

Double Slit Experiment with One Electron

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See Unified Absolute Relativity Theory at:

www.wbabin.net/saraiva/saraiva105.pdf
www.wbabin.net/saraiva/saraiva223.pdf
www.wbabin.net/saraiva/saraiva282.pdf

The electron has a size of $7.72 \times 10^{-13} m$. The normal distance between the slits is $1 \mu m$. It's obvious that the electron must pass by only one slit.

The electron has an electromagnetic field that reaches infinity. This field communicate at the speed of $1.75 \times 10^5 c$. It's this field that passes by the both slits and interfere with it self. The movement of the electron is controlled by the field.

All the mysteries in quantum mechanics are errors of interpretation.

DeBroglie size of the electron with energy 20keV:

Speed: $v = 8.4 \times 10^7$

DeBroglie wavelength: $\lambda = x_e \frac{c}{v}$; x_e - Compton wavelength of the electron.

The DeBroglie wave is only an apparent wave. For example a rest electron has an infinite wavelength. The electron is always a particle.

Slit normal width: $d = 1.5 \times 10^{-7}$

Frequency and speed of the virtual photons of the field of the electron:

$$f = \frac{f_M^2}{f_e} = 3.8 \times 10^{30}; \quad f_M = \frac{c}{\sqrt{S}}; \quad S = 1.9 \times 10^{-34} \quad (\text{SI units})$$

$$f_e = 1.236 \times 10^{20} \quad \text{-- Compton frequency}$$

Speed of the field: $w = \sqrt{S} f = 5.26 \times 10^{13}$

The quantum eraser and delayed choice experiments with photons are explained by the fact that the visible photons, entangled or not, communicate at a speed of $1.3 \times 10^{19} = 4.3 \times 10^{10} c$.

Frequency:

$$f = 5 \times 10^{14} \Leftrightarrow f_B = \frac{f_M^2}{f} = 9.4 \times 10^{35}$$

Speed of the field of the photon:

$$w = \sqrt{S} f_B = 1.3 \times 10^{19}$$

The electric and magnetic fields are made of moving longitudinal particles with variable speed:

$$B = \text{speed}; \quad \sqrt{E} = \text{speed}$$

Quantum classical mechanics unification:

All real calculations of the quantum mechanics are semi-classical approximations. Quantum mechanics needs classical mechanics to work.

Energy of one oscillator:

$$E = \frac{m\omega^2 A^2}{2} = \frac{hf}{2} \Leftrightarrow$$

$$\Leftrightarrow A = \frac{x}{2\pi}; \quad x - \text{Compton wavelength.}$$

m – mass; E – energy; $\omega = 2\pi f$; f – frequency; A – amplitude

The energy of the photon is not quantized. Only the transmission of energy is quantized.