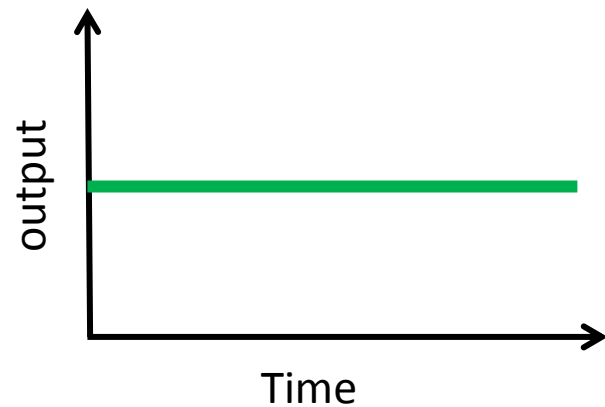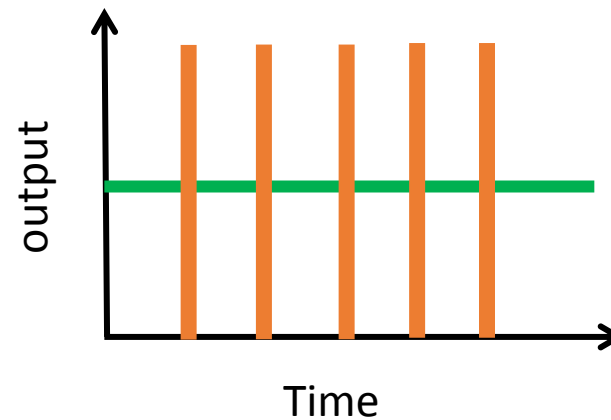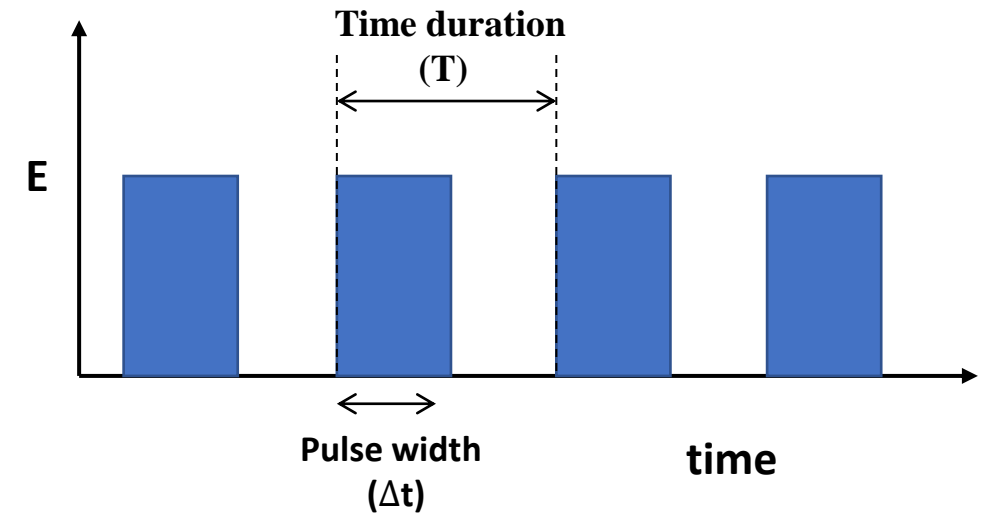# Type Of LASER

- Depending upon output, Laser are of two types:
  - Continuous Wave(CW)
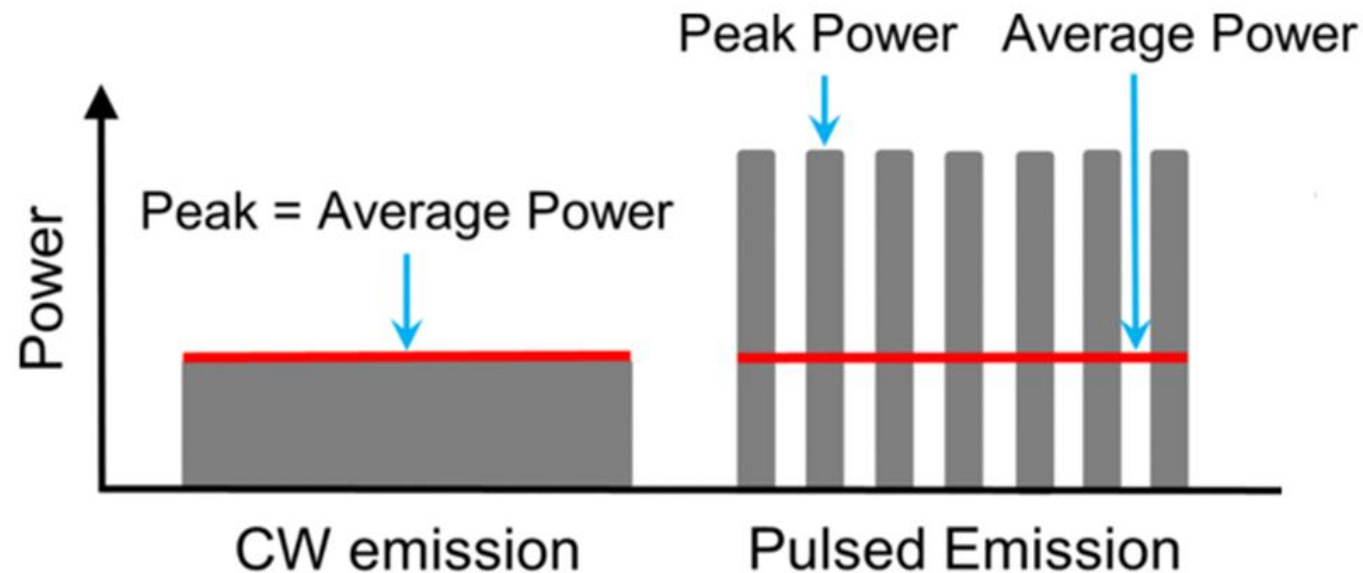 - Pulsed Laser

Continuous Wave LASER

Pulse LASER

Characteristic of Pulsed Laser

Peak Power and Average power

- Average Power$(P_{avg}) = \dfrac{E}{T}$ E = Energy, T = time duration

- Peak Power$(P_{peak}) = \dfrac{E}{\Delta t}$ Δt = Pulse width

- Duty cycle of Laser is time for which Laser is on, over a period of time(T) and it is define as: $\dfrac{\Delta t}{T} = \dfrac{P_{avg}}{P_{peak}}$

Pulse Shape

- Pulse shape is temporal profile of pulse.

- Time bandwidth product = $\Delta t \times \Delta v$

Δt = pulse width Δv = spectral band width

This time bandwidth product sets a limit on minimum temporal width for a given spectral width and vice versa, known as transformation limit. For example hyper secant pulses have time bandwidth product = 0.31

Gaussian Pulse

Hyper Secant Pulse