Chaos Theory of General Relativity and *Subspace*

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The Planck Length.

What does this effectively meaningless length even mean other than some limit of something? Well I think I might be able to tell you what it means, and that's certainly a very big claim I hope to prove in some form or another, because it's not what I thought it meant either.

It's a relativistic unit of distance. Relative to what you may ask?

Zero.

You see, Planck Units are actually *WAY* more complicated than we thought they were. Apparently concerns the very nature of time itself.

So with all that very weird time stuff out of the way, would you like to know the meaning of The Fine Structure Constant?

Abstract

By employing a modified Kerr black hole solution to Einstein's field equations based on observations of previously overlooked Dark Matter Halo phenomenology in Messier 87 and The Milky Way that can be correlated by geometry with the mass of a black hole in planck masses.

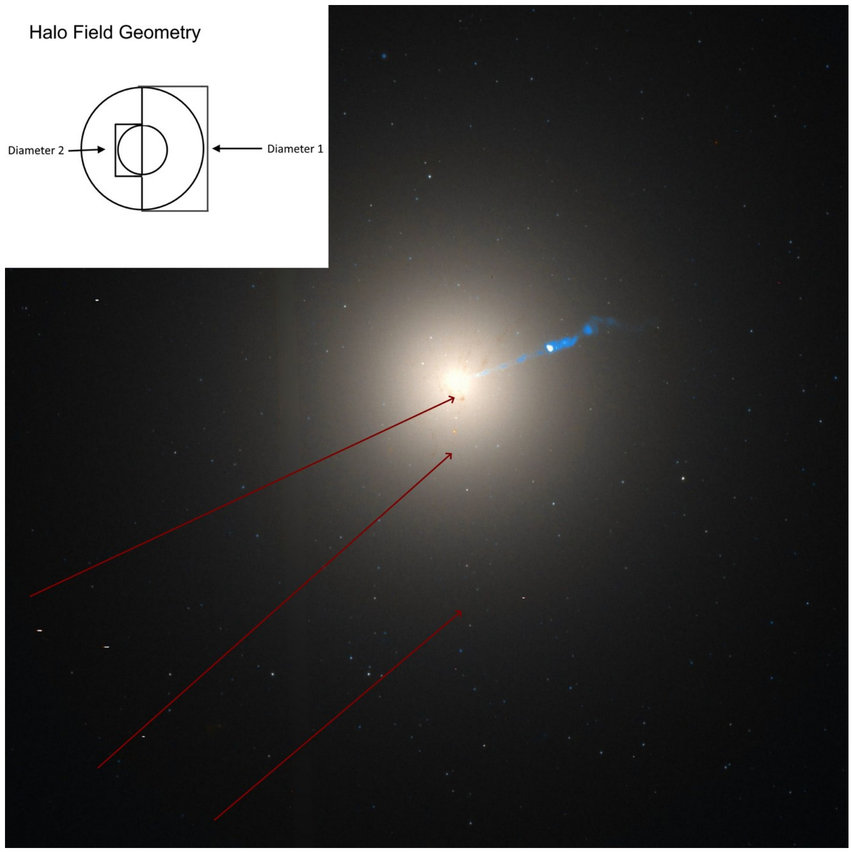
Followed by comparing the observed mass of Supermassive Black holes Sagittarius A*, Pōwehi-M87* with the modified black hole solution.

A comprehensive expansion of General Relativity can be derived. Reformulating all of known physics in the context of a connection between Gravity, Mass, Dark Energy, and *Time* itself. Uncovering the meaning of physical constants such as *The Fine Structure Constant*, *The Mass of The Higgs boson, and Planck's Constant.* This novel theory of physics appears to be a fully self-contained and theoretically consistent replacement for *The Standard Model of particle physics*. This apparent feature of the theory be demonstrated by calculating the mass of The Weak Bosons, and the masses of the Top and Bottom Quarks, appearing to describe aspects of the Chromodynamic and the Electroweak under a unified mathematical framework.

Through this potential theory of everything, aspects of the observable universe can be discovered and rediscovered through the perspective of observable spacetime geometry on the astrophysical scale.

Introduction

Overlooked Dark Matter Halo Phenomenology



$$D_2 = \frac{\left(\frac{D_1}{\pi}\right)}{2}$$

After I found the geometric description for this phenomena, I wondered if the mass of a black hole had any influence on the geometry of it. I thought the ‘divided by 2’ seemed like a disconnected piece of the Schwarzchild equation.

So I reformulated the equation to test that idea, and based on the results of the test, it seemed like it somehow actually worked.

The connection that was drawn between black holes and dark matter was highly anomalous.

This is because Pōwehi-M87* is measured to be a rotating black hole, however the halo field equation suggested that it was not. This is because it only used the Schwarzchild metric to describe the black hole, which is a black hole with no angular momentum.

When tested with Sagittarius A*, it implies that it has less mass than actually has, due to inaccurate scaling of the milky way's halo geometry.

This is also highly anomalous as Sagittarius A* has been measured to not be rotating very fast. Yet why does the Schwarzchild metric work for Pōwehi-M87* and not Sagittarius A*?

General Relativity's connection to Subspace

Deriving the Subspace equations.

A basic user's guide to The Planckscope*

Assembly Guide. Version 1.0.

*Talk to your doctor before using a Planckscope. One user reported side-effects resulting from the use of a Planckscope that include, but are not limited to, "Chronic Existential Crisis Syndrome" or "CECS". Ask yourself, then ask your doctor,if you and your doctor are ready to see the Eldritch Dynamics of Reality itself with Black holes and the Planck unit of mass.

The Planckscope can be assembled from these 2 pieces of the Kerr Metric.

$$2\,M_{\text{irr}}^2 = M^2 + \sqrt{M^4 - \frac{J^2\,c^2}{G^2}}$$

Step 1.

This part of the Kerr Metric describes the relationship between a rotating black hole's "Irreducible mass" and the mass of it's angular momentum

$$2\,M_{\text{irr}}^2 = M^2 + \sqrt{M^4 - \frac{J^2\,c^2}{G^2}}$$

Modified Version

$$2\,A_m^2 = M^2 + \sqrt{M^4 - 2\,A_m^2}$$

Where A_m is the initial theoretical "Absolute" mass limit in planck masses.

And 'M' is the mass of a black hole in planck masses.

Solve for A_m, and proceed to <u>step 2.</u>

$$\alpha = \frac{J}{\mathrm{M}c}$$

Step 2.

This part of the Kerr Metric describes the Rotational Value "a" of a black hole and how it changes as more of the black hole's mass consists of angular momentum.

$$\alpha = \frac{J}{\mathrm{M}c}$$

Modified Version

$$1\,\alpha = \frac{A_m}{M}$$

Your Planckscope is now ready for use.

For additional information, and a solved example. Please see the Operators manual.

A basic user's guide to the Planckscope

Operator's manual. Version 1.0

$$2\,A_m^2 = M^2 + \sqrt{M^4 - 2\,A_m^2} \quad \text{---->} \quad 1\,\alpha = \frac{A_m}{M}$$

After the assembly of your Planckscope, it is now ready to be used through the *Stationary Action Principle* and the apparent mass of 2 supermassive black holes in *Planck Masses*.

'Solved' Reference Planckscope Equation.
With masses of Sagittarius A* and Powehi-M87*

$$\frac{1}{4849.89\left(1.11265 \times 10^{17}\right)} = \left(\frac{3\left(7.89968\,\frac{1}{10^{37}}\right)\left(1.11265\,\frac{1}{10^{17}}\right)\left(3.33564\,\frac{1}{10^{9}}\right)}{\frac{3}{10}\,(\pi\,1.11265)}\right)\left(\frac{A_m \approx 1.4402\,\mathrm{x}10^{89}}{M\left(11\left(\pi^2\,1.11265\right)\right)} + 0\,x\right)$$

The Planckscope metric can be characterized by prime number exponents, and one 9 exponent.

The theoretical absolute mass may be 1.4402×10^89 Planck Masses. Or 1.576×10^51 Solar masses.

While initially assumed to be the "upper mass limit" of a black hole, this number is likely connected to the cosmological constant calculated in planck units. (2.888x10^-122)

This likely represents a unification of gravity and dark energy into a single force.

Due to the apparent similarities with the Schrodinger equation, the solved Planckscope equation may be able to be interpreted as "*Energy* = Potential Energy – *Time*"

After the unification of gravity and dark energy, there is the unification of energy and time itself. This means that the Planckscope could very well be the foundation of a grand unified field theory of time and energy.

From a solved Planckscope, subspace equations can be derived.

Chaos Theory of Subspace.

1. The Subspace Energy Parameter

The primary equation of Subspace theory is the energy parameter.

Where the logarithm of constant “Delta” is the *Feigenbaum Bifurcation velocity*.

$$\frac{\dfrac{\operatorname{Log}\pi}{\operatorname{Log}\delta}}{\frac{1}{3}\ \sqrt[3]{3}\ e^{\frac{3i}{\pi}}} = \sqrt[83]{83}\ (2\,i)$$

The Subspace Energy parameter is an equation appearing to describe the behavior of energy below the Planck Length. It has other parameters referred to as “Energy Parameters” that need to be calculated from it.

For future reference, all example calculations preformed with this equation use 200 decimal digits of Pi and Delta, with more decimal places of the constants appearing providing a more accurate estimate, although other unforeseen factors could be at play and should not be completely ruled out.

All parameters calculated from this equation will be provided at the end of the document.

The Subspace energy parameter can be found by excluding the Mass Lagrangian from the Planckscope equation

$$\frac{A_m \approx 1.4402\,\mathrm{x}10^{89}}{\left(11\left(\pi^2\ 1.11265\right)\right)M}$$

and trying to solve for the speed of light ‘c’ and looking for something that approximates to the ***83rd Root of 83.***

1.5: Elementary Energy Parameters

In order to begin constructing a theory of physics from the Subspace energy parameter, a complete set of *Elementary Energy Parameters* is needed.

When solved for i:

$$\frac{\frac{\operatorname{Log}\pi}{\operatorname{Log}\delta}}{\frac{1}{3}\sqrt[3]{3}\; e^{\frac{3i}{\pi}}} = \sqrt[83]{83}\;(2\,i)$$

gives:

$$x \pm i\,(i\log(\delta))$$

Elementary Energy Parameters can be calculated by excluding the imaginary logarithm of Delta from the equation.

Values for 'x' and 'I' are included with the rest of the energy parameters for reference purposes at the end of the document.

Example:

$$x \pm i$$

Elementary Energy Parameter 'a'

$$x - i = a$$

Elementary Energy Parameter 'b'

$$x + i = b$$

1.75: Translated Energy Parameter

An additional energy parameter needs to be calculated.
The <u>Translated Energy Parameter</u> (‘Ψ’) must also be used.

The translated energy parameter can be calculated from a previously solved energy parameter.
But a few more steps are required.

$$x \pm i\,(i \log(\delta))$$

Exclude x from the equation and solve for i

Example:

$$i\,(i \log(\delta))$$

Solving for i gives the value of Ψ

2. The Fine Structure Constant

The Fine structure constant can be theoretically derived using the Elementary Energy Parameters and the following equation.

$$\frac{1}{11\sqrt{\sqrt[83]{83}}}\pi\Bigg(b\,b^4\left(\frac{b}{11}\right)^4\left(\sqrt[4]{b}-\sqrt[4]{a}-\frac{1}{10}\sqrt[83]{83}\left(11^2\left(b\left(\frac{1}{3}\left(\sqrt[83]{83}+\sqrt{a}\right)\right)^{83}\right)\right)\right)\left(a^4+a^4\right)\left(\left(a^2+a^2+b\right)-a^3\right)$$

$$\left(\frac{\left(\sqrt{a}\left(\sqrt[3]{b}\,(a\,b)\right)\right)\left(b+\frac{17\sqrt{a}\left(b^3-b^2-3a^4\right)}{7\left(\frac{\sqrt{b}\,\sqrt{a}}{7}+\sqrt{b}\right)}\right)}{\sqrt{a}\,b^2}+\sqrt{\sqrt[83]{83}}+2\sqrt{b}\left(13\left(\sqrt[83]{83}\,b\right)b^2+b-a\left(2a^2+4\left(a^2\left(\frac{1}{7}\right)^2\right)\right)\right)\right)\Bigg)=\alpha$$

Subspace Fine structure estimate *(From equation shown above)*

0.0072973657297

This Fine-structure constant estimate will be used when calculating particle masses, denoted by the Greek letter Gamma (γ), instead of Alpha(α).

This is to avoid confusion with Elementary Energy Parameter 'a'

Measured Fine-structure constant from the American Physical Society In 2023.
(Electron Magnetic moment and Standard Model Theory)
(https://doi.org/10.1103/PhysRevLett.130.071801**)**

0.0072973525649

This apparent offset in the estimates may be correlated with the SI definition of the kilogram.

5. Subspace Theory of Subatomic Particle Physics.

Standard Model elementary particles can be represented in this theory as an equation that is roughly equal to the rest mass of a particle in GeV.

So allow me to introduce, The Elementary Particle petting zoo!

(WARNING, Weak Bosons may bite.)

(Petting zoo operator is not responsible for accidental mind melt or tumors that may or may not have been caused by Weak Bosons.)

The Higgs Boson

$$\frac{11^2 \sqrt[83]{83}}{\sqrt[4]{\sqrt[83]{83}}}$$

Mass = 125.929 GeV

Top Quark

$$\frac{1+\gamma\left(\sqrt{b}\ \sqrt[83]{83}\right)}{\sqrt{a}\ \Psi}\ \frac{\sqrt[83]{83}\ \left(a\left(11^2\ \sqrt[83]{83}\right)\right)}{\sqrt[4]{b}-a^2\ \sqrt[4]{\sqrt[83]{83}}}$$

Mass = 173.080 GeV

Bottom Quark

$$\frac{b\left(11\ \sqrt[83]{83}\right)}{11\left(a^3\ \sqrt[4]{\sqrt[83]{83}}\right)}$$

This one is quite interesting. Little Higgs Confirmed..?

Mass = 4.166 GeV

<u>The Weak Bosons</u>

W± Boson

$$\frac{\left(11\left(\frac{2\,b^4}{3}+\gamma+\frac{\gamma}{7}\right)b\,a^2\,\Psi^2+\gamma^3\left(11^2\ \sqrt[83]{83}\right)\right)\left(\sqrt{\Psi}\ \ \sqrt{a}\ \ \sqrt[3]{\gamma}\right)}{\frac{1}{11}\ \sqrt[83]{83}^{\,2}\ a^2\,\Psi+\gamma^3\left(b^4\,a^4\ \sqrt[4]{\sqrt[83]{83}}\right)}$$

Mass = `80.356 GeV`

Z⁰ Boson

$$\frac{\left(11\left(\frac{2\,b^4}{3}+\gamma+\frac{\gamma}{7}\right)b\,a^2\,\Psi^2+\gamma^4\left(11^2\ \sqrt[83]{83}\right)+a^4+\left(\frac{\sqrt{a}}{2-\frac{\Psi}{11}}\right)^4 a\right)\left(\Psi\left(\gamma-a^4+2\ \sqrt[4]{a}\right)\left(\pi^2\,a+\frac{3\,\gamma}{11}\right)\right)\left(\sqrt{\Psi}\ \ \sqrt{a}\ \ \sqrt[3]{\gamma}\right)}{\left(\frac{1}{11}\ \Psi\,a^2\,\Psi+\gamma^4\left(b^4\,a^4\ \sqrt[4]{\sqrt[83]{83}}\right)\right)11}$$

Mass = `91.185 GeV`

4. Subspace Theory of *Astroparticle* Physics.

From preliminary exploration of basic Standard Model Particle Physics, the existence of what seems to be higher and lower level mass fields than the Higgs field, and from the apparent behavior of dark matter and black holes, there appear to be 3 different types of dark matter. I refer to these as the “3 species” of dark matter, described by their apparent nature.

Umbra. <u>Cold and “Bosonic”</u> *Fuzzy*

Penumbra. <u>Warm and “Fermionic”</u> *Superfluous*

Antumbra. <u>Hot and “Bosonic”</u> *Wavy*

<u>Umbra</u>

Umbra dark matter doesn’t seem to be associated with black holes or massive objects. The exact details on how it interacts with ordinary matter and other dark matter remains to be determined.

The dynamics of this dark matter’s physical behavior is probably already somewhat understood through fuzzy dark matter theories.

<u>Penumbra</u>

Penumbra Dark Matter is associated with the halo field of a massive object. Halo fields likely have extremely significant implications for cosmology and astronomy given their direct association with galaxies and supermassive black holes.

The field geometry that this type of dark matter assumes can be understood through Halo Field Theory. Additionally, some features of the cosmic microwave background such as the “Axis of Evil” may be able to be better understood as a product of a solar dark matter halo. As **Penumbra** seems to be capable of engaging in “not-so-dark” physical interactions.

<u>Antumbra</u>

Antumbra Dark Matter appears to be directly associated with black holes, and likely other types of compact objects.

This type of dark matter appears to interact directly with **Penumbra**. **Penumbra** *causes* **Antumbra** <u>(decay/annihilation/whatever)</u> **Events** to release less energy.

This likely explains why the edges of the Fermi Bubbles have lower energy gamma emissions than the center of the bubble. **Antumbra** is a likely cause of high energy cosmic rays and neutrinos.

The wave-like appearance and nature of **Antumbra** can be fully realized in the context of Messier 87’s astrophysical jet, and in the shape of the Milky Way’s Fermi bubbles. Geometric features of **Antumbra** fields appear to correlate with halo field geometry, and can likely be modeled with it.

Summary

Time and energy seem to be the same thing; however, unfortunately, a separate paper is needed to explain the meaning of Planck's Constant.

$$\frac{\left(\frac{\left(1-\sqrt{83}-\frac{b}{3}\right)\sqrt{a}}{10+\frac{\sqrt[83]{83}}{2}+\pi^2}+\sqrt[83]{83}+2\left(\frac{\Psi}{10}+\frac{1}{10}\left(1+b^4\right)b\left(\frac{b}{10}+\frac{a^4}{10}-\frac{b^4}{10}+\frac{\sqrt[83]{83}^{\,3}}{10}-\frac{\pi^2}{10}-\frac{b^2}{10}+\frac{a}{10}\right)\right)\right)\left(\Psi\,\delta-\frac{\left(\pi^3+\Psi+\sqrt{\sqrt[83]{83}}-\sqrt{b}+\left(\pi^4+\frac{7\pi b^4}{\left(11+\frac{1}{11}\right)\left(\sqrt[83]{83}-a^4-\pi^4+\frac{1-3\delta-\frac{10}{16}(-\delta+2\pi)}{7\left(11+\Psi\sqrt[83]{83}^{\,4}+\frac{\pi}{\sqrt[4]{b}+\frac{3\left(\sqrt[3]{\pi}-3\left(\pi+\left(\frac{1}{11}+a\right)\right)\right)}{11b^2\left(\sqrt[83]{83}+\frac{11+a^4}{3\delta-2\pi^4}\right)}}\right)}\right)}\right)\right)\sqrt[83]{83}}{11+\frac{\lambda^3}{2}}\right)}{11-\pi^2-\Psi}-\frac{\left(\sqrt[83]{83}\ \sqrt{a^3}+a\right)\left(b^4+a^5\right)}{11a+\frac{1}{11}\left(-10+\delta b^3+\pi^3+11\delta\right)}+\frac{\left(1+\sqrt[83]{83}^{\,83}+\frac{b}{10}\right)\pi^3}{11^2-\frac{1}{10}\left(5+\sqrt{b}\right)-\frac{1}{10}\left(5+\sqrt{\delta}\right)}+\frac{\left(\delta^4+\pi^4\sqrt[83]{83}^{\,4}\right)\left(\delta-\frac{1}{3}\left(b-a-\sqrt[4]{a}\right)\left(1+\frac{2\delta\delta^2}{7}\right)\right)\left(-a-b^2-\frac{\sqrt{\sqrt[83]{83}}}{7\times 10}\right)}{\pi^2\sqrt[83]{83}^{\,4}+b^4\Psi^{13}}=\lambda$$

Then once that one is solved, a second one needs to be solved with one of the values of Lambda, calculated from the previous equation to get a usable Planck's constant as defined *in terms of electron volt and hertz.*

$$\begin{aligned}
&\frac{\sqrt[445]{\sqrt[83]{83}}\left(\Psi+\sqrt[4]{b}-\sqrt[4]{a}\right)\left(\frac{3\sqrt{b}}{10}+\frac{(4b+\sqrt{b})a^4\sqrt{\frac{\Psi}{11}+\frac{2a^7}{11}+\frac{3}{11}a}}{11-\sqrt{b}-\sqrt{\Psi^5}}+\frac{4}{11}\left(\pi^2-\sqrt[83]{83}^{\,3}\right)\right)\lambda}{\frac{1}{3}\left(\sqrt[4]{a}+\sqrt[4]{b}+\sqrt[4]{\sqrt[83]{83}}\right)\left(-\left(\frac{6\sqrt[83]{83}\left(3b^{17}\pi\right)}{7(7\times7)}+b^7-\Psi^{11}-\pi^3a^4\right)\left(\pi\sqrt{\sqrt[83]{83}}+11\left(\gamma^4+\frac{1}{3}\left(\frac{2\Psi}{10}-\sqrt{a}\right)\right)\right)\right)}-\left(\frac{a^{11}}{13}+\frac{2b^{11}}{13}+\frac{3\gamma}{13}\right)-\\
&\left(-\frac{(2b^4)\left(\pi-\frac{1}{2}\left(\frac{3\sqrt[83]{83}}{3\sqrt[19]{\sqrt[83]{83}}}\right)^3\Psi\right)11^2\left((b\,a)\left(3\pi^2\right)\right)}{11\left(2+\frac{\sqrt[83]{83}^{\,2}}{11}\right)\left(-\Psi^2+\sqrt{\pi^3}\right)\left(11\left(\sqrt[83]{83}+\sqrt{\sqrt[83]{83}}^{\,3}\right)\right)}+\frac{2}{17}\left(\pi^5-b^{17}-\left(\Psi^{37}-\left(1-\sqrt{\frac{1}{\sqrt[137]{b}}}\right)\right)\right)\right)+\\
&\frac{93\Psi^5\left(\frac{\left(1-\sqrt[83]{83}^{\,4}\right)\sqrt[83]{83}\,\delta\left(2b+\sqrt[83]{83}-\frac{\delta\sqrt[83]{83}^{\,4}}{b+\gamma+\sqrt[83]{83}^{\,2}}\right)}{\left(11+\pi^2\right)\left(\frac{1}{11}-\pi^2\right)^4}+\left(2\left(1-a^2-(a-b)a\right)\left(7\sqrt[241]{\sqrt[83]{83}}\right)+a+\frac{1-\left(\sqrt[83]{83}-\frac{1}{3}\left(\sqrt[7]{\sqrt[83]{83}}-\delta-\pi^3\right)\right)}{3(a-b)^4}\right)^3\right)}{3a^5}-\frac{\sqrt[83]{83}^{\,4}-\Psi}{\pi^2-\left(\sqrt[83]{83}+\sqrt[83]{83}^{\,2}\right)}=\frac{h}{10^{-(3\times5)}}
\end{aligned}$$

Equal to $4.13566*10^{-15}$ eV Hz^{-1}

I guess that’s *everything* so far.

Elementary Energy Parameter calculation

Variable values.

x =
0.5857975108170011984312165704300368948440703385353443934588830503739387572
51599934615000560405818008157403845852415331712740088143385361921948206115
23295054326738517942769576238418314103145932897685105562662760149635081934
35130721252713519035671562652088825168899279533294501624003947798004805685
04762996142307323639876651904674358360651985675218349446998205645426277770
9473775621183701783521076342 90

i =
0.8277631166475412179964782627106422534761254769401070963749490837916414897
30602420306350711801562483477753125895282667928384517968893598456345100504
24895617704710650031500768703286989422900830405212563664503789205380136898
95424707248964597343129508933806816629759319204597728182775587941733801007
78186642404459341346635579534573606170430315037029975865802999370568357030
9679097331832779850587688 75958

Elementary Energy Parameters

Parameter ‘a’ =
0.70678031373227120821384741657033957416009790773772574491691606708279012349110117746067563610369024581757848587384899982056230305613948018914665330974095336015724583987135172470852651763023381651448835

Parameter ‘b’ =
1.41356062746454241642769483314067914832019581547545148983383213416558024698220235492135127220738049163515697174769799964112460611227896037829330661948190672031449167974270344941705303526046763302897677

Translated Energy Parameter

Ψ =
1.129412727296424404483996785650679769408555318547186926310580446771927407188770820946382454155838838790549372329150792937063403234715314164224668849368826351572863659192850256459659403732683765524393188226590105480140381068892222846248942536518829990218821845896437893802442950508463458431633193458571992644329051925753871522430443380972942108810160189497552038577709557345490289126050263619474149356

Full estimate of Fine-structure constant

α =
0.00729736572975532038073056363892830318493112520165552571529099782415987307590640959996264151625782041393780432024617835770827606439660111696980502451189294458705582396986518503672268093075784742013372190841263086959114356539061174290479578121825349083152733580402985615880843172130204516989442153350126525256410997219839739966260258514874671160094701010340972637565279845393948525454447517340114906602