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Speed at Zero Kinetic Energy in Heraclitean Dynamics

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Abstract: *The speed at zero kinetic energy in Heraclitean dynamics has been discussed.*

Keywords: *Heraclitean dynamics, speed at zero kinetic energy*

1. Introduction

The speed at zero kinetic energy in Heraclitean dynamics - expressed as F = dp/dt + d(k/p)/dt - is the subject of interest of this paper.

2. Heraclitean Dynamics

Relativistic mass and ground mass are implicitly related as follows [1]:

$$m_{relativistic}^2 c^2 a^2 = e^{\frac{m_{ground}^2 c^2 - k(1-lnk) + m_{relativistic}^2 c^2 (a^2-1)}{k}}. \quad (1)$$

Where k is the dynamics constant, c is the speed of light and $a = v/c$ is the relative speed of a particle which possesses the ground mass m_{ground} and according to its speed and inverse speed manifests the relativistic mass $m_{relativistic}$.

3. Zero Kinetic Energy

Particles with equal ground mass and relativistic mass are by definition without kinetic energy:

$$m_{relativistic} = m_{ground}, \quad W_k = 0. \quad (2)$$

It happens when

$$m_{relativistic}^2 c^2 a^2 = m_{ground}^2 c^2 a^2 = k, \qquad W_k = 0. \quad (3)$$

Since applying the equation (1) holds:

$$k = e^{\frac{m_{ground}^2 c^2 - k(1-lnk) + m_{relativistic}^2 c^2 (a^2-1)}{k}}. \quad (4a)$$

$$lnk = \frac{m_{ground}^2 c^2 - k(1-lnk) + m_{relativistic}^2 c^2 (a^2-1)}{k}. \quad (4b)$$

$$klnk = m_{ground}^2 c^2 - k(1-lnk) + m_{relativistic}^2 c^2 (a^2-1). \quad (4c)$$

$$klnk = m_{ground}^2 c^2 - k + klnk + m_{relativistic}^2 c^2 a^2 - m_{relativistic}^2 c^2. \quad (4d)$$

$$klnk = m_{ground}^2 c^2 - k + klnk + k - m_{relativistic}^2 c^2. \quad (4e)$$

$$m_{relativistic}^2 c^2 = m_{ground}^2 c^2. \quad (4f)$$

And

$$m_{relativistic} = m_{ground}. \quad (4g)$$

4. Approximate Approach

Applying the approximate relation $e^x \approx x + 1$ the equation (1) takes explicit form (See appendix):

$$m_{relativistic}^2 c^2 \approx \frac{m_{ground}^2 c^2 + k\, lnk}{a^2 k - a^2 + 1}. \quad (5)$$

Becoming at zero kinetic energy:

$$m_{ground}^2 c^2 \approx \frac{m_{ground}^2 c^2 + k\, lnk}{a^2 k - a^2 + 1}. \quad (5a)$$

And by rearranging:

$$m_{ground}^2 c^2 a^2 \approx -k\, lnk. \quad (5b)$$

That is according to (3) missed result for the $-lnk$ factor.

It is meaningless only in Einsteinian dynamics which is hyponym of Heraclitean dynamics where $k = 0$ and consequently $v = 0$ for any m_{ground} without kinetic energy.

5. Calculation of Speed at Zero Kinetic Energy

For the calculation the speed at zero kinetic energy in the Heraclitean dynamics the exact equation (1) should be used. Or just the definition of ground momentum has to be applied:

$$m_{ground}^2 v_{ground}^2 = k. \quad (6)$$

In the case of the ordinary matter the dynamics constant k is proposed to equal the product of Planck constant h and speed of light c [1]:

$$k = h\, c. \quad (7)$$

And when zero kinetic energy belongs to untouchable mass $m_{untouchable} = \sqrt{\frac{h}{c}}$ [2] the considered speed is luminal ($v = c$) since (6):

$$\left(\sqrt{\frac{h}{c}}\right)^2 c^2 = hc. \quad (8)$$

6. Conclusion

Respecting the Heraclitean dynamics we do not need to stand still. It is quite enough to calm down in the world we belong to.

Dedication

To my granddaughter Noemi for her first birthday and to holidays on the Slovenian coast in 2022

Figure1. *Slovenian coast between Izola and Koper [3]*

REFERENCES

[1]Janez Špringer, (2019). Relativistic Constants of Variant Ordinary Matter. International Journal of Advanced Research in Physical Science (IJARPS) 6(11), pp.38-40, 2019

[2]Janez Špringer (2021). Sphere in Heracletean Dynamics. International Journal of Advanced Research in Physical Science (IJARPS) 8(3), pp.23-28 2021.

[3]https://www.hoteli-bernardin.si/en/blog/active-break/2554-5-reasons-for-a-walk-from-Izola-to-Koper

APPENDIX

$$m_{relativistic}^{2}c^{2}a^{2} = e^{\frac{m_{ground}^{2}c^{2}-k(1-lnk)+m_{relativistic}^{2}c^{2}(a^{2}-1)}{k}}. \qquad (a)$$

$$y = e^{x} \approx 1 + x. \qquad (b)$$

$$m_{relativistic}^{2}c^{2}a^{2} \approx 1 + \frac{m_{ground}^{2}c^{2}-k(1-lnk)+m_{relativistic}^{2}c^{2}(a^{2}-1)}{k}. \qquad (c)$$

$$m_{relativistic}^{2}c^{2}a^{2} - \frac{m_{relativistic}^{2}c^{2}(a^{2}-1)}{k} \approx 1 + \frac{m_{ground}^{2}c^{2} - k(1-lnk)}{k}. \qquad (d)$$

$$m_{relativistic}^{2}c^{2}\left(a^{2} - \frac{(a^{2}-1)}{k}\right) \approx 1 + \frac{m_{ground}^{2}c^{2} - k(1-lnk)}{k}. \qquad (e)$$

$$m_{relativistic}^{2}c^{2}\left(\frac{a^{2}k-(a^{2}-1)}{k}\right) \approx \frac{k + m_{ground}^{2}c^{2} - k + k\ lnk}{k}. \qquad (f)$$

$$m_{relativistic}^{2}c^{2}\left(a^{2}k-(a^{2}-1)\right) \approx m_{ground}^{2}c^{2} + k\ lnk. \qquad (g)$$

$$m_{relativistic}^{2}c^{2} \approx \frac{m_{ground}^{2}c^{2} + k\ lnk}{a^{2}k-(a^{2}-1)}. \qquad (h)$$

$$m_{relativistic}^{2}c^{2} \approx \frac{m_{ground}^{2}c^{2} + k\ lnk}{a^{2}k-a^{2}+1}. \qquad (i)$$

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