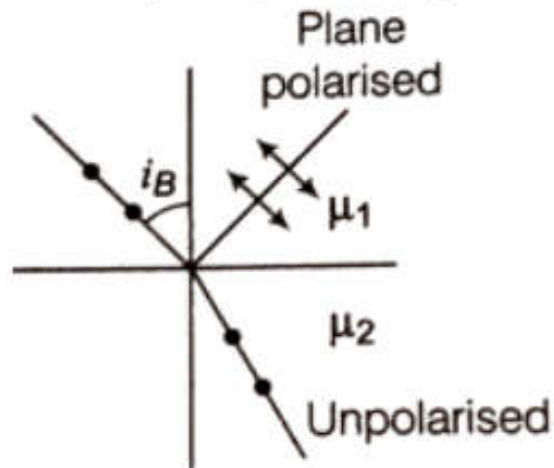


05. Can reflection result in plane polarized light if the light is incident on the interface from the side with higher refractive index?

Sol. When the angle of incidence is equal to Brewster's angle, the transmitted light is unpolarised, and reflected light is plane polarised. Consider the diagram in which unpolarised light is represented by dot and plane polarised light is represented by arrows.



Polarization by reflection occurs when the angle of incidence is the Brewster's angle, thus

$$\tan i_B = \mu_2 \text{ where } \mu_2 < \mu_1$$

when the light rays travel in such a medium, the critical angle is given by,

$$\sin i_C = \frac{\mu_1}{\mu_2}$$

where $\mu_2 < \mu_1$

As $|\tan i_B| > |\sin i_C|$ for large angles $i_B < i_C$

Thus, polarization by reflection shall definitely occur.