

Elementary Proof of Uncertainty Principle

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Yuji Masuda

(y_masuda0208@yahoo.co.jp)

I think that in addition to the fact that atoms are represented by electrons, protons and neutrons, the discovery of "mesons" in modern physics has had a significant impact on modern physics, especially quantum mechanics.

In this paper, I will discuss the uncertainty principle, which is the fundamental equation of quantum mechanics, from my definitions.

1. My definitions

【My No.51 (or my No.64)】

Unit of the universe

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Yuji Masuda
(y_masuda0208@yahoo.co.jp)

Here from, "Definition series" & "On the Unit of Imaginary Number" & "Quaternion"

1	→		[rad]
2	→	<i>i</i>	[s]
3	→	$e(= \pm\infty)$	[m]
4	→	π	[kg]

$m^2 = 4 \times 3^2 = 36 = 1$ [rad]

$F = G \frac{Mm}{R^2} \Rightarrow 3 = G \frac{4^2}{3^2} \Rightarrow G = \frac{27}{16} = 2$ [s]

$F = ma = 4 \times \frac{3}{2^2} = 3$ [m]

$h(\text{plank_const}) = J \cdot s = E \times i = 4 \times 2 = 8 = 3$ [m]

$E = F \times e(=3) = 3 \times 3 = mc^2 = \pi \times \left(\frac{e}{i}\right)^2 = 4 \times \frac{9}{4} = 9 = 4$ [kg]

$\frac{4}{3} m^3 = \frac{4}{3} \times 4 \times 3^3 = 4^2 \times 3^2 = 144 = 4$ [kg]

That's all

2. Uncertainty Principle

$$\Delta x \cdot \Delta p \geq \frac{\hbar}{2} = \frac{h}{4\pi}$$

$$\Delta E \cdot \Delta t \geq \frac{\hbar}{2} = \frac{h}{4\pi}$$

3. Proof by My definitions

$$\begin{aligned} \Delta x &= 3 \\ \Delta p &= 4 \times \frac{3}{2} = 6 = 1 \\ \frac{\hbar}{2} &= \frac{h}{4\pi} = \frac{3}{4 \times 4} = \frac{3}{16} = \frac{3}{1} = 3 \\ \therefore \Delta x \cdot \Delta p &= 3 = \frac{\hbar}{2} \end{aligned}$$

$$\begin{aligned} \Delta E &= 4 \\ \Delta t &= 2 \\ \frac{\hbar}{2} &= \frac{h}{4\pi} = \frac{3}{4 \times 4} = \frac{3}{16} = \frac{3}{1} = 3 \\ \therefore \Delta E \cdot \Delta t &= 4 \times 2 = 8 = 3 = \frac{\hbar}{2} \end{aligned}$$

4. Conclusion

"Mesons" and "Uncertainty principle" could be keywords in quantum mechanics.