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Speed of Localized Spin Object

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Abstract: *Speed of the localized spin object on the double surface was presented.*

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1. Introduction

In the previous article the ratio of the spin object energy (whole) to its absolute value of the delocalization energy (part of a whole) was counted on the elliptic surface bringing the number: $n = 277$ as the simplified option [1]. Let's look the case again in the light of kinetic energy of the localized spin object as well as the alignment energy which enables the aligned spin object delocalization.

2. The Unaligned Delocalization Energy of the Spin Object

With the help of relation $s(n) = n\left(2 - \frac{1}{\sqrt{1+\frac{\pi^2}{n^2}}}\right)$ the unaligned maximum delocalization energy of the spin object is given by the next equation [1]:

$$E^{unaligned\ delocalization} = -\left(2 - \frac{s(1)}{s(0.5)} - \frac{s(1)}{s(10)}\right)mc^2 = \frac{mc^2}{277.055\,376\,508\,765\ldots}. \quad (1)$$

At the process of maximum object delocalization this energy is released in the object surrounding, but unfortunately the given quantity is not enough to be aligned with the whole object energy. For the alignment some energy should be added, too.

3. The Aligned Delocalization Energy of the Spin Object

Number 277 determines the needed aligned value of delocalization energy of the spin object on the double surface as follows:

$$E^{aligned\ delocalization} = \frac{mc^2}{s(277)} = \frac{mc^2}{277{,}017\,813\,451\,917\ldots}. \quad (2)$$

4. The Alignment Energy of the Spin Object

The alignment energy of the spin object is thus the difference between the needed aligned and the offered unaligned delocalization energy:

$$E^{alignment} = E^{aligned\ delocalization} - E^{unaligned\ delocalization}. \quad (3)$$

Calculated as

$$E^{alignment} = \frac{mc^2}{277.017\,813\,451\,917\ldots} - \frac{mc^2}{277.055\,376\,508\,765\ldots} = 4.894\,255\,618\,838\,24\ldots.10^{-7}mc^2. \quad (4)$$

Without the alignment energy no spin object delocalization is successful.

5. The Alignment Energy of the Delocalized and the Kinetic Energy of the Localized Spin Object

The alignment energy can be given to the unaligned delocalization energy of spin object on the account of reduced kinetic energy of spin object. In the reverse process – localization – the kinetic energy of spin object should be increased again.

Satisfying the symmetry $E^{alignment} = W_k$ we have:

$$E^{alignment} - W_k = 0. \quad (5)$$

If the first energy is increased (signed positive), the second one is decreased (signed negative), and vice versa. If the delocalized spin object is at rest then the localized spin object has some speed.

6. The Rolling Speed of the Localized Spin Object

Taking into account the proportion $W_k \propto v^2$ we can monitor the change in speed v. For instance, for a homogeneous rolling sphere it holds [2]:

$$W_k = \frac{7}{10} mv^2. \quad (6)$$

If the delocalized spin object is at rest then the localized spin object gains the next rolling speed:

$$v_{rolling} = 250.677 \ldots \frac{km}{s}. \quad (7)$$

Since (5)

$$E^{alignment} = W_k. \quad (8)$$

Then applying equations (4) and (6) we have:

$$4.894\ 255\ 618\ 838\ 24 \ldots . 10^{-7} mc^2 = \frac{7}{10} mv^2. \quad (9)$$

And because of $c = 299\ 792\ 458\ \frac{m}{s}$ holds:

$$v_{rolling} = \sqrt{\frac{10}{7}\ x\ 4.894\ 255\ 618\ 838\ 24 \ldots . 10^{-7} c} = 250.677 \ldots \frac{km}{s}. \quad (10)$$

7. An Interesting Fact

The given value is the lowest speed of particles in the solar wind typically observed near Earth [3].

8. Conclusion

To be localised we need the Earth, and to be aligned we need the Sun.

Dedication

To the Sun and the Earth

References

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