The Cosmic origin of Climate Cycles

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Sept. 2019

The Wolf and Milankovich cycles, as well as a 725 years one, are shown to be tightly connected to the invariant Hubble-Sanchez horizon, via the Bohr radius, the background temperature and the Kotov length, implying a liaison between the Mattieu group, the superstring dimension 496 and the Higgs boson mass. The Mattieu group order factorisation 66 × 5! is implied, and leads to a relation implying the Monster Couple, characterising the Tau, Mu Leptons and Proton masses and confirming the Eddington's Proton-Tau symmetry.

It was recently proposed that the Wolf solar cycle 11.02 years, tied with a climate cycle, could have a quantum cosmic origin [1]. This could be also the case for the Milankovich cycle for which the time profile shows also a straight temporal edge, characteristic of a *cosmic quantum transition*. The present note confirms this hypothesis by showing that, with the Hubble-Sanchez radius $R \approx 13.812$ Glyr [2] and r_H the Bohr radius, the relation [1]:

$$R/r_B \approx (R/l_W)^4$$

giving the Wolf length $l_W \approx 11.0199$ lyr, extends in the following 'diophantine' manner :

$$R/r_B \approx (R/l_W)^4 \approx (R/l_M)^7 \approx (8S_{496})^{28/3}$$

so leading to a Milankovith length $l_M \approx 87369$ lyr, where $S_{496} = 495 + 496 = 991$ the sum of the *true* divisors of the perfect number 496 including 496 itself but excluding unity. The identification $R/l_M = (8S_{496})^{4/3}$ leads to 87373 lyr, showing 52 ppm precision.

Now 496 is central in the superstring theory: it is the common dimension of the two gauge groups O(32) and $E_8 \times E_8$, both of rank 16 [3]. In [3], Boya notes that 496 is the third perfect number with commentary: *'again, this numerology is not yet understood"*.

However, here, the fact that 496 is a perfect number is essential. The above factor 8 comes from the correspondance, with the smallest sporadic group order $g_0 = 11 \times 10 \times 9 \times 8$, see Eq. [77] in the Millenarium [4] :

$$g_0/16 = 11 \times 10 \times 9 / 2 = 496 - 1 = 495 \approx \sqrt{(m_{Higgs}/m_e)}$$

the smallest Matthieu group, of order g_0 is noted M_{11} : this illustrates the super-string transition 11 - 1 = 10. Note that $11 = S_6$, where 6 is the smallest perfect number.

Introducing the mean reduced wavelength thermal-photon/neutrino $\lambda\!\!\!^{-}_{CB}$, this

introduces a power 5 :

$$R/r_B \approx (R/l_W)^4 \approx (R/\lambda\!\!\!^{-}_{CB})^{5/4} \approx (R/l_M)^7 \approx v^{140}$$

Now R/r_B is also of order $a^{a/8}$, with $a \approx 137.036$, so of order $(2a^2)^8$ (see Eq. [74] in the Millenarium [4]), appearing in :

$$R/r_B \approx v^{140} \approx v\times 2^{120} \approx (2a^2)^8/\sqrt{(v\sqrt{2})}$$

so that, by eliminating v:

$$(R/r_B)^3 \approx 2^{136}\, a^{32}/\sqrt{2} \approx (5/6)\,(R/l_K)^8$$

so connecting with the Eddington's symmetric matrix 16×16 with 136 components [5], as suggested by the Topological Axis, see p.125 of the Millenarium [4] and with l_K the Kotov length [6], to 0.06 %. This implies the quasi-resonance :

$$(R/l_K)^2 \approx (6/5)^{1/4}\,(R/l_W)^3 \approx (R/l'_W)^3$$

which defines a Wolf period slightly different ($t'_W \approx 10.85$ yr), whose beatnote with t_W is 725 years, which enters also the above lacking 5th term :

$$R/r_B \approx (R/l_W)^4 \approx (R/l_{725})^5 \approx (R/\lambda\!\!\!^{-}_{CMB})^{5/4} \approx (R/l_M)^7$$

This introduces a new series :

$$R/\lambda\!\!\!^{-}_{CB} \approx (R/l_{725})^4 \approx (2a/\pi)^{15} \approx (120)^{14} \approx \phi^{140-2/3}$$

with ϕ the golden number. As l_{725} is the common point between the two series, it must be of cosmic importance, hence *it could be related to the mini glacial ages*.

Such diophantine properties comes from the factorization $g_0 = 66 \times 5!$ (0.3 %, 1.5%, 0.9%):

$$R/r_B \approx (66)^{4\times 5} \approx (120)^{5\times 7/2} \approx g_0^{\,4\times 7/3}$$

The involved large integers are of order the Baby- Monster cardinal number and the square root of the Monster's one. The study of deviation shows that, to 10 and -7.5 ppm :

$$g_0^{\,8}/(120)^{15} \approx (4/3)^{1/60} \approx O_B/16\times 66^3\sqrt{O_M}$$

involving the following large number, involving the Leptons Tau (0.2%) and Mu (0.5%), as well as Proton (1%):

$$O_B \times (120)^{15} \approx \sqrt{O_M} \times g_0^{\,8} \times 16 \times 66^3 \approx ((\tau+1)/2)^{20} \approx ((\mu - ½)^{28} \approx p^{(140-1)/7}$$

suggesting the following liaison between the Taon and the Proton masses (38 ppm):

$$\ln p/\ln((\tau + 1)/2) \approx 1 + d_e/137$$

with d_e the Electron excess Lande factor. This confirms the Eddington's Tau-Proton symmetry, predicting the Tau, 30 years before its surprizing discovery, calling it "the Heavy Mesotron" [7].

References

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