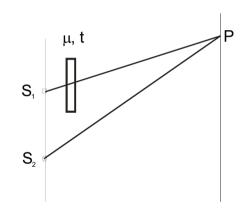
$$A_{\text{max}} = A_1 + A_2 = A + 2A = 3A$$
 and $A_{\text{min}} = A_1 - A_2 = 2A - A = A$
$$\frac{I_{\text{max}}}{I_{\text{min}}} = \frac{A^2_{\text{max}}}{A^2_{\text{min}}} = 9$$

Displacement of Fringes

When a film of thickness 't' and refractive index ' μ ' is introduced in the path of one of the wavelet, the optical path length of this wavelet become more than its geometrical path length by ($\mu t - t$). So, the value of optical path difference changes at every point on the screen and it causes a shift in the position of every fringe.



Optical path difference at P

$$\Delta x_{optical} = S_2 P - [S_1 P + \mu t - t] = S_2 P - S_1 P - (\mu - 1) t = \frac{yd}{D} - (\mu - 1) t$$