

Alignment Energy of Diverse Untouchable Water Molecule Mass

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Abstract: The alignment energy of a diverse untouchable water molecule mass In Heraclitean dynamics has been calculated.

Keywords: Alignment energy, diverse untouchable water molecule mass, Heraclitean dynamics, bipedal random walk

1. INTRODUCTION

In the previous paper [1] the alignment energy of diverse untouchable electron mass in Heraclitean dynamics has been estimated. In this paper the exercise will be repeated to calculate the alignment energy of diverse untouchable water molecule mass.

2. CALCULATION OF ALIGNMENT ENERGY OF DIVERSE UNTOUCHABLE WATER MOLECULE MASS

The concerned energy enabling the formation of a stable diverse untouchable water molecule mass is found in four steps:

a) Using values for Planck constant h and luminal speed c the untouchable mass is given

$$m_{\text{untouchable}} = \sqrt{\frac{h}{c}} \tag{1}$$

Planck constant h (Js)	Luminal speed c (ms^{-1})	Untouchable mass $m_{\text{untouchable}}$ (kg)	Dalton (Da)	Untouchable mass $m_{\text{untouchable}}$ (Da)
$6,62604015 \cdot 10^{-34}$	2,99292458	$1,48668056229 \cdot 10^{-21}$	$1,66053906660 \cdot 10^{-27}$ kg	895299,96143873

b) Using value of the untouchable mass $m_{\text{untouchable}}$ as well as the water molecule mass $m_{\text{H}_2\text{O}}$ the unaligned ratio of water molecule diverse untouchable mass on double surface is given:

$$R_{\text{unaligned}}^{\text{H}_2\text{O}} = \left(\frac{m_{\text{untouchable}}}{m_{\text{H}_2\text{O}}} \right)^2 \cdot \left(2 - \frac{1}{\sqrt{1 + \pi^2}} \right) \tag{2}$$

Hydrogen ^1H mass (Da)	Oxygen ^{16}O mass (Da)	H_2O mass (Da)	$m_{\text{untouchable}}$ (Da)	$R_{\text{unaligned}}^{\text{H}_2\text{O}}$
1,007825031898	15,994914619257	18,010564683053	895299,96143873	4192603847,057

c) Respecting double surface geometry the aligned ratio of the water molecule diverse untouchable mass is given:

$$R_{\text{aligned}} = n \left(2 - \frac{1}{\sqrt{1 + \frac{\pi^2}{n^2}}} \right), \quad n \in \mathbb{N} = \text{ROUNDDOWN}(R_{\text{unaligned}}) \tag{3}$$

$R_{\text{unaligned}}^{\text{H}_2\text{O}}$	$\text{ROUNDDOWN}(R_{\text{unaligned}})$	$R_{\text{aligned}}^{\text{H}_2\text{O}}$
4 192 603 847,057	4 192 603 847	4 192 603 847,000 000 001

d) Using both ratios (unaligned and aligned) the alignment energy of the water molecule diverse untouchable mass is given:

$$E_{alignment}^{H_2O} = \left(\frac{R_{unaligned}^{H_2O}}{R_{aligned}^{H_2O}} - 1 \right) m_{H_2O} \cdot c^2. \quad (4)$$

$m_{alignment}^{H_2O}$	$E_{alignment}^{H_2O}$	$\nu_{alignment}^{H_2O}$
$2,452 \cdot 10^{-10} \text{ Da}$	0.23 eV	55THz

The calculated alignment energy $E_{alignment}^{H_2O} = 0,23 \text{ eV}$ enabling a stable diverse untouchable water molecule mass $m_{untouchable} = \sqrt{m_1 \cdot m_2} = \sqrt{m_{H_2O} \cdot \frac{h}{m_{H_2O} \cdot c}} = \sqrt{\frac{h}{c}}$ in Heraclitean dynamics is interesting since it equals the activation energy for bipedal random walk of H₂O molecule on ice surface [2], [3]:

$$E_{alignment}^{H_2O} = E_{bipedal}^{H_2O}. \quad (5)$$

In the mentioned migration of water molecules in a thin quasi-liquid layer (QLL) of a few nanometers thickness on the surface of the ice crystals, the hydrogen atoms of the water molecule form bipedal legs. And the energy required for detaching each leg from the surface at bipedal random walk is 0.23 eV.

3. CONCLUSION

The alignment energy of a diverse untouchable water molecule mass in Heraclitean dynamics equals the energy required to break a hydrogen bond between adjacent water molecules and belongs to terahertz electromagnetic waves.

Greeting



Figure1. Merry Christmas and Happy New Year 2023! [4]

REFERENCES

- [1] Janez Špringer (2022) “Alignment Energy of Diverse Untouchable Electron Mass” International Journal of Advanced Research in Physical Science (IJARPS) 9(11), pp.23-25, 2022.
- [2] Murphy E. J. 1953 JChPh **21** 1831
- [3] P. M. Bellan 2020 ApJ **905** 96.
- [4] <https://www.vecteezy.com/vector-art/6998718-a-man-is-jumping-over-to-cliff-and-jump-across-between-2022-and-2023-word>. Retrieved November 2022.
- [5] Frequency of the Cosmic Microwave Background - The Physics Factbook (hypertextbook.com). Retrieved November 2022.

ADDENDUM

We can repeat the exercise in the case of other elementary particles, too, for instance proton and neutron, which are heavier than electron but lighter than water molecule. But unfortunately, as in the case of electron, the precision on the decimal place is again absent due to unavailable sufficiently accurate data. And consequently the alignment characteristics of such particles can be only estimated as presented bellow in Table 1.

Table1. Some alignment characteristics of the diverse untouchable proton and neutron mass

particle	$m_{particle}$	$R_{unaligned}$	$R_{aligned}$	$m_{alignment}$	$\nu_{alignment}$
proton	1.007 276 466 621 (53) Da	< 1 340 420 657 944	\cong 1 340 420 657 943	< 7,51.10 ⁻¹³ Da	< 170 GHz
neutron	1,008 664 915 88 (49) Da	< 1 336 732 961 241	\cong 1 336 732 961 240	< 7,55.10 ⁻¹³ Da	< 170 GHz

Interestingly $\nu_{alignment} < 170 \text{ GHz}$ covers the frequency of 160.4 GHz. Most cosmologists consider this radiation to be the best evidence for the hot big bang model of the universe. [5]

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