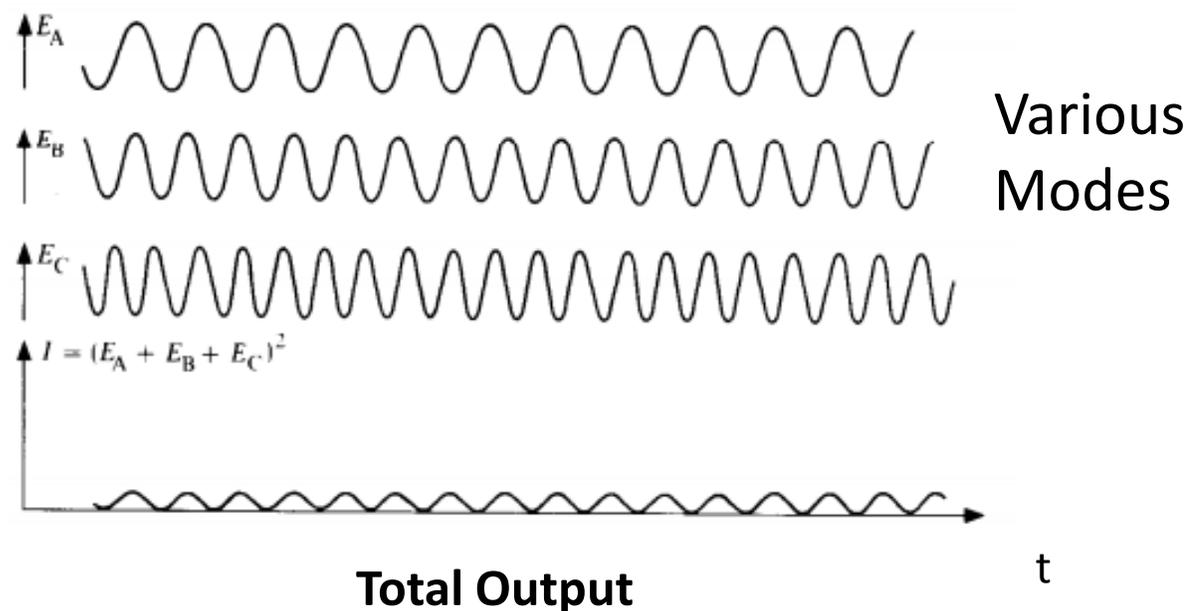
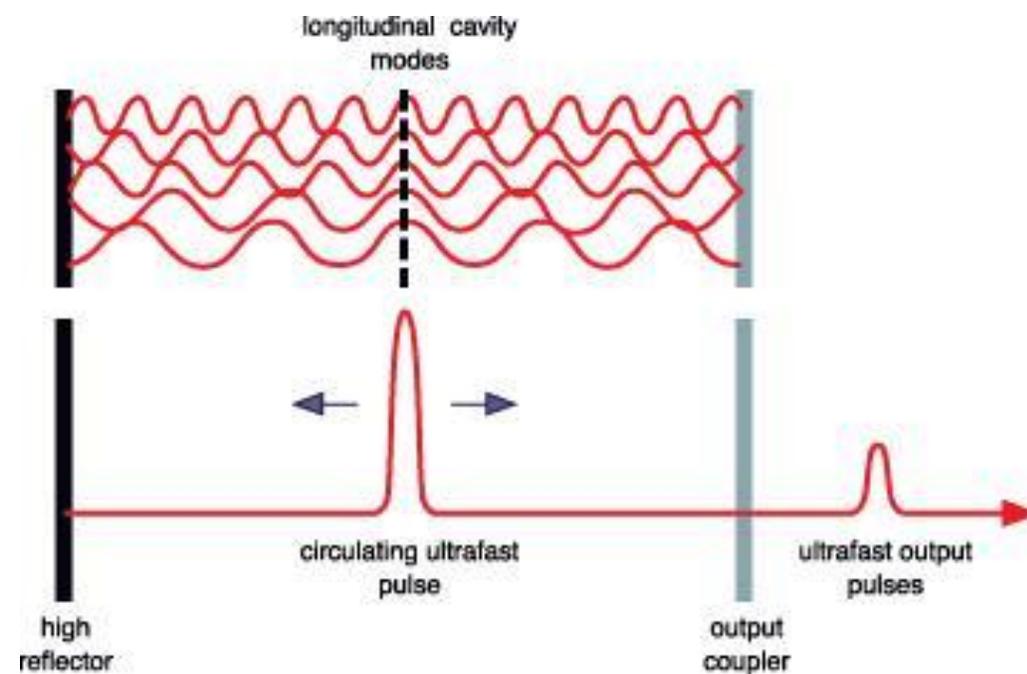
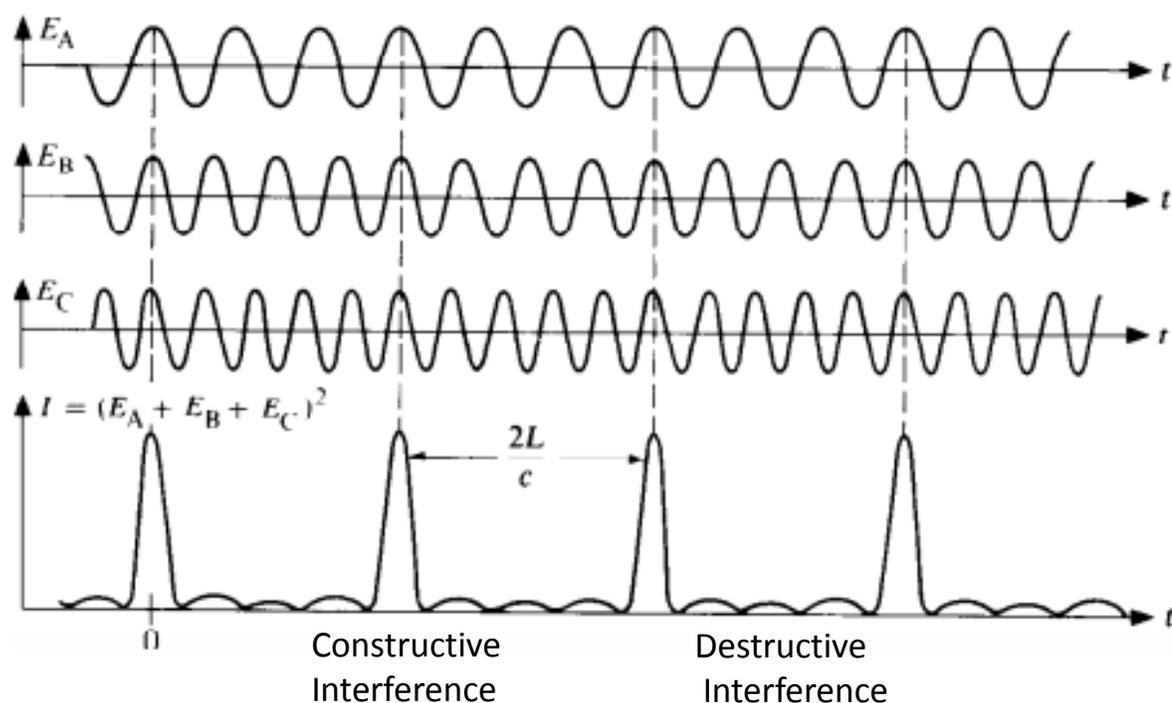


# Mode Locking

- As we know that the modes which satisfy the standing wave condition can sustain in the laser cavity. This modes not necessarily have same phase relationship. Due to interference there random fluctuations in the total intensity of laser beam.



- By Mode Locking technique we can lock the modes such that in certain region we have constructive interference while in other region there is destructive interference so we actually can create ultrashort pulses.



**Output of Mode locked System**

# Parameter of Mode Locked Pulses

- Time gap(T) between the pulses:  $T = \frac{1}{\Delta\nu}$
- Pulse Width:  $\tau_p = \frac{1}{N\Delta\nu}$

$\Delta\nu = \frac{c}{2L}$  represents separation between two modes.

N = No. of modes taking part in interference.

