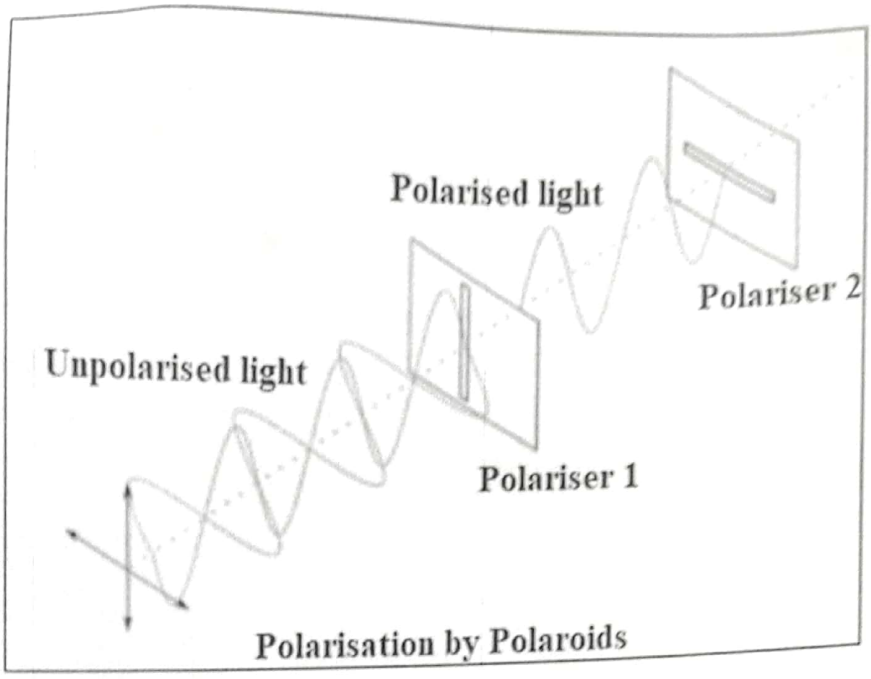


Polarization by Scattering

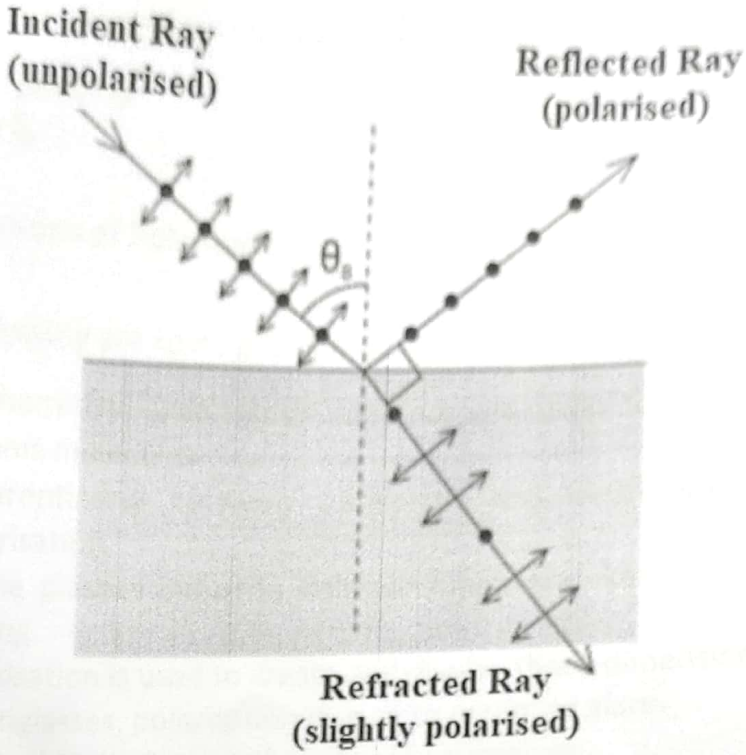
When light strikes a molecule or an atom, the light energy is absorbed and re-emitted in multiple directions. Polarisation causes this scattering. Furthermore, the emitted light travels in many directions.

When unpolarised light is incident on a particle, we obtain dispersed light. As a result, when unpolarised light travels through a molecule, the light is polarised in the direction perpendicular to the incident ray. As a result, light polarisation occurs in this direction.

And this is how light scattering causes polarisation. The dispersed light is emitted in a direction that is perpendicular to the incident beam. Furthermore, dispersed light has complete polarisation, but light travelling through molecules has partial polarisation.

Polarisation by Reflection and Refraction

The incident ray reflected ray, and refracted ray may all be seen in the diagram below. Unpolarised light is visible on the incident beam. The unpolarized light is depicted in the diagram above. The dot denotes perpendicular directions, whereas the lines denote parallel directions.



Polarisation by reflection and refraction

The majority of the light in the reflected ray is polarised parallel to the plane, with only a few exceptions. In contrast, most of the light in a refracted beam is unpolarized, with one or two polarised components. As a result, we can see that the reflected and refracted rays are both partly polarised.

Brewster's law

The law says that the reflected ray is fully polarised at a specific angle of incidence. The angle between the reflected and refracted rays is also 90°. Total angle = 90° if i = i_B, that is when the angle of incidence equals ***Brewster's angle****.*
According to Snell's law,

$\mu = \sin i / \sin r$
When light is incident at Brewster's angle, then

$i_B + r = 90°$
$r = 90° - i_B$