

POSTULATES OF QUANTUM MECHANICS

1. The state of a quantum system is a ket, $|\psi(t)\rangle$.
2. Any observable is a Hermitian operator.
3. (a) A precise measurement of an observable A must yield an eigenvalue of A .
(b) The probability that a measurement of A will have the result λ is

$$P(\lambda) = |\langle \lambda | \psi \rangle|^2.$$

4. Momentum and position do not commute; the commutator is

$$[p, x] = \frac{\hbar}{i}.$$

5. The time dependence of the state is determined by

$$i\hbar \frac{d}{dt} |\psi\rangle = H |\psi\rangle ;$$

therefore,

$$|\psi(t)\rangle = \sum_n c_n |n\rangle e^{-iE_n t/\hbar},$$

in which $|n\rangle$ is the energy eigenstate with eigenvalue E_n .