

On the energy commutators in Quantum Mechanics

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The Schrödinger equation is

$$\hat{H} \psi = i \hbar \frac{\partial}{\partial t} \psi, \quad (1)$$

where \hat{H} is Hamiltonian.

Holds the

$$\hat{H} \psi = E \psi, \quad (2)$$

where E is energy.

Thus, by inserting (2) into (1)

$$E \psi = i \hbar \frac{\partial}{\partial t} \psi, \quad (3)$$

This is form of eigenvalue equation. Thus, the eigenvalues of operator $\hat{E} = i \hbar \frac{\partial}{\partial t}$ is energy.

Now, the commutator $[x, \hat{E}] = 0$. Thus, the energy and position can be known at the same time. But $[x, \hat{H}] \neq 0$. Thus, the energy and position can NOT be known at the same time.

Is this unsolvable paradox?