Topics:

- wave-particle duality
- light as a particle (photon)
- electron as a wave
- Schrödinger equation
- infinite quantum well

Summary:

- light can act as photon with momentum \( p = \frac{h}{\lambda} \)
- electron can act as wave with wavelength \( \lambda = \frac{h}{p} \)
- Schrödinger equation: wave equation for (massive) particles: \( H\Psi = -\frac{\hbar^2}{2m}\Psi'' + V\Psi = E\Psi \)
- \( \Psi \): amplitude of electron wave, \( |\Psi|^2 \): probability density
- \( E \): allowed (discrete) energy values for electron
- infinite well: oscillating solutions, \( E_n = \frac{\hbar^2}{8mL^2} n^2 \)