2.1 The Axioms of Quantum Mechanics

The Axioms of Quantum mechanics are not as evident as Newton's Axioms for the mechanic. They are even less intuitive than Maxwell's Axioms for electrodynamics. First you have just to accept them and try to learn soon about them in application.

1. The state of a physical system is defined by a state function ψ.
2. Every measurable physical quantity is described by a linear Hermitian operator.
3. The state of a system in which a physical quantity a has a sharp value must be described by an Eigenfunction of the corresponding operator; the value of a is the corresponding Eigenvalue.
4. If the state function ψ of a system is a composition of several states f_k, i.e. if $\psi = \sum_k c_k f_k$, we can assume all states f_k to exist at the same time. The fraction of the states f_k to measurable quantities is not proportional to its portion of ψ, but to $\psi^* \psi$.