Week1 Notes

Get into the quantum world

Notes on Lesson 1

Notes on Lesson 2

- **1. Bohr-Sommerfeld Quantization (Old quantum theory)**

$$\oint p\,dq = nh$$

While p is the momentum of a particle, which is a function of position of particle q. This equation constrains the movement of a particle in a specific potential field V(q).

Notes on Lesson 3

- **1. Born Statistical Interpretation of Wave Function**

The wave function $\Psi(x,t)$ discribes the "Amplitude" of the probability finding the paticle at coordinate(x,t). While the probability density equals amplitude squared.

That is, the probability finding the particle among $x \in [a,b]$ at time t_0 is discribed as:

$$P(x \in [a,b], t = t_0) = \int_a^b |\psi|^2 dx = \int_a^b \psi^* \psi dx$$

Or, to say, the *Probability Density* can be written as:

$$p(x,t) = |\psi(x,t)|^2 = \psi^*(x,t)\psi(x,t)$$