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"There is a most profound and beautiful question associated with the observed coupling constant, e – the amplitude for a real electron to emit or absorb a real photon. It is a simple number that has been experimentally determined to be close to 0.08542455. (My physicist friends won't recognize this number, because they like to remember it as the inverse of its square: about 137.03597 with about an uncertainty of about 2 in the last decimal place. It has been a mystery ever since it was discovered more than fifty years ago, and all good theoretical physicists put this number up on their wall and worry about it.) Immediately you would like to know where this number for a coupling comes from: is it related to pi or perhaps to the base of natural logarithms? Nobody knows. It's one of the greatest damn mysteries of physics: a magic number that comes to us with no understanding by man. You might say the "hand of G-d" wrote that number, and "we don't know how He pushed his pencil." We know what kind of a dance to do experimentally to measure this number very accurately, but we don't know what kind of dance to do on the computer to make this number come out, without putting it in secretly!"

Let

$$\hbar = \text{the reduced Planck constant} = 6.66134 \times 10^{-16}$$

let

$$G = \text{the Gibbs constant} = \int_0^{\pi} \frac{\sin(x)}{x}\, dx$$

let

$$R_\infty = \text{ the Rydberg constant}$$

and let

$$e = \text{the elementary charge}$$
$$c = \text{the speed of light in a vacuum}$$
$$\epsilon_0 = \text{the electric constant}$$
$$\mu_0 = \text{the magnetic constant}$$
$$R_K = \text{the von Klitzing constant}$$
$$Z_0 = \text{vacuum impedance}$$

α is derived from the the measurement of the ratio $\frac{\hbar}{m R_b}$ between the Planck constant and the mass of the R_b atom because

$$\alpha^2 = \frac{2 R_\infty}{c} \frac{m R_b}{m_e} \frac{\hbar}{m R_b}$$

where m_e is the electron mass.

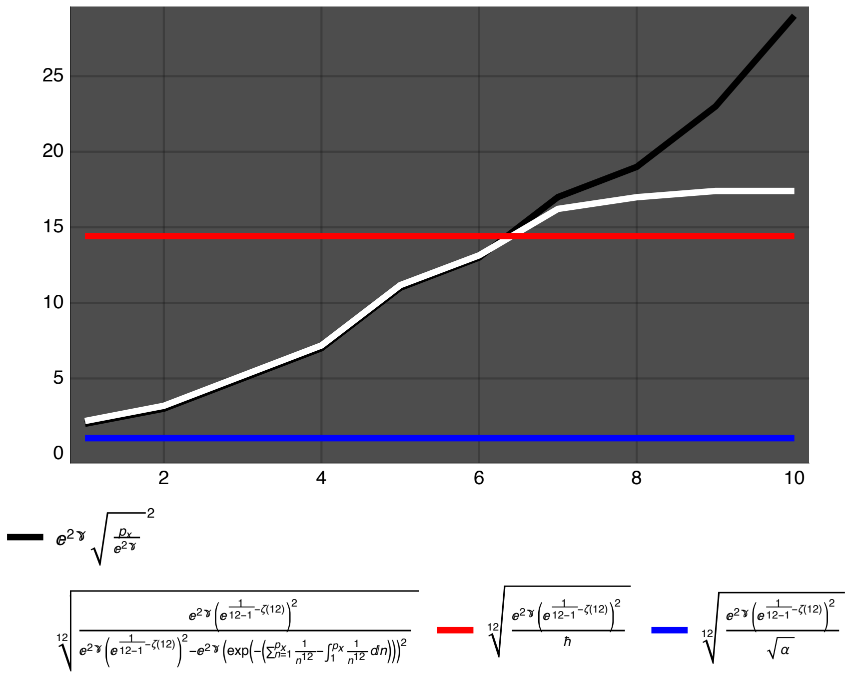
$$\alpha = \frac{1}{137.036} = \left(e^{2\gamma}\left(e^{\frac{1}{12-1}-\zeta(12)}\right)^2 - e^{2\gamma}\left(e^{-\left(\sum_{n=1}^{1} \frac{1.00009}{1^{12}} - \int_1^1 \frac{1.00009}{1^{12}}\, dn\right)}\right)^2\right)^2$$

And so

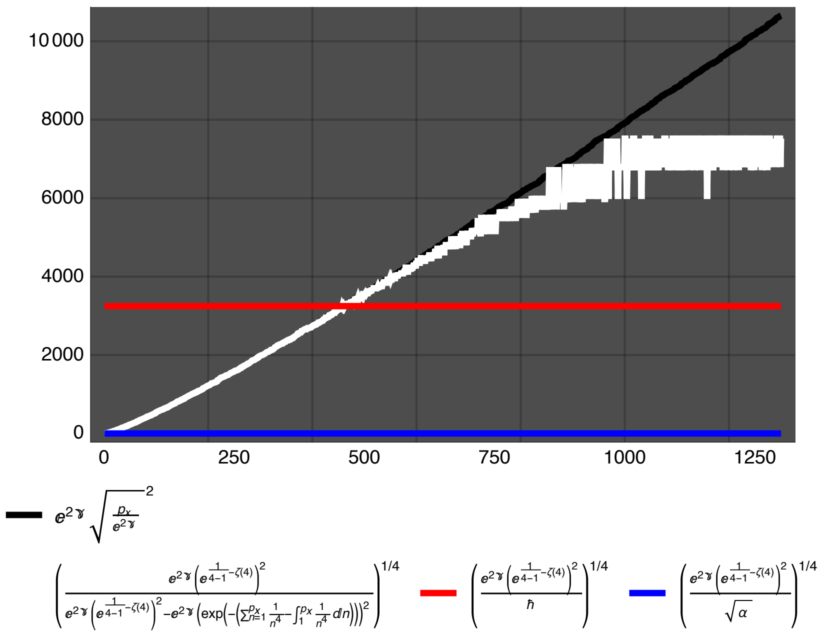
$$\left(e^{2\gamma}\left(e^{\frac{1}{12-1}-\zeta(12)}\right)^2 - e^{2\gamma}\left(e^{-\left(\sum_{n=1}^{1} \frac{1.00009}{1^{12}} - \int_1^1 \frac{1.00009}{1^{12}}\, dn\right)}\right)^2\right)^2 =$$

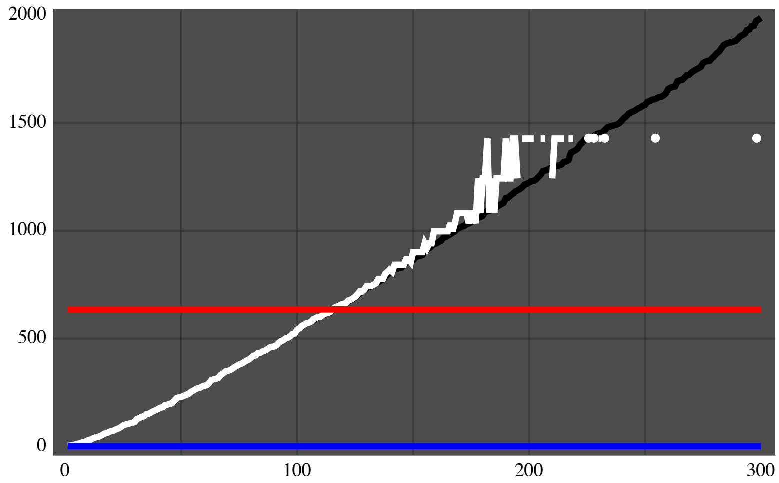
$$\frac{1}{\frac{\left(\frac{3\pi}{2}\right)^3 G}{\sqrt{2}}} = \sqrt{\frac{2 R_\infty}{c} \frac{m R_b}{m_e} \frac{\hbar}{m R_b}} = \frac{e^2}{4\pi \epsilon_0 \hbar c} = \frac{1}{4\pi\epsilon_0} = \frac{e^2}{\hbar c} = \frac{\pi \mu_0}{4} \frac{e^2 c}{\hbar} = \frac{k_e e^2}{\hbar c} = \frac{c \mu_0}{2 R_K} = \frac{e^2}{4\pi} \frac{Z_0}{\hbar}$$

And thus we have a non-arbitrary, non-subjective, time-line, whose units are associated to the fundamental physical constants as we know them, and have a certain minimum and maximum size with an uncertainty constrained by the Gibbs constant:



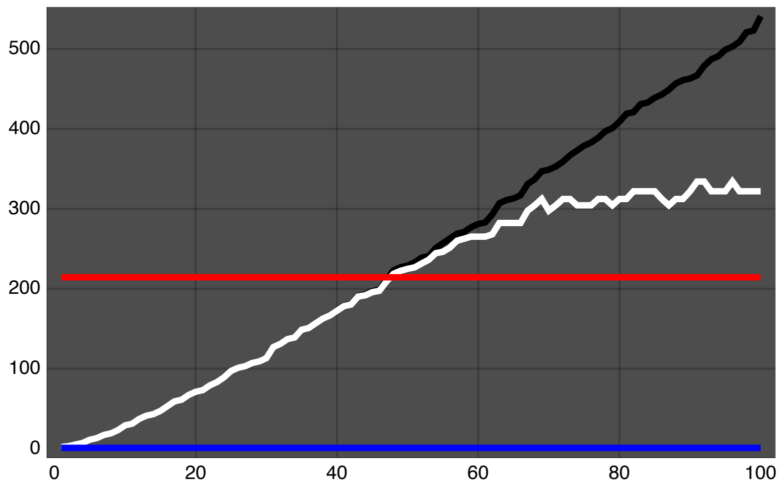
This is a *local* time-line, particular to one location on the global time-line - there are a potentially infinite number of these local time-lines, each associated to a different (positive) real value of s and to a different set of constants, each under tight constraint by its place on the global time-line governed by the Riemann Hypothesis (which asserts that the balance of prime-density of any continuous arithmetic progression is that associated to the limit $e^{2\gamma}\sqrt{\frac{1}{e^{2\gamma}}}^2 = 1$).





$$e^{2\gamma}\sqrt{\frac{p_x}{e^{2\gamma}}}^{\,2}$$

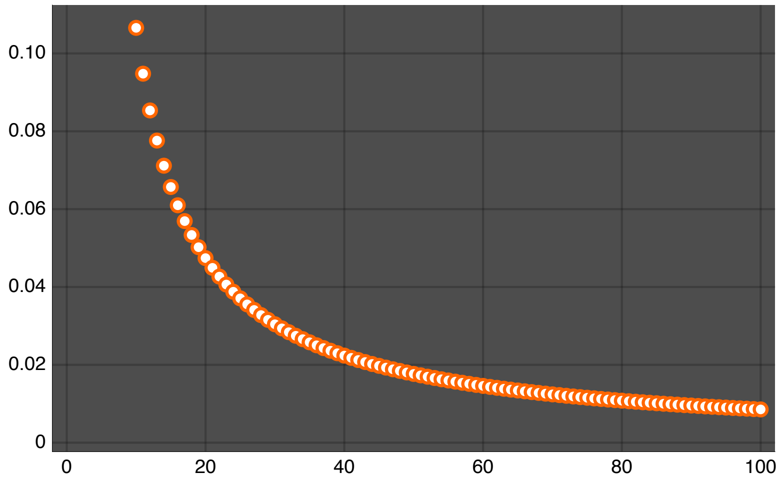
$$\left(\frac{e^{2\gamma}\left(e^{\frac{1}{5-1}}-\zeta(5)\right)^2}{e^{2\gamma}\left(e^{\frac{1}{5-1}}-\zeta(5)\right)^2-e^{2\gamma}\left(\exp\left(-\left(\sum_{n=1}^{p_x}\frac{1}{n^5}-\int_1^{p_x}\frac{1}{n^5}\,dn\right)\right)\right)^2}\right)^{1/5} \quad \left(\frac{e^{2\gamma}\left(e^{\frac{1}{5-1}}-\zeta(5)\right)^2}{\hbar}\right)^{1/5} \quad \left(\frac{e^{2\gamma}\left(e^{\frac{1}{5-1}}-\zeta(5)\right)^2}{\sqrt{\alpha}}\right)^{1/5}$$



$$e^{2\gamma}\sqrt{\frac{p_x}{e^{2\gamma}}}^{\,2}$$

$$\left(\frac{e^{2\gamma}\left(e^{\frac{1}{6-1}}-\zeta(6)\right)^2}{e^{2\gamma}\left(e^{\frac{1}{6-1}}-\zeta(6)\right)^2-e^{2\gamma}\left(\exp\left(-\left(\sum_{n=1}^{p_x}\frac{1}{n^6}-\int_1^{p_x}\frac{1}{n^6}\,dn\right)\right)\right)^2}\right)^{1/6} \quad \left(\frac{e^{2\gamma}\left(e^{\frac{1}{6-1}}-\zeta(6)\right)^2}{\hbar}\right)^{1/6} \quad \left(\frac{e^{2\gamma}\left(e^{\frac{1}{6-1}}-\zeta(6)\right)^2}{\sqrt{\alpha}}\right)^{1/6}$$

...If we plot the first 100 integer values of $e^{2\gamma}\left(e^{\frac{1}{s-1}-\zeta(s)}\right)^2 - e^{2\gamma}\left(e^{-\left(\sum_{n=1}^{1}\frac{1}{1^s}-\int_1^1\frac{1}{1^s}\,dn\right)}\right)^2$, we see that the speed of light was greater in the past (since -absolutely speaking- light has no speed, this means that the speed of the *expansion of space* was less in the past), that time follows an asymmetric light-to-dark arrow, and so that all clocks based on an assumption of symmetry will yield inflated -often *grossly inflated*- times.



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