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Alignment Energy of Delocalized Spin Object

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Abstract: *Alignment energy of delocalized spin object has been calculated.*

Keywords: *Alignment energy, delocalized spin object*

1. Introduction

The alignment energy $E_{alignment}$ enables the harmony of a component with the whole to which it belongs.[1] It allows the whole to permeate its part without excess or residue. The next formula should be applicable for its calculation in present case where the component of the whole is the absolute value of energy of the maximum spin object delocalization on double surface (delocalization energy) [2]:

$$E_{alignment} = \left(\frac{R_{unaligned}}{R_{aligned}} - 1\right)|E_{delocalization}|. \quad (1)$$

Here $R_{unaligned}$ is the unaligned ratio of object energy to its absolute value of delocalization energy (See also Addendum):

$$R_{unaligned} = \frac{m_{object}c^2}{|E_{delocalization}|}\, s(1). \quad (2)$$

The factor s (1) = 1.696 685 529… is the average elliptic-hyperbolic manifestation of one (n = 1) elliptic Compton wavelength given by the next equation [1]:

$$s(n) = n\left(2 - \frac{1}{\sqrt{1+\frac{\pi^2}{n^2}}}\right), n \in \mathbb{N}. \quad (3)$$

And the aligned modified ratio $R_{aligned}$ is given by the same equation (3) for the down rounded unaligned modified ratio $n = \text{ROUNDDOWN}(R_{unaligned})$ as follows:

$$R_{aligned} = s\left(\text{ROUNDDOWN}(R_{unaligned})\right). \quad (4)$$

2. Delocalization Energy

The delocalization energy is the sum of inner and outer energy of maximum delocalized spin object given by the next equation [2]:

$$E_{delocalization} = E_{inner} + E_{outer} = \left(1 - \frac{s(1)}{s(0.5)}\right)mc^2 + \left(1 - \frac{s(1)}{s(10)}\right)mc^2. \quad (5)$$

Yielding with the help of equation (3) the next value [2]:

$$E_{delocalization} = -0.003\ 609\ 386\ 732\ mc^2. \quad (6)$$

And

$$|E_{delocalization}| = 0.003\ 609\ 386\ 732\ mc^2. \quad (7)$$

Such energy is released (negative sign) in the object surrounding. Let us suppose that the delocalization energy stays there with the help of alignment energy which enables that the ratio of object energy to its absolute value of delocalization energy is counted on the elliptic surface without excess or residue.

3. Calculation of Unaligned Ratio of Object Energy to its Absolute Value of Delocalization Energy

The unaligned ratio of object energy to its absolute value of delocalization energy $R_{unaligned}$ (2) can be calculated with the help of data (7) as follows:

$$R_{unaligned} = \frac{m_{object}c^2}{|E_{delocalization}|}\, s(1) = \frac{m_{object}c^2\ x\ 1{,}696\ 685\ 529}{0.003\ 609\ 386\ 732\ m_{object}c^2} = 470.075\ 848. \quad (8)$$

The down rounded value of the unaligned ratio n is the next:

$$n = 470. \quad (9)$$

4. Calculation of Aligned Ratio of Object Energy to its Absolute Value of Delocalization Energy

The aligned ratio of object energy to its absolute value of delocalization energy $R_{aligned}$ (4) can be calculated with the help of equation (3) as follows:

$$s(470) = n\left(2 - \frac{1}{\sqrt{1 + \frac{\pi^2}{470^2}}}\right) = 470.010\ 499. \quad (10)$$

5. Calculation of Alignment Energy of Delocalized Spin Object

Applying the equation (1) we have:

$$E_{alignment} = \left(\frac{470.075\ 848}{470.010\ 499} - 1\right) 0.003\ 609\ 386\ 732\ mc^2 = 5.018\ .\ 10^{-7}mc^2 \quad (11)$$

For instance, for the electron ($m_e c^2 = 510\ 998.950\ 69$ eV) the next alignment energy is given:

$$E_{alignment}^{electron} = 0.256\ eV. \quad (12)$$

6. Instead of Conclusion - GPT Opinion

Such energy range is important for understanding how materials behave in various technological applications, including semiconductors, photonics, and materials science.

Dedication

To Rome, because all roads lead there

References

[1] Janez Špringer (2021) "Helium Alignment Energy Coinciding Helium Superfluidity (On the Microscopic Andronikashvili Experiment)". International Journal of Advanced Research in Physical Science (IJARPS) 8(9), pp.8-10, 2021.

[2] Janez Špringer. " Energy of Maximum Spin Object Delocalization on Double Surface" International Journal of Advanced Research in Physical Science (IJARPS), vol 12, no. 02, pp. 3-5, 2025.

Addendum

Coincidently, in the equation (2) not taken into account the factor s (1) = 1.696 685 529… as the average elliptic-hyperbolic manifestation of one (n = 1) elliptic Compton wavelength, the similar result is given:

3b. Simplified Calculation of Unaligned Ratio of Object Energy to its Absolute Value of Delocalization Energy

The unaligned ratio of object energy to its absolute value of delocalization energy $R_{unaligned}$ (2) can be calculated now with the help of data (7) as follows:

$$R_{unaligned} = \frac{m_{object}c^2}{|E_{delocalization}|} = \frac{m_{object}c^2}{0.003\ 609\ 386\ 732\ m_{object}c^2} = 277.055\ 377. \quad (8b)$$

The down rounded value of the unaligned ratio n is the next:

$$n = 277. \qquad (9b)$$

4b. Simplified Calculation of Aligned Ratio of Object Energy to its Absolute Value of Delocalization Energy

The aligned ratio of object energy to its absolute value of delocalization energy $R_{aligned}$ (4) can be calculated with the help of equation (3) as follows:

$$s(277) = n\left(2 - \frac{1}{\sqrt{1 + \frac{\pi^2}{277^2}}}\right) = 277.017\,813. \qquad (10b)$$

5b. Simplified Calculation of Alignment Energy of Delocalized Spin Object

Applying the equation (1) we have:

$$E_{alignment} = \left(\frac{277{,}055\,377}{277{,}017\,813} - 1\right) 0.003\,609\,386\,732\,mc^2 = 4.894.10^{-7}mc^2 \qquad (11b)$$

For instance, for the electron ($m_e c^2 = 510\,998.950\,69$ eV) the next alignment energy is given:

$$E_{alignment}^{electron} = 0.250\ eV. \qquad (12b)$$

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