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Quantum Mechanics

Equation

Schrödinger equation
non-operator form

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Definition

statistical interpretation of the wave function

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Formula

Euler's formula

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Equation

time–independent Schrödinger equation

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Definition

Hamiltonian operator

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$$i\hbar\frac{\partial\Psi}{\partial t} = -\frac{\hbar^2}{2m}\frac{\partial^2\Psi}{\partial x^2} + V\Psi$$

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$$e^{i\theta} = \cos\theta + i\sin\theta$$

$$\int_a^b |\Psi(x,t)|^2 dx = \boxed{\text{probability of finding the particle between } a \text{ and } b\text{, at time } t}$$

$$\hat{\mathrm{H}} = -\frac{\hbar^2}{2m}\nabla^2 + V$$

The simplest way to write the time–independent Schrödinger equation is $H\psi = E\psi$, however, with the Hamiltonian operator expanded it becomes:

$$-\frac{\hbar^2}{2m}\frac{d^2\psi}{dx^2} + V\psi = E\psi$$