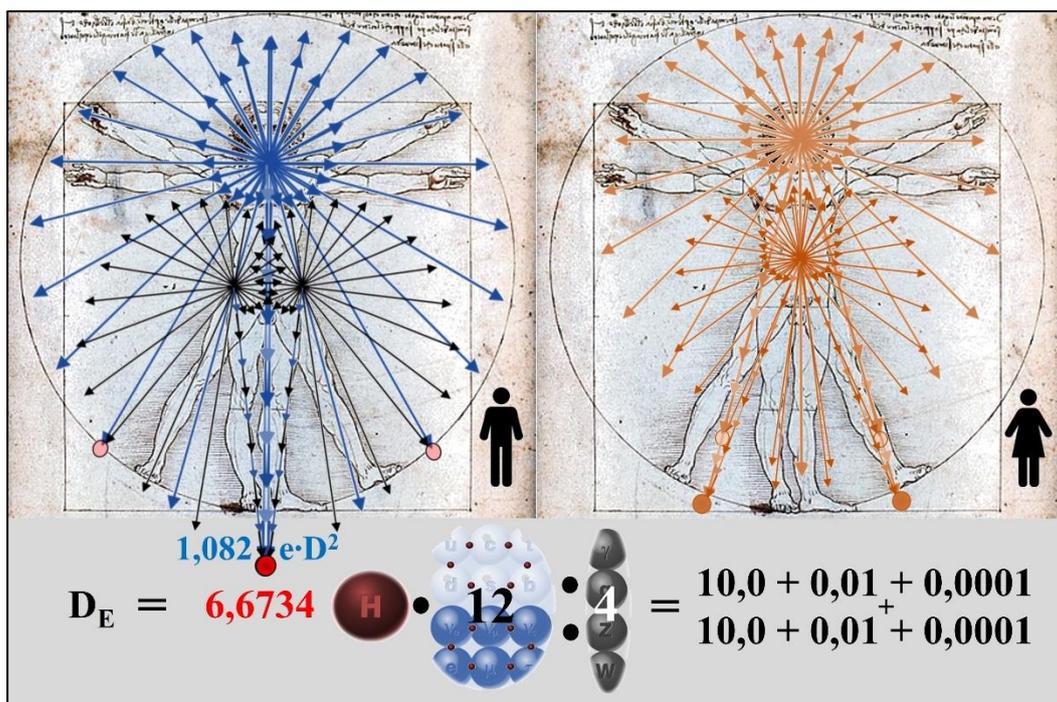


Scientific Basis of the Structural Gravitation Theory

For physicists, physicians, artists, religious people, mathematicians, economists, sociologists and all others.



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SUMMARY

INTRODUCTION: It is possible that gravity manifests itself in human structural patterns – structural gravitation theory.

OBJECTIVE: To gather initial indices for a confirmation of this new theory.

METHOD: Logarithmic structural dimensions resembling human shape were used to investigate whether gravity coincides with human body structures.

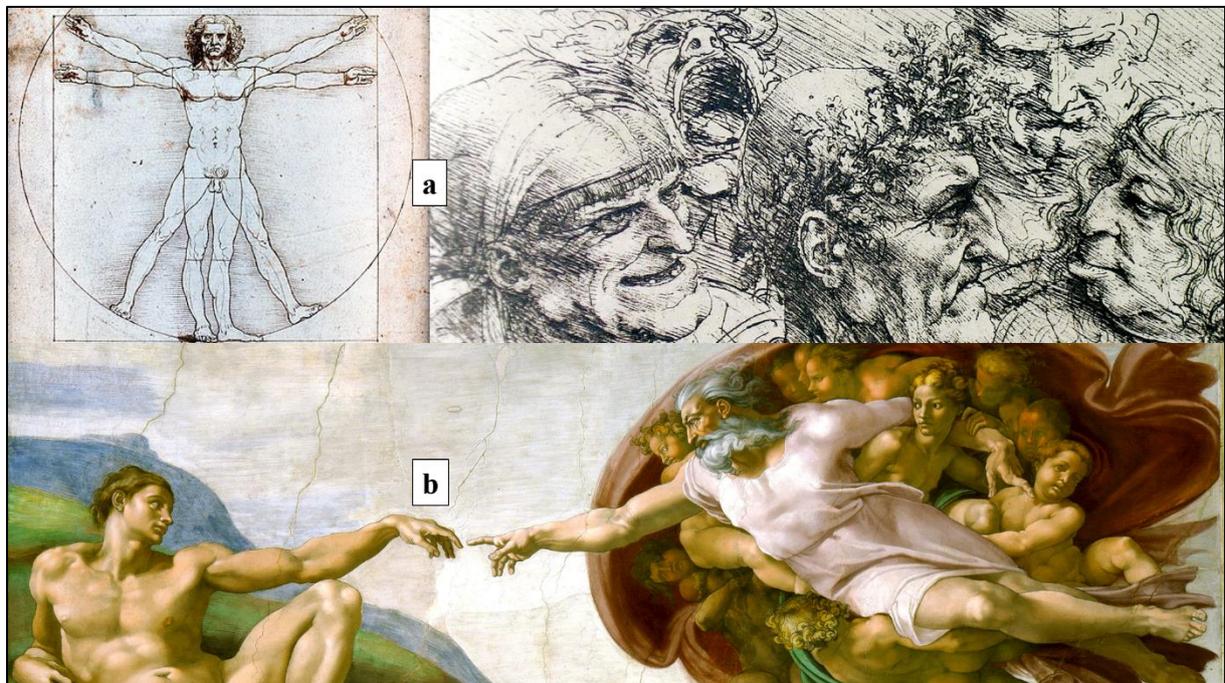
RESULT: The zeta-4 function can be associated with a reliable gravitational dimension $D_G = 6.6734$ and a structure dimension $D_S \approx 1.082$ for human structure proportions.

DISCUSSION: D_G can explain the decimal system, symmetry, fractality, laterality and binarity in atomic structures and D_S in human structures. D_G can be attributed to the Higgs boson and D_S is probably due to growth rates.

CONCLUSION: Gravity structures the human form.

INTRODUCTION: I have suspected for many years that the Big Bang created a physical interaction – I suspect gravity – which shaped and continues to shape human structures according to one of its properties, ultimately allowing humans to become the top of the food chain – my structural gravitation theory. This theory germinated from a combined inspiration consisting of a sketch by LEONARDO DA VINCI (1452-1519) on mathematical patterns in human proportions (Fig. 1a), and a fresco painting by MICHELANGELO BUONARROTI (1475-1564) on the theme of Genesis (Fig. 1b).

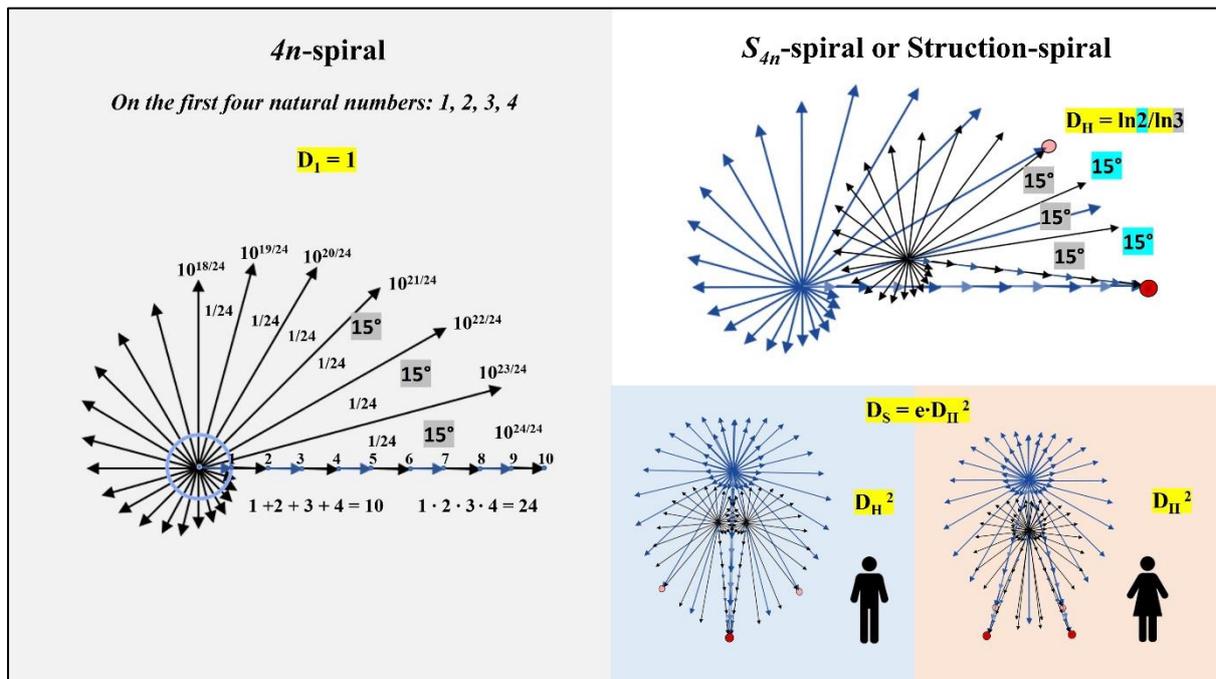
Figure 1: *Leonardo da Vinci's and Michelangelo Buonarroti's art as theory germ.*



OBJECTIVE: The objective of this work was to gather the first indices for a confirmation of my structural theory of gravitation, so that the society of physicists and the management of universities of applied sciences have a scientific basis at hand to be able to scientifically use a latent assumption that is more than 500 years old for new research approaches.

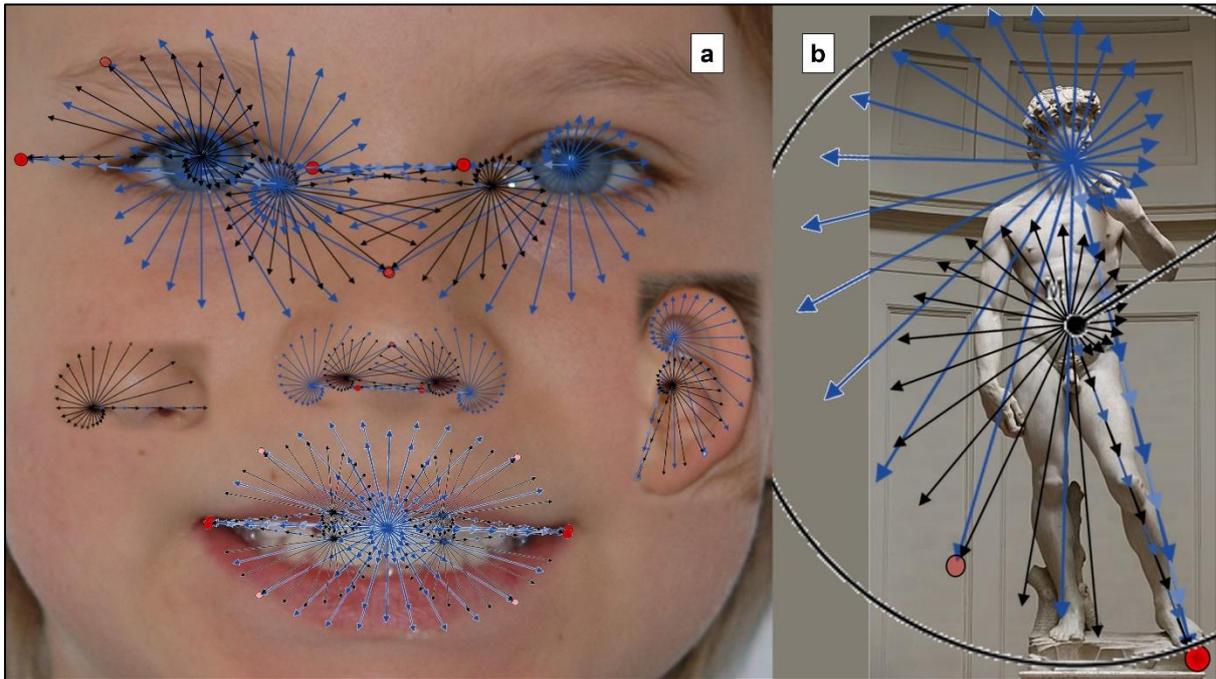
METHOD: In principle, biological growth and gravitational attraction seem to me to be two exponential, four-dimensionally limited and opposing phenomena. In order to give these phenomena a face, so to say, they are to be represented here by a logarithmic spiral based on the first four natural numbers 1, 2, 3 and 4 - [4n-spiral] - and this spiral is assigned the structural dimension $D_1 = 1$. This is because it creates a spiral [struction spiral or S_{4n} -spiral] with the simplest possible fractals of itself, which has the structure dimension $D_H = \ln 2 / \ln 3$ and, by squaring itself, creates a shape that resembles a human being and thus a relationship to gravity can be investigated (Fig. 2).

Figure 2: *The 4n-spiral and the simplest possible fractals of itself.*



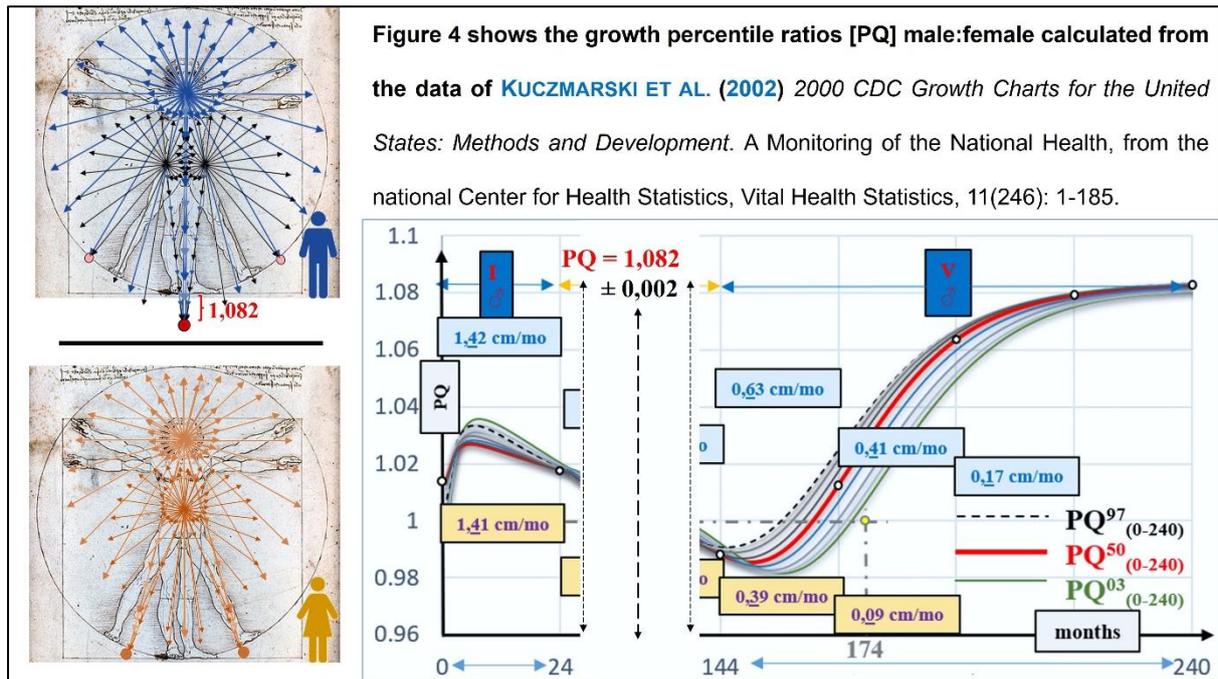
RESULT: Fractals are objects or patterns which usually do not have an integer but a fractional Hausdorff dimension (FELIX HAUSDORFF; 1868-1942) as a factor of change and show a high degree of self-similarity, which is the case, for example, when an object consists of several reduced copies of itself. For example, after superimposing the S_{4n} spirals on the basis of their central points with prominent facial points of my 8-year-old son (Fig. 3) or those of Michelangelo's statue of David (Fig. 3), one recognises that they fit their anatomical structures.

Figure 3: $4n$ -spirals and S_{4n} -spirals with respect to human structural boundaries.



LEONHARD EULER (1707-1783) found, in addition to the number e - a limit value for the most probable distribution density - that there are four-dimensional harmonic sums representing an orthogonal character [Zeta-4 function: $\zeta_{4(n=\infty)} = 1/1^4 + 1/2^4 + 1/3^4 \dots + 1/\infty^4 = 1.082\dots = \pi^4/90$]. In 2015, I found a structural relationship between its e and its ζ_4 -function: $S = e \cdot (\ln 2 / \ln 3)^2 = e \cdot D^2 = (\zeta_{4(n=10)} + \zeta_{4(n=11)})/2 \approx 1.082$ [S = struction; harmonic relativity; = struction dimension D_S]. Harmonic relativity just sounds better than most probable fractal symmetry. Figure 3 proves with the S_{4n} spiral that there is such a harmonic relativity in my son's face. If you take the statue of David, you can see that Michelangelo already intuitively saw such a struction in the human being. If you place the two centres of the struction spiral over the mouth and the navel of the David statue, then you can't get rid of the thought that the whole of humanity could be a biological fractal. This assumption is further strengthened by the fact that in 94% of US citizens men are taller than women by the value 1.082 ± 0.002 , and the value 1.082 also roughly matches the Vitruvian human of Leonardo da Vinci (Fig. 4).

Figure 4: 20-year-old men are generally 1.082 times taller than women of the same age.



The USA growth studies are so comprehensive that their result may be applied to the whole of humanity in relation to struction. This leads to the question: How is D_S related to gravity? ISAAC NEWTON (1642-1726) had discovered that the Earth, because of its relatively large mass (m_1), attracts objects such as man (m_2) with a measurable force F_G [gravitational force] and that this force decreases exponentially with the distance from the ground [r = radius] when he adds a possibly constant factor G [gravitational constant] as a reference in his ratio formula F_G : $F_G/G = (m_1 \cdot m_2)/r^2$. However, this G was not given a first measured value until 72 years after his death: $G_e = 6.754 \text{ dm}^3/10^{-8}\text{-Kg}\cdot\text{s}^2$. Because a dm^3 just corresponds to a kg of water, these sorts are shortened in humans. s^2 can be assigned the value 1 as an image of a time surface in the sense of a momentum ($1^2 = 1$) and in an image without a reference of the size, 10^{-8} also becomes 1, whereby the denominator is completely dropped. Therefore, e.g. in images of spherical cross-sections of gravitational expansion, corresponding structural comparisons may be made without regard to physical varieties such as "Kg" (Fig. 5).

Figure 5: Two black holes with superimposed $4n$ -spirals and S_{4n} -spirals.

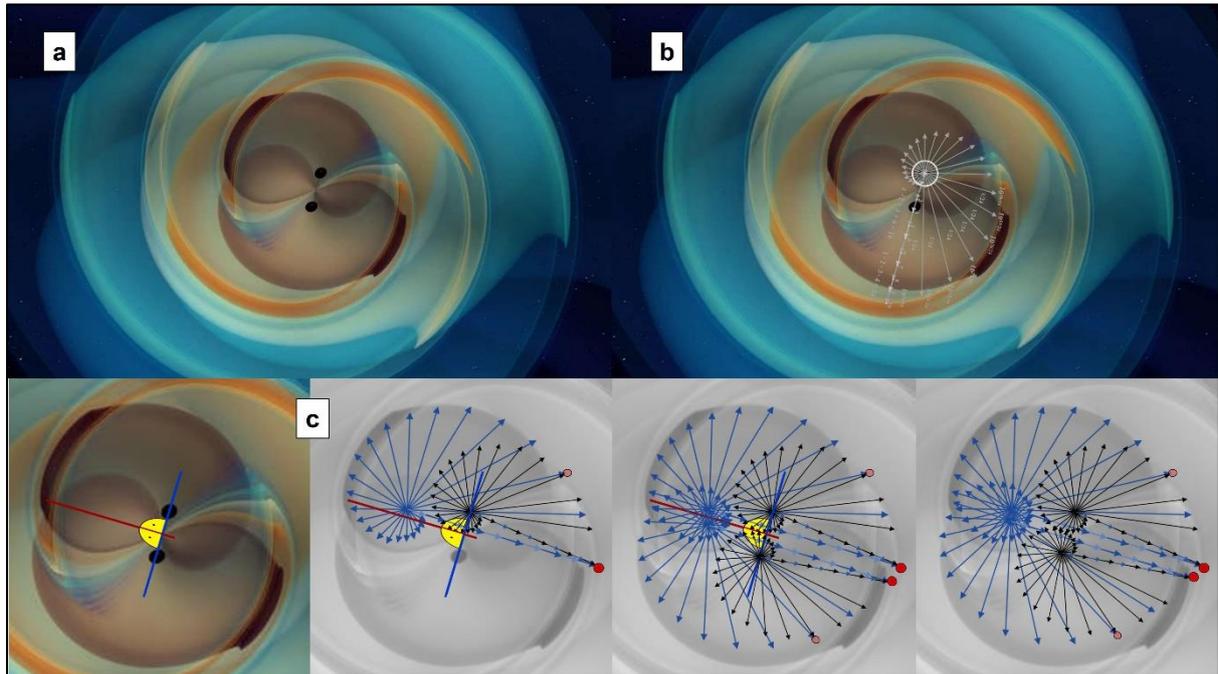


Figure 5a - Source: N. Fischer, H. Pfeiffer, A. Buonanno (Max Planck Institute for Gravitational Physics, 2020) Simulating eXtreme Spacetimes (SXS) Collaboration - represents a numerical simulation of two black holes spiralling inwards, finally merging and emitting gravitational waves. In Figure 5b, a $4n$ -spiral has been superimposed, which, as suspected here, can be attributed to the electromagnetic interaction with the lower black hole. In Figure 5c, two S_{4n} -spirals were superimposed, which possibly belong to weak and strong fundamental interactions. The precise structural correspondences allow the explanation that their accuracy of fit is based on the fact, that the functional coupling of the first four natural numbers coincides with the Earth's rotation time ($24 = 1 \cdot 2 \cdot 3 \cdot 4$), which in turn could be a consequence of gravity. If this is so, it should possibly be possible to check this on the basis of the ζ_4 -function, which harmonically couples the four natural numbers and the number 24 – as a superordinate dimension – in relation to evaluated values for $G [G_e]$ (Fig. 6).

Figure 6: A first comparison between $\zeta 4_{(n=24)}^{24}$ and empirical measured values of G .

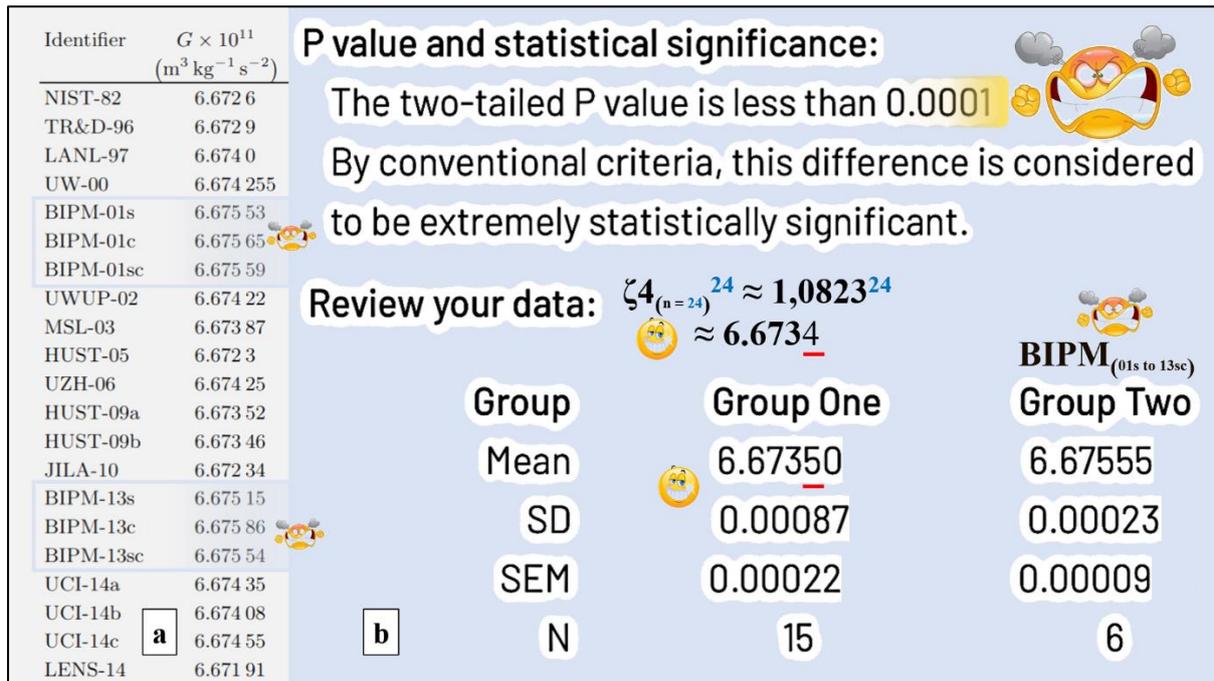


Figure 6a shows the 21 measured values for G from twelve measurement centres collected by Schlaminger et al. 2015 (from PHYSICAL REVIEW D) and Figure 6b shows my statistical comparison, which proves that the values from the BIPM measurement station differ highly significantly (Student's or t-test; $p = 0.0001$) from all the others and should therefore be excluded as possible "outliers" from the rest of the data pool. Excluding the values from the BIPM measuring station, the mean of the empirically determined values $\mu G_e \approx 6.673(5)$ fits the numerical value $G_n \approx 6.6734$ with excellent confidence ($p = 0.8676$). It can thus be said with good conscience that the numerical gravitational constant G_n with $G_n = \zeta 4_{(n=24)}^{24}$ represents a reliable structure dimension $D_G = 6.6734$ for gravity, leading to the answer: D_G and D_S are related to $\zeta 4$!

Taking a second look at a black hole in space, it seems that its fundamental electromagnetic interaction [eia] can be represented by a $4n$ spiral even without the presence of a second black hole and, surprisingly, also simultaneously by a golden spiral [mGS] modified by $\zeta 4_{(n=\infty)}^6$ (Fig. 7).

Figure 7: The coincidence of the eia of a black hole, an mGS and 4n-spiral.

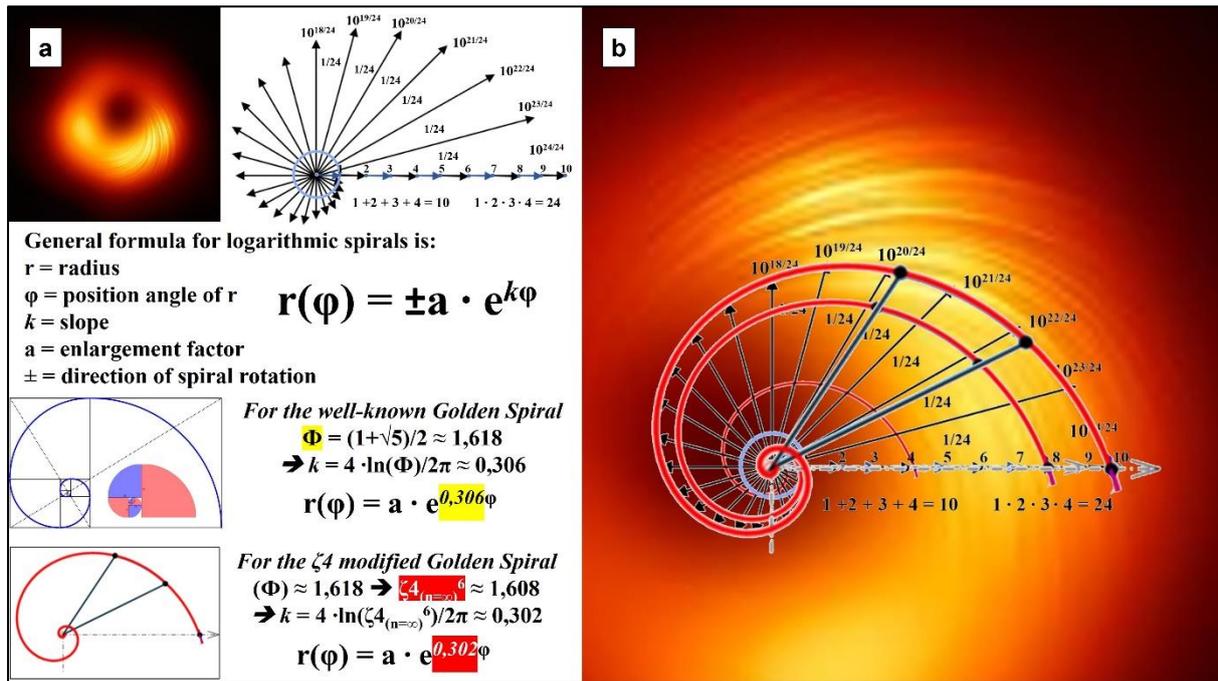
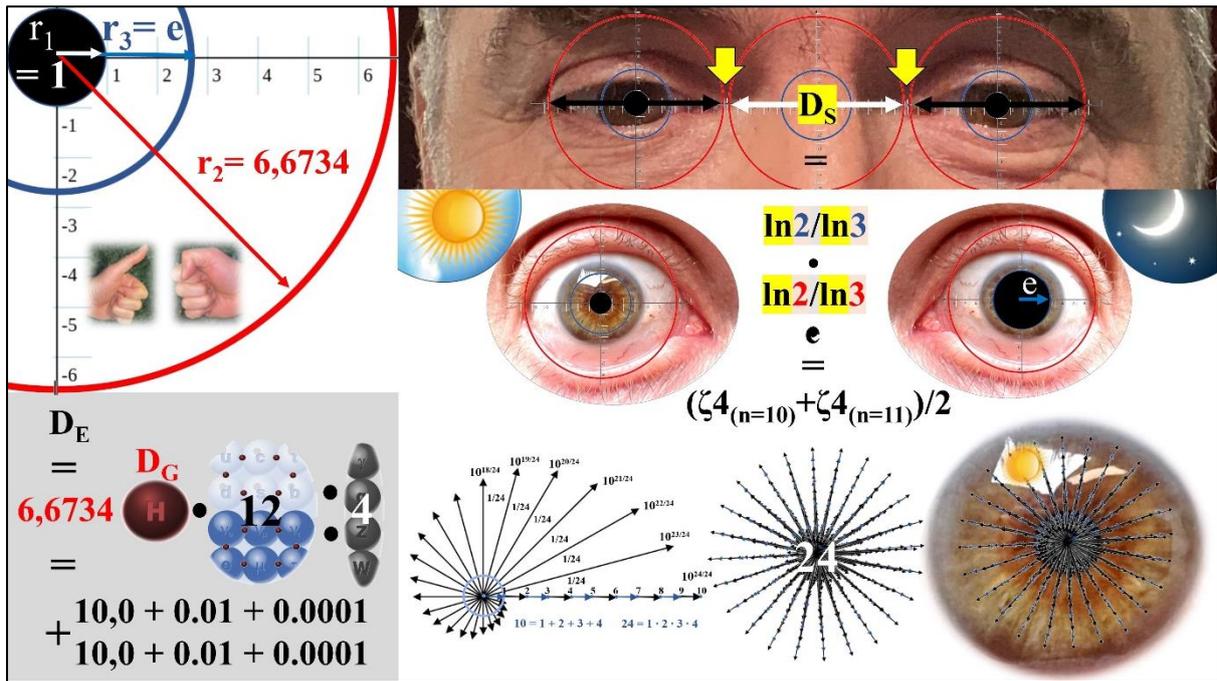


Figure 7a, taken from the work of K. AKIYAMA ET AL. (The Astrophysical Journal Letters, 910:L12 (48pp), 2021 March 20), shows the structure of the magnetic fields of a super-massive black hole in the core of the galaxy M87. Figure 7b shows an overlay of Fig. 7a with a 4n-spiral at the estimated position of the black hole and an additional overlay with a enlarged golden spiral modified by $\zeta_{4(n=\infty)}^6$. The correspondence of the mGS with the 4n-spiral is extremely perplexing and mathematicians are hereby challenged to find a corresponding explanation. Does the observation that $\ln 5 \approx 1.609$ and $\zeta_{4(n=\infty)}^6 \approx 1.608$ help? A new mathematics?

DISCUSSION: Because at the end of every theory, no matter how elegantly presented, credible observations ultimately decide whether it should be retained or not, the gravitational dimension DG and the structural dimension DS found are discussed in relation to four typical features of stable verifiable systems (not dreams) – decimal system, functional symmetry, laterality and fractality – by comparing knowledge to atomic elementary structures as well as to my own body structures (Fig. 8).

Figure 8: *Decimal system, symmetry, fractality, laterality in relation to D_G and D_S .*

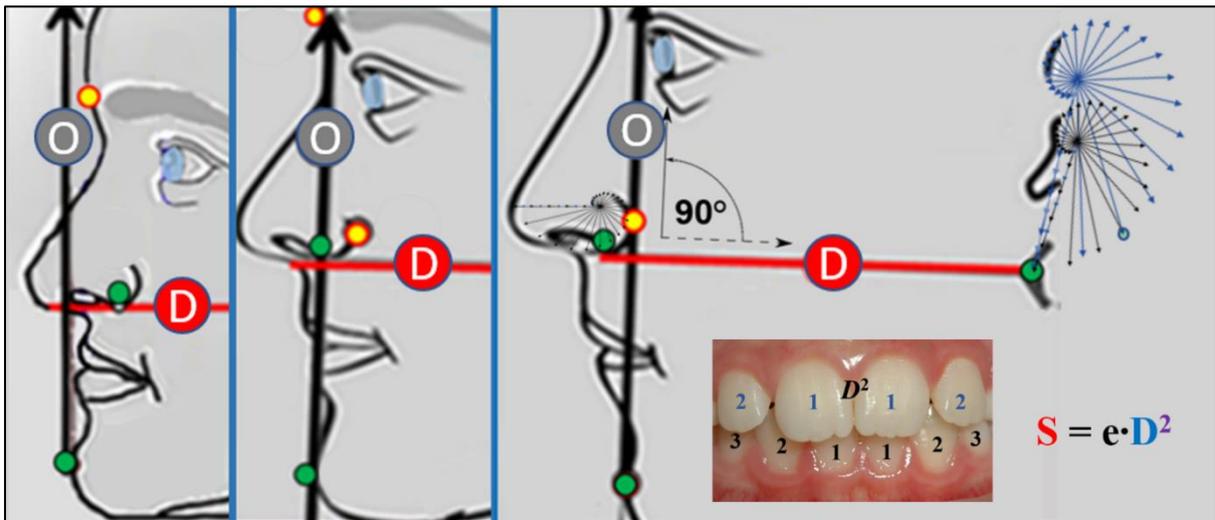


On atomic elementary structures: In principle, the gravitational dimension D_G can be assigned to the Higgs boson, because according to WIKIPEDIA (2022), the Higgs boson is assumed to have a connection with gravity, respectively it interacts with all 12 other particles with mass. For purely numerical reasons, these twelve fermions are therefore assigned the structure dimension $D_F = 12$. Opposite them are four massless vector bosons, which guarantee the cohesion of matter with their force effect, and which are also given the structure dimension 4 ($D_V = 4$) here for numerical reasons. In order to link D_G , D_F and D_V in a mathematically correct way, we use the observation that the Higgs boson interacts with the fermions in a temporally variable way, but has no influence on the vector bosons, which obviously act in a constant way. This results in an elementary particle dimension $D_E = D_G \cdot D_F / D_V$ (numerator = variable/denominator = constant) or $D_E = 6.6734 \cdot 12 / 4 = 20.0202$. This $D_E = 20.0202$ can then in turn be decomposed in such a way that the **decimal system**, symmetry, fractality and *laterality* reveal themselves as a binary pattern:

$$\underline{10,0 + 0,01 + 0,0001} + \underline{10,0 + 0,01 + 0,0001}$$

On my own body structures: In principle, the decimal system, symmetry, fractality, laterality and even binarity - 1 and 0 - can be represented with my own hands, but no direct reference to gravity can be explained with them. However, this can be found within the reach of my eyes, if one knows that the simplest possible logarithmic spiral is a circle: If the slope $k = 0$ and the enlargement $a = 1$ are chosen for the basic formula $r(\varphi) = a \cdot e^{k\varphi}$, then $r(\varphi) = 1$ [unit circle]. Furthermore, one should be aware that gravity existed before the formation of our fingers, which means that D_G may just as well be chosen as a starting reference for comparisons as the number one. If one now takes a circle and chooses my pupil radius in sunlight - photographed here in Fig. 8 in a dental laboratory under an ideal sunlight lamp - as a reference in the sense of the unit circle ($r_1 = 1$), then an expanded circle with the radius $r_2 = 6.6734 = D_G$ fits the visible area of my eyeball. If the radius r_2 is kept as a reference and a black circular area with the radius $r_3 \approx e \approx 2.7183$ is added, the iris tint disappears. Exactly the same thing happens to the pupils naturally in darkness or can also be triggered laterally in isolation by e.g. atropine drops (during eye examinations). This laterality and functional symmetry is possible because our structures are divided in the sense of $S = e \cdot (\ln 2 / \ln 3)^2$, whereby $\ln 2 / \ln 3$ is not the same as $2/3$. $\ln 2 / \ln 3$ also lacks the separating area, which is not missing in $2/3$. For example, we have two eye sockets and an area between them that is practically the same width and at the same time the diameter of the iris corresponds approximately to the width of the back of the nose there. Since this facial region grows together against a limit e , it has the dimension $D_S = e \cdot D^2$, which corresponds to the four-dimensional limit of the decimal system $D_S = (\zeta 4_{(n=10)} + \zeta 4_{(n=11)}) / 2$. Ergo, the decimal system, symmetry, fractality & laterality D_S and D_G were revealed here. D_S can probably be traced back to growth rates, as my study on mandibular size (2021) revealed (Fig. 9).

Figure 9: The Norma classification for mandibular size (ISBN: 978-3-945127-36-0).



CONCLUSION: Terrestrial gravity is a complementary dimension thanks to which the decimal system, laterality, fractality and symmetry are formed. Without it we would not have 8 fingers (without thumbs) and complex activities would be impossible (Fig. 10).

Figure 10: Thanks to gravity, money can also be made, among other things.



Structural correlations can be explained with $D_G = 6.6734$ and $D_S \approx 1.082$, which is why these reference dimensions are recommended to universities for further studies.