The Postulates of Quantum Mechanics
Phys 402

0   The state of a physical system is completely described by its wavefunction Ψ, or state-vector ket $|\Psi\rangle$.

    a.   There are no "hidden variables"
    b.   There is no underlying trajectory – beware of 'pictures'

1   Every measurable physical quantity is described by a corresponding operator acting on the wavefunction.

2   The only possible result of a measurement of a dynamical variable is one of the eigenvalues of the corresponding operator. $L_{op}\Psi_n = \ell_n\Psi_n$ (when Ψ_n is an eigenfunction of the operator L_{op}).

3   Any acceptable wavefunction Ψ can be expressed in a series of all of the eigenfunctions ψ_n of any observable operator L_{op} ($L_{op}\psi_n = \ell_n\psi_n$) as,

$$\Psi = \sum_n c_n\psi_n$$

4   The state of a system immediately after measurement is an eigenvector of the operator associated with the measured eigenvalue.