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About Diameter of Observable Universe

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Abstract: *The alignment wavelength of the diverse untouchable mass in Heraclitean dynamics pertaining to the mass of the Earth has been discussed and compared to the value of diameter of the observable universe.*

Keywords: *Alignment wavelength, diverse untouchable mass, mass of the Earth, Heraclitean dynamics, observable universe*

1. Introduction

In Heraclitean dynamics the diverse untouchable mass m of a physical body is defined as a geometric mean of the mass m_1 and co-mass m_2 nominally determined by Planck constant h and the luminal speed c as follows [1]:

$$m = \sqrt{m_1.m_2} = \sqrt{m_1.\frac{\frac{h}{c}}{m_1}} = \sqrt{\frac{h}{c}}. \tag{1}$$

The ratio of the untouchable mass components $R = \frac{m_1}{m_2} > 1$ is not aligned ($R \notin \mathbb{N}$) but could become aligned with the help of alignment energy. For such a huge macro mass as it is the mass of the Earth (with almost negligible co-mass) applying the same system of units the next alignment energy on the double surface comes into play [1]:

$$E_{alignment} = \frac{hc}{m_1\left(2 - \frac{1}{\sqrt{1+\pi^2}}\right)}. \tag{2}$$

With the wavelength equivalent:

$$\lambda_{alignment} = m_1\left(2 - \frac{1}{\sqrt{1+\pi^2}}\right). \tag{3}$$

2. The Wavelength Equivalent Pertaining to the Mass of the Earth

The wavelength of the alignment energy of the diverse untouchable mass (wavelength equivalent) pertaining to the mass of the Earth is the next [1]:

$$\lambda_{alignment}^{Earth} = m_{Earth}\left(2 - \frac{1}{\sqrt{1+\pi^2}}\right). \tag{4}$$

Its value in meters is nominally given by multiplying the mass of the Earth in kilograms by the factor $(2 - \frac{1}{\sqrt{1+\pi^2}})$.

3. Wavelength Equivalent Pertaining to the Mass of the Earth Related to the Diameter of Observable Universe

The next data are available: The mass of the Earth $m_{Earth} = 5.972\,2(6)\,.\,10^{24}kg$ [2] as well as the length of the observable universe $d_{observable\ universe} = 8.8\,.\,10^{26}m$ [3].

So the next ratio can be calculated:

$$R = \frac{d_{observable\ universe}}{\lambda_{alignment}^{Earth}} = \frac{8.8\,.\,10^{26}}{5.972\,2(6).10^{24}\left(2 - \frac{1}{\sqrt{1+\pi^2}}\right)} = 86.845\,431\ldots \tag{5}$$

Interesting is 3R value, since it measures our home in the observable universe in all three dimensions:

$$3R = 260.536\,292\ldots \quad (6)$$

And 6R value is interesting, too, since it measures our home in the three-dimensional observable universe in all six directions:

$$6R = 521.072\,584\ldots \quad (7)$$

If the above number should be for the sake of our greater home stability an integer 521, a more accurate diameter of the observable universe could grant the request:

$$diameter_{observable\ universe}^{more\ accurate} = 8{,}798\,8(9)\,.10^{26}m. \quad (8)$$

4. CONCLUSION

The observable universe measured in all six directions of three-dimensional observable space brings an interesting length given in the units of the alignment wavelength of the diverse untouchable mass pertaining to the mass of the Earth.

DEDICATION

To Mayan sacred Tzolkin calendar [4] and the opportunity to live

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