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Magnetic Potential Function

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One dimensional Schrodinger equation for a free particle with two corrections:

$$2m \to m \quad \text{and} \quad \frac{h}{2\pi} \to h$$

$$i\frac{dA}{dt} = -\frac{h}{m}\frac{d^2A}{dx^2} \quad \text{and} \quad \frac{h}{m} = A$$

$$\Leftrightarrow \quad \frac{dA}{dt} = iA\frac{d^2A}{dx^2} \quad \text{and}$$

$$\frac{dA}{dx} = \vec{B} \quad \text{and} \quad \frac{dA}{dt} = \vec{E} \quad \Leftrightarrow$$

$$\Leftrightarrow \quad \vec{E} = iA\frac{d\vec{B}}{dx} \quad \Leftrightarrow \quad A = i\frac{\vec{E}}{\vec{B}}x$$

$$\Leftrightarrow \quad \frac{dA}{dx} = \frac{\vec{E}}{A}x \quad \Leftrightarrow \quad A^2 = \vec{E}x^2 \quad \Leftrightarrow \quad A^2 = \frac{dA}{dt}x^2$$

And according to absolute relativity:

$$dt = \frac{w}{c^2}dx \quad \text{and} \quad t = \frac{\sqrt{k+x^2}}{c}$$

$$\Leftrightarrow \quad dA = \frac{A^2}{x^2}\frac{x}{tc^2}dx \quad \Leftrightarrow \quad \frac{dA}{A^2} = \frac{dx}{cx\sqrt{k+x^2}} \quad \Leftrightarrow$$

$$\Leftrightarrow \qquad A = c\sqrt{k}\,\frac{1}{\log\left|\dfrac{\sqrt{k}+\sqrt{k+x^2}-x}{\sqrt{k}-\sqrt{k+x^2}+x}\right|}$$

For the electron:

$$A_e = c\sqrt{k}\,\frac{1}{\log\left|\dfrac{2x+\sqrt{k}}{2x-\sqrt{k}}\right|} = 7.2\times10^{-4}$$

We can calculate the Ae from other electron values:

$$A_e = cx_e = 7.2\times10^{-4} \qquad \text{or} \qquad \frac{h}{m_e} = 7.3\times10^{-4}$$

x_e and m_e are the electron wavelength and mass

Just like in the true relativity theory, in true quantum mechanics, time is not a time exterior to the phenomena that flows but it's a fixed period. Also for space that is not a coordinate, but a wavelength.

There are two types of time (time doesn't exists, it's a mathematical entity), the exterior time that flows and the intrinsic time or period. For example the wave propagation, as it is relative, needs an exterior time.