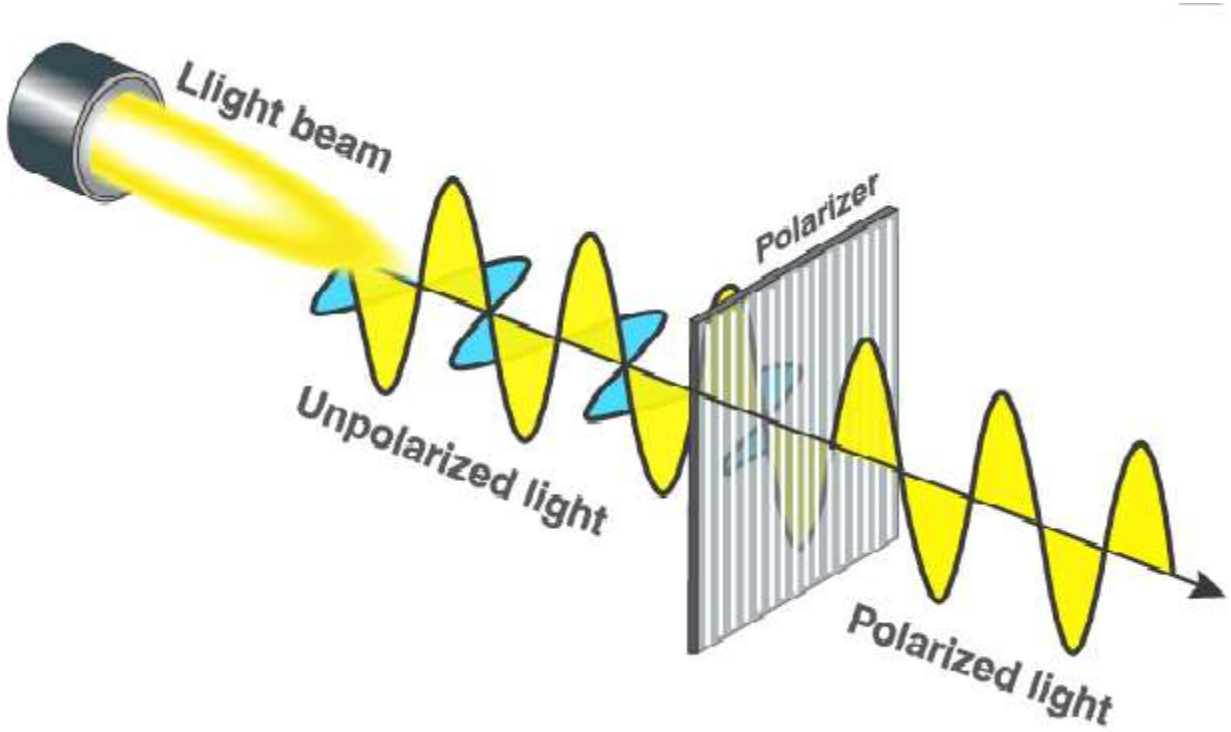
Polarisation of light



Light waves are electromagnetic waves in which electric and magnetic vectors are vibrating perpendicular to each other and also perpendicular to the direction of propagation of light.

unpolarised light:-All natural light are unpolarised light like sun, bulb, candle. The unpolarised light vibrating in more than one plane.

polarised light:- The light which vibrates in a single plane is known as polarised light.

Polarisation of light:- The process of transforming unpolarised light into polarised light is known as polarisation of light. polarisation occurs when light is passed through a special type of crystal like tourmaline, calcite, quartz etc. Also there are some phenomena also responsible for polarisation of light like reflection, diffraction, scattering, transition, etc.

Brewster's Law:- when light is incident on the surface at an angle at which the reflected light is completely polarised then this incident angle is known as Brewster's angle or angle of polarisation. It is represented by i_{p}.

According to Brewster's the refractive index (μ) of the medium is given by

$$\mu = \tan i_p$$

i.e. the tangent of the angle of polarisation is numerically equal to the refractive index (μ) of the medium is called brewster’s law.

Double refraction phenomena:- when an unpolarised light is incident on the doubly refracting crystal then two types of plane polarised light rays after refraction are obtained. such type of phenomenon of refraction is known as double refraction phenomena. In two types of reflected rays one refracted plane polarised light ray does not obey the law of refraction and also the velocity of light is different in different directions is known as extraordinary rays or E-rays while other light ray obey the law of refraction and its velocity is same in all directions is known as ordinary ray (O-rays).