Date. 09.09.025

Pump probe / Transient absorption Spectroscopy (TAS)

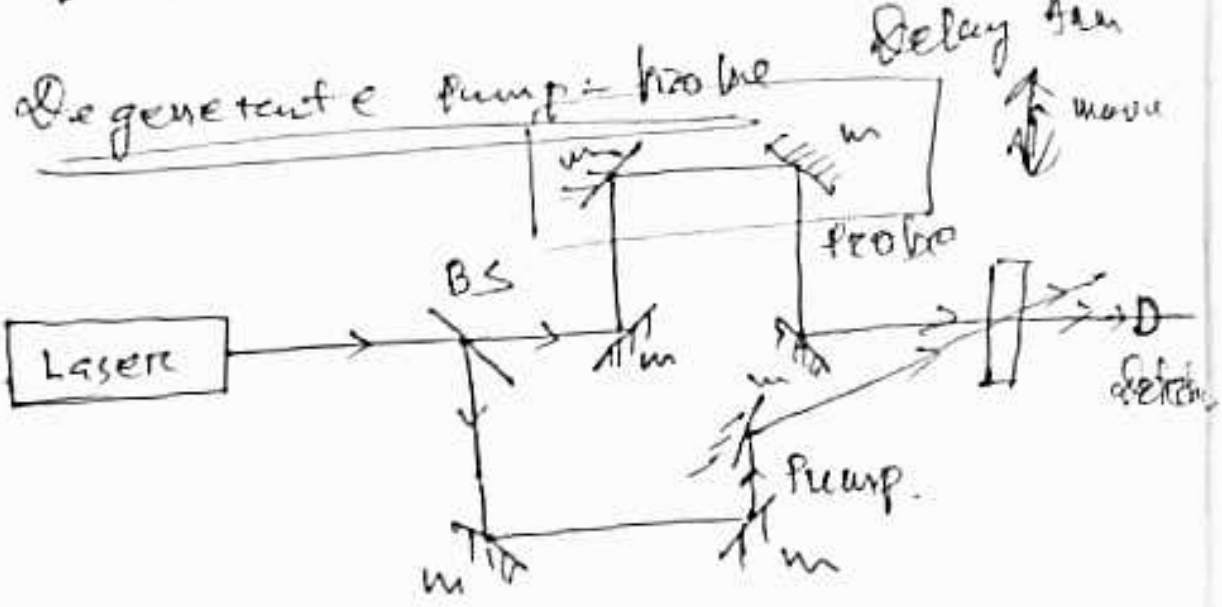
$d = 10^{-10}\ m$

$v = 1000\ m/s$

$\Delta t = \frac{d}{v} = \frac{10^{-10}\ m}{1000\ m/s} = 10^{-13}\ s$

$$\boxed{\Delta t = 100\text{-}fs}$$

Degenerate pump-probe



Differential Transmission.

$$\frac{\Delta T}{T} = \frac{T_{Pump\ ON}(\lambda_{probe}, \tau) - T_{Pump\ OFF}(\lambda_{probe}, \tau)}{T_{Pump\ OFF}(\lambda_{probe}, \tau)}$$

$$\frac{\Delta T}{T_{off}} = -\Delta A = -\sum_{i,j=1}^{n} \sigma_{ij} L \left[\Delta N_i(T) - \Delta N_{ij} \right]$$