) time

The other property of the matrix (structure of the continuum) is its scalability. The individual cells (tetrahedral) with their 4 states are supposed to fit to each to form equilibrium while their states too add up to zero. However, the enlargement of the field sizes shows that space becomes new properties.

The invisibility of empty space, its property of resistless ether

Of course ether is not the right term, used here only temporarily. It's packed with energy and just as static as the speed of light is constant. A movement in the sense of a space displacement is just as impossible as the flight of a fly in a diamond. So there is no movement, everything is a propagation of states. Massive matter is therefore only a state of space and moves like a sound through its medium. All of us are in this sense only spirits or moving states of the continuum. Here the limit is shown to the greatest minds of physics. Even the smallest particles cannot move, only propagate or "develop" in space (diamond). There are innumerable other reasons why space, as the zero sum of all properties, cannot have any structure other than the network of tetrahedral and octahedral. The individual components and their relationships are explained here in the following:

The smallest fields of our world are shown here as colored spheres representing space-properties. The color indicates the current state and changes four times in one cycle. The scaling of space will be stated here as size 1.



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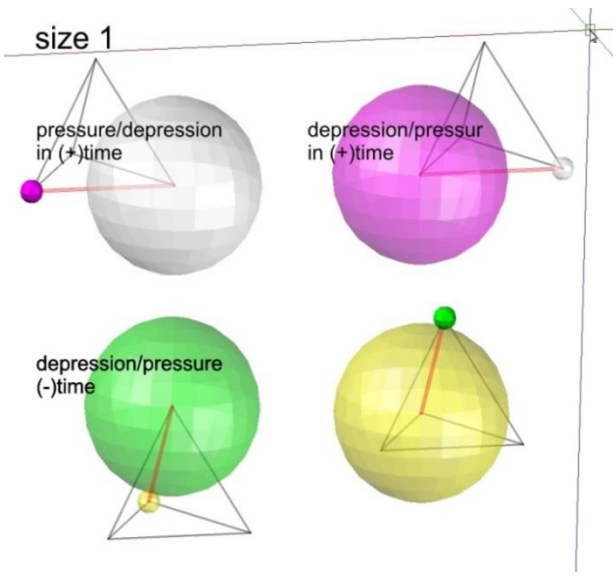
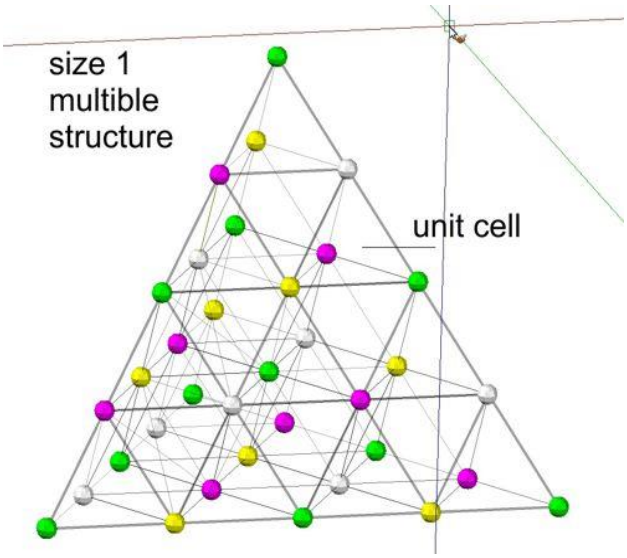
In each exchange equilibrium is generated, all 4 exchanges generate equilibrium again in the whole structure.
The value sum is = zero

The field distance is = 1
According to e = h˟ f, the field radius is small in compression and large in depression. The color combination is such that the sizes are balance out.
A fermion is not an ultimate thing; it is a field that has an interaction with neighbor fields. It is not spatially isolated, does not rotate and has no movement. It is the interaction that moves.

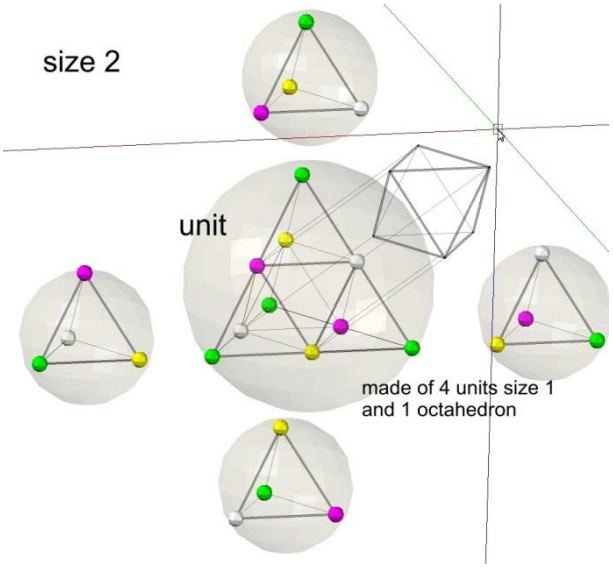


Even in a multiple application, each property (color) finds its balance in the neighboring field.
The cycle includes 4 states of the space-force continuum but only 2 states of time. This circumstance seduced the physicists to assign a torsion (spin) or helicity (left / right) to fermions. As long as today's physics don´t accept (-) time and super symmetry and the fact of field oscillation, they have to invent a new physical state as

a quantum number, another unnecessary primary attribute. The topic will be discussed later in more detail.



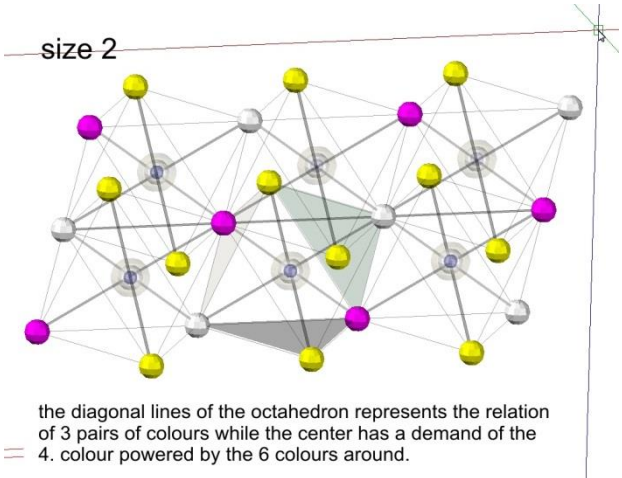
The next size is twice the field distance of 1. It is a tetrahedron formed by 4 tetrahedral and a size 1 octahedron. The vibrational states of the (size 1) tetrahedral are staggered over time to form an equilibrium in and of themselves.

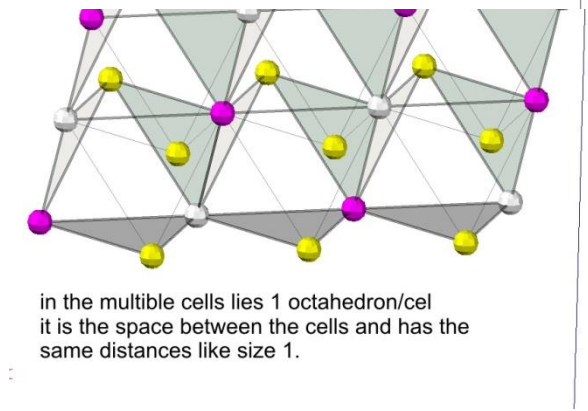


The 4 size 1 tetrahedra form as a convolute a tetrahedron of the same color (here green). This changes space as a force-transmitting structure. Vibrations can not be kept in space 2, they spread out.

The internal distances of the (2) tetrahedral make (1) octahedron, which shows a new way of the force transmission.

The diagonals of the octahedral yield a line of equal colors that form a new orthogonal space structure (size √2) in the sympathetic coordinates x-y-z.





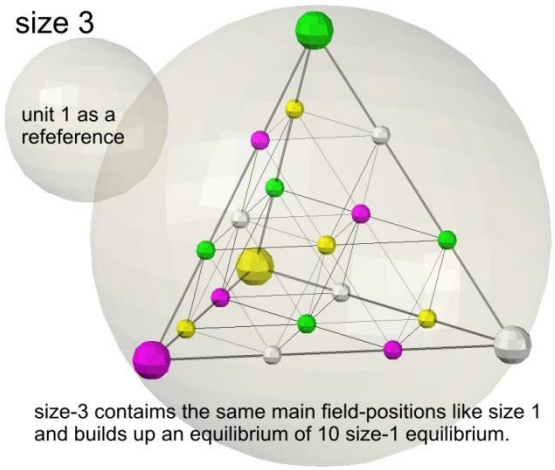
At the intersection of the 3 coordinates, a “manko color" is created, the missing fourth color of the corners ones.

The space of size 2 seems to have an ideal force transferring structure in which fields propagate with C, unlike fermions, which can not have velocity of C.

A momentum is transmitted if colors do not equalize each other (same color value).

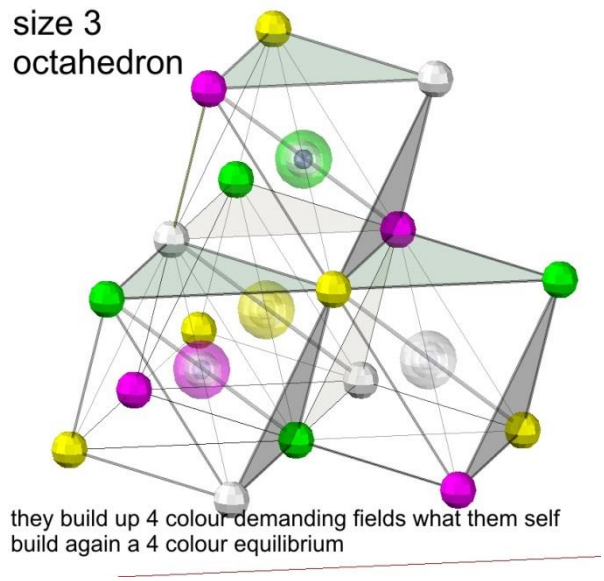
The missing color in the center of the octahedron has a cycle of 4 in space 2, because only after 4 cycles the missing colors (color shortcoming or manko color) again give an equilibrium. They have an

energy surplus of √2 due to their smaller color distance to the space-1 colors distances. This manko color is the most importand attribute of our space. It makes it possible to have local fields with speed <c



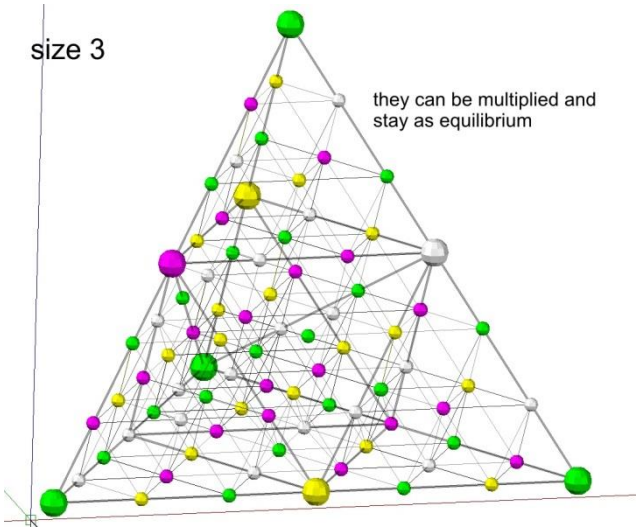
The space with the oscillation of the size 3 again has the properties of the size 1. It creates to the outside an equilibrium, which transfers no forces (Momenta).

The oscillation 3 consists of 10 tetrahedral of the oscillation 1 with the internal distances of 4 octahedrons of size 1. In the center of the octahedron are again the color deficiencies (color shortcoming), where again among each other create a size (1) tetrahedral in equilibrium (color balance).



The hier in size 3 depicted octahedra (size 1) have inside in there center the color shortcoming of size 3√2. These 4 octahedra have the size 1 and 4 different colors in their center, which in turn form again an equilibrium. Therefore, their ability to transmit power on this scale (3) can´t used.

The multiple recording of the structure with oscillation of size 3 consistently shows a homogeneous color balance of the 4 states.

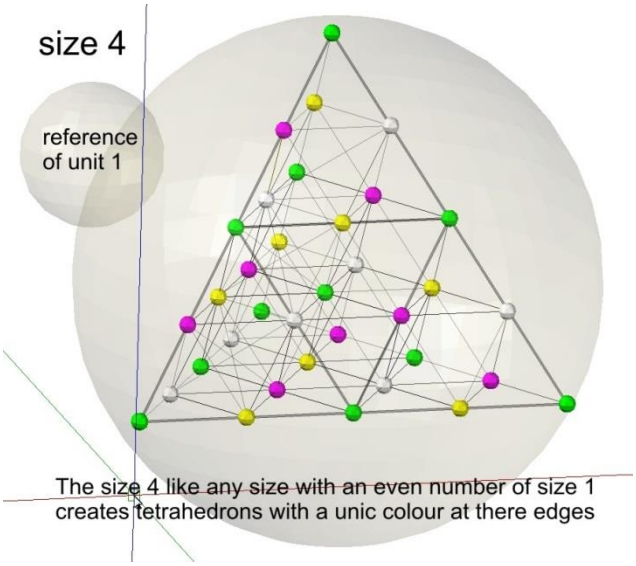


Fields of size 3 remain local, suggesting that fermions can only be in the field sizes of odd number series (3-5-7-9 ....).

This does not mean that these field sizes can explain baryonic matter in geometric manner.

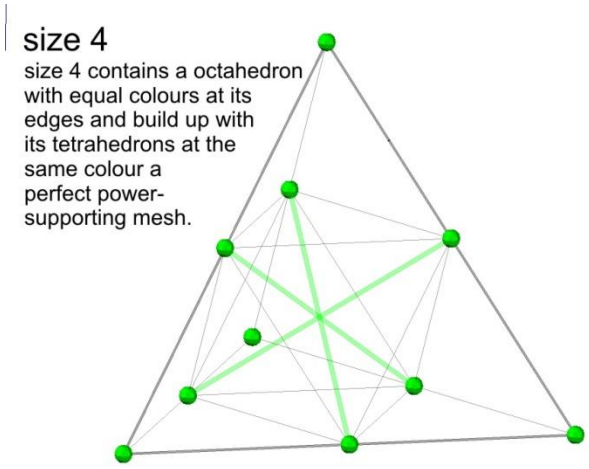
The geometry of the space matrix shown here does not allow field properties such as mass and inertia. In these sizes of space are only the properties (in the 4 colors) involved, which define the electro-

magnetic space (EMR) of classical physics (space-time-force). In the context of an effect of further spatial dimensions, mass / gravity are later specifically discussed.



Field distance 4 again shows the same space property as size 2. It is a structure that transmits all disturbances with C in the field size range of even numbers (2-4-6-8, etc.).

In the field size range of the odd numbers, however, all disturbances in the equilibrium of the space cells size 1, 3, 5, etc. are compensated. However, in contrast to size 2, the field distance 4 has the same colors also in the octahedron structure and offers a triangular and orthogonal space of the same color. It is a space that has the same periodicity through and through and therefore the best resonance. It is the space of light.



The extrapolation of this idea leads us to the realization that the larger the field spacing of even numbers, the purer is its structure with respect to the periodicity of the same colors. At the same time, the "purity" of the structure of the large field sizes of odd numbers becomes will always stay in color balance (which means changing colors or inequality of colors.) The spatial structure seems to evolve for two different tasks for the optimal impulse transport and the compensating colors for the preservation of the locality in standing fields.

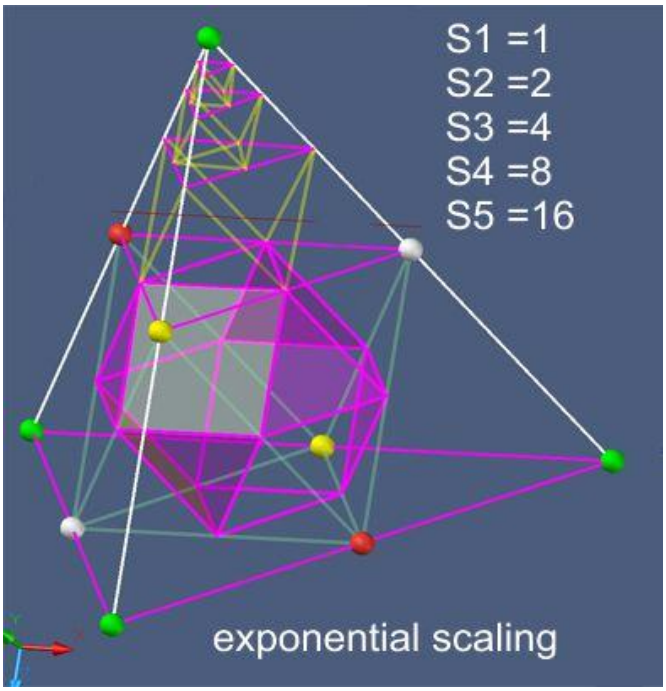
The collapse of the field sizes

What does it look like if the disturbances of harmony are so great that the structure of space collapses? As long the theory of spatial properties is not tested on physical reality, we should continue to complete the theory in a purely theoretical sense. A 3 to 2 collapse is probably to be an explosion. In any case, it will be very short and unstable, since the disturbances or forces will spread with V=c from size 3 to size 2. A collapse from 3 to 1 would be conceivable. For example: when a white dwarf explodes to become a neutron star. The structure 3 falls through the structure 2 (phase of the explosion) in the structure 1, where it is stable again. But what happens if the field size 1 collapses. Can the black hole be found here? It is the question of the medium on which all fields are built. Is it Planck's size? In the matrix field theory (MFT) it has no function and is irrelevant. However, a medium should be defined, otherwise everything is just theory.

The medium

All fields described here are based on smaller fields that serve the purpose of a medium. The medium is therefore a scalar variable with its own metric. However, the conditions change when changing the field sizes. This forces us to pay attention to higher-level structures. All field sizes of odd number obtain the equilibrium 4 colors. The field size 2, on the other hand, has a force-transmitting structure. If we had to play God to create a universe, then size 1 would be chosen as the base for baryons and size 2 as the base for bosons. Normal fields could collapse many times until they reach size 1.
But what will becomes about field sizes <1**?**

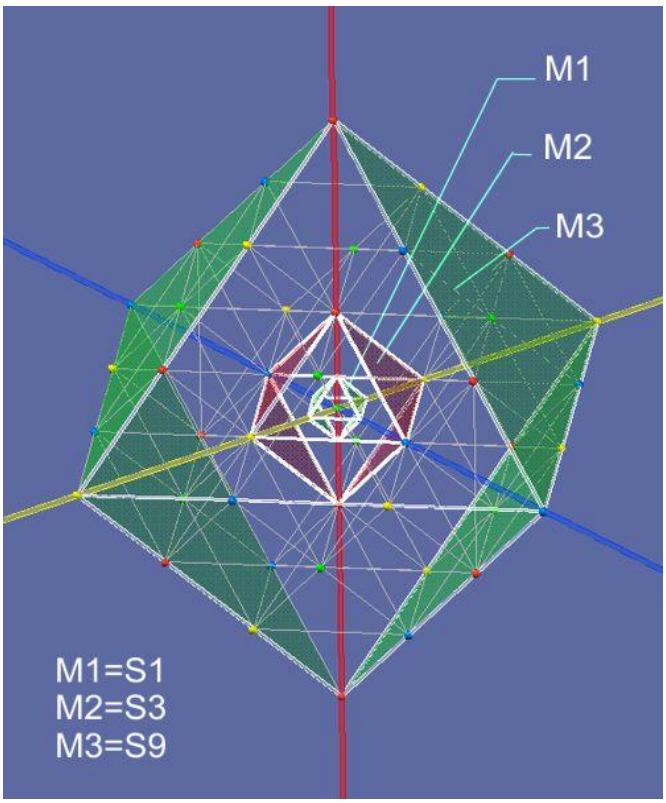
The collapse to the black hole



Of course, this does not exist. But, after the forces increase when diving into lower scales, it should be questioned what a scale actually does. It is a question of the medium. After we have recognized that nothing displaces space, that everything develops and propagates through space, the smaller scales of the matrix, smaller than S1, become the scales of the medium. In theory, we could put S1 anywhere as the base order. Of course, it only makes sense to see S1 as the smallest scale for the smallest particles in our world. His color distances d1 would hold the greatest forces, i.e. provide the energy of the protons (d1=h/E). Smaller color distances would serve as medium. The medium is therefore not a homogeneous mass and, as seen in CERN, can create debris, what means it is also structured. The difference from S1 to the smaller scales is extreme, as the results of empirical research show to us. For example, a proton has a lifespan of over 10^25 years, thousands of times longer than the age of our universe, but its debris has only a lifespan of less than 10^-25 years. So S1 is indeed an existential barrier. Now, how does it go into the depth of scales?

Theoretically, 2 variants can be considered useful. The scale system **I** as an exponential reduction by a constant halving has color distances from **S1=2^0, S-2=2^-1, S-3=2^-2, S-4=2^-3** etc. The scale system **II** with the reduction of the color distances **S1=1 ; S-3=3^-1 ; S9=3^-2 ; S27=3^-3** ; etc. This down-scaling also abbeys like S1; S2 etc. the rule that the neighboring colors are never the same. This ensures that this spatial structure receives equilibrium down to the smallest scale.
System **I** follows the logical conclusion that from a static point of view a collapse always

happens in the middle of the color distance. Unfortunately, the system violates the rule of unequal neighboring colors. System **I** has a high aesthetic quality and produces an octahedron from the tetrahedron by halving its edges and this with its halving the edges a cube octahedron.



System II looks complicated at first glance, but proves to be useful for later considerations about space properties, which explain the electrical charge and gravity. The above considerations of the geometry of space follows a duplication of size S1 (S1 = basic color difference) to S3 to S9 etc. From S3 (e.g. S4; S5; S6; S7; S8; S4; S5; S6;), a continuation of the designation "S" would no longer lead to an own metric. These sizes are still referred to as Sx, but will be unimportant when considering the fermions in a later explanation.

The scaling up (> S1) would then be:

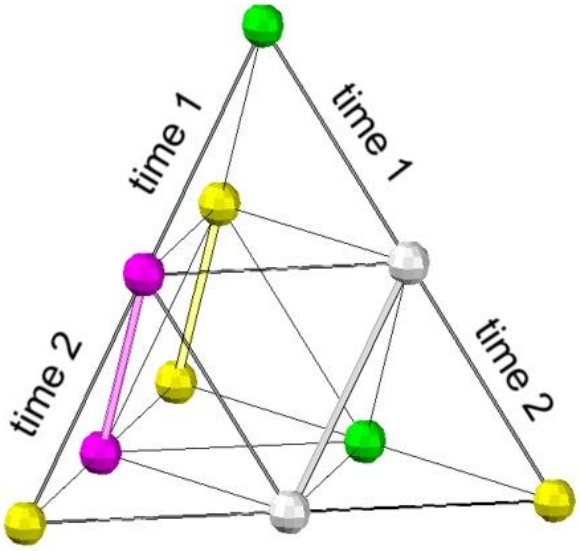
S1=1 ; S3 = 3^1 ; S9 = 3^2 ; S27 = 3^3 etc. The scaling down (> S1) would then be: S1=1 ; S-3 = 3^-1 ; S-9 = 3^-2 ; S-27 = 3^-3 etc. At first glance it looks like a deliberate naming, but does not change the color distances of the old names in between e.g. S9 to S27. It follows the sense of harmonious distance relationships. So every enlargement from S1 to S3 to S9 is equal to an octave. When the scaling is explained later in relation to its metric, the scaling S1 becomes M1; S3 to M2; S9 to M3; S27 to M4; etc. where "M" stands for metric. I assume that M1; M2; M3; etc. are preferred by nature because they all culminate with their center in the same spatial point and thus can also form complex systems.

Hyper structures

The different structures of the tetrahedral-octahedral-space scales show different properties, although the geometry always remains the same. This is due to the vertices of the structure, which are always the center of a field, which fluctuates in 4 different Properties of their cycle. The cycles in undisturbed space always tries to reach equilibrium. Expressed in color: if color 1 is current in the cycle, then the neighboring points have the colors 2, 3, 4. Now we have shown above structure sizes that show 2 types of color combinations;
1. even-numbered distances with the same neighboring colors and
2. odd-numbered distances with unequal colors. In the first type of space, all forces (disturbance of balance or equilibrium) are radiated with c, the second space size attempts to balance all forces, so that their source of disturbance has to be renewed again and again to stay locally. With a side view of the physical space, there is the space size of fermions, its

Scale S1; S3; S5; which is separated between them by S2; S4; S6; (photons and bosons). That hints to a real scenario.

The geometry of time and simultaneity

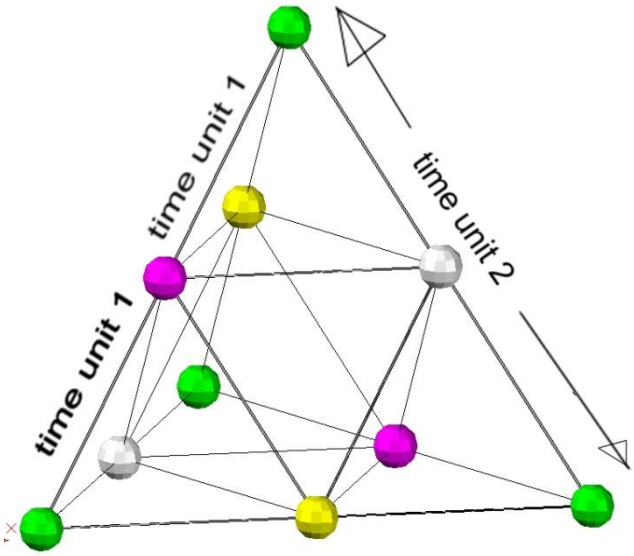


It must always be remembered that this spatial structure is not static. It oscillates and interacts with the neighboring fields at the speed of light. Now the exciting question arises, is there still a common mode (same frequency of color change) possible. As we have seen, size 1 is a complete equilibrium that achieves balance of all colors. Size 2, on the other hand, gives the space the power of propagation through the linear arrangement of equal colors. But since the time by velocity of V=c is twice as that of the size 1, the color would have changed at the arrival of the effect, so that the space would lose this power-propagation capability (see below). In fact, it is like this. However, each scale has its own frequency, which results from the distances between its color centers (F=ƛ/c). The interactions of the color centers at the same intervals on the scale, however, are simultaneous.

At young age I spent the night in Florida "beachside" on the shore and looked at the multiple lights of the "Bay", which came from yachts in the otherwise calm waters of the Bay. Fascinated, I observed the different wave patterns and their interferences. In doing so, I realized that several compact pattern clusters propagated and interacted at a much higher speed than the waves. One wave creates the next, but its simultaneity was free from dynamic wave propagation in the water. Sure, that was not an entanglement in the sense of a quantum entanglement, but it showed me the idea.

An evaluation of the matrix geometry only makes sense, therefore, if in principle the phase of color change happens at the same time, whatever that means. If there is no inherited simultaneity, then the original equilibrium of the first time period in the second time period gives rise to a mix of balancing and intensifying colors, which never makes space "empty". It would then simply be plasma that has not been considered ether since the lecture by Einstein in 1920 in Leiden.
“2 things should never be forgotten:
The "empty space" may no longer have any recognizable physical properties. “

He allows no movement but only propagation. The space in its smallest units becomes more and more static, according to the Planck / Einstein moment, the potential energies increase into the immeasurable and thus also simultaneousness of the space. Since the space in the scale of large fields and weak impulses has smaller fields with stronger impulses as medium and these are based on even smaller fields with even larger impulses, the substance of the field space ends in unimaginable rigidity and hardness. To emphasize: The space is unimaginably hard and rigid, in principle it is absolute and without relativity.



From this point of view, space must have an inherited simultaneity. In physics, this circumstance is called "entangled" and is a hot topic there. The reason; it allows for faster light speeds. For many physicists, this is painful, but the signs of times can´t no longer to deny this assumption.

See also the ideas of Friedmann–Lemaître–Robertson–Walker metric – Wikipedia

The harmonic and perfectly systematic structure of the matrix field theory is not and cannot be a coincidence, even if it contradicts the "Copenhagen Declaration" as a physical paradigm.

Our space must have started from an unimaginably dense and compact state, where only the most ideal spatial positions could be occupied by the degree of density and it has evolved as an expanding metric to today's density. However, I am not saying that the so-called Big Bang has taken place, but that the universe has a similar fluctuation as its smallest units as a matrix medium. As important as this topic is, it does not make much sense at the moment to speculate, as too many paradigms need to be clarified.

In contrast to the relative quantum field theory (QFT), it is not describedthe field between two locations, but the geometry of its locations. The geometry forms the basis of various relationship networks, which leads to a better description of the subatomic states. These symmetries will later replace today's ideas of "particles" and their property fields (quantum values). Considering that today physicists e.g. presents a proton as a shell filled with quarks and gluons, which becomes absurd if quarks with their field size (their Compton wave, or h/E) are at least 2000-3000 larger than a proton. Or; electrons orbit a proton (lightest atomic nucleus) at 1%c. How should it look like, since an electron has a field size (Compton wave) about 1800 times larger than a proton? It gets even weirder when the electron is assigned a spatial zero size because nothing was found even by the smallest waves. All ideas of today's physics are still prejudiced by the idea of atoms 100 years ago; small billiard balls in the empty space.

Christmas 2016 I began to describe my idea of a space matrix in the web page "The Field Space". In 2017 and 2018, the ideas in my mind and my 3D CAD platform grew into a zoo of solutions that demanded a logical

order. In July 2018, I started to document these ideas in a Word-File in a logical sequence with word and picture. The individual topics actually produced themselves and staggered me with their surprising solutions.

Gunter Michaelis, Griesbach, den 6.1.2019