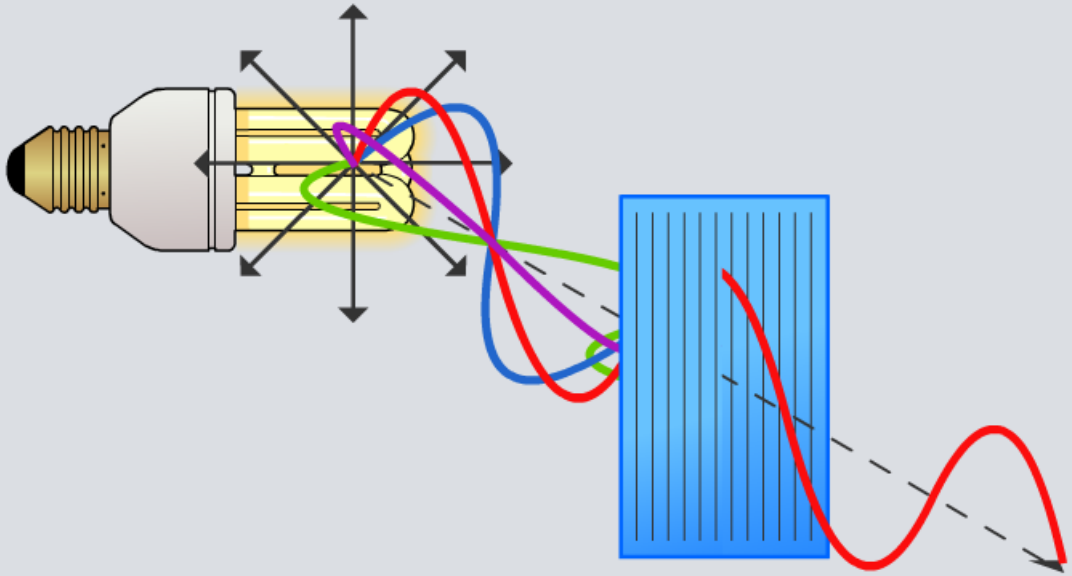
Polarization



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Polarization

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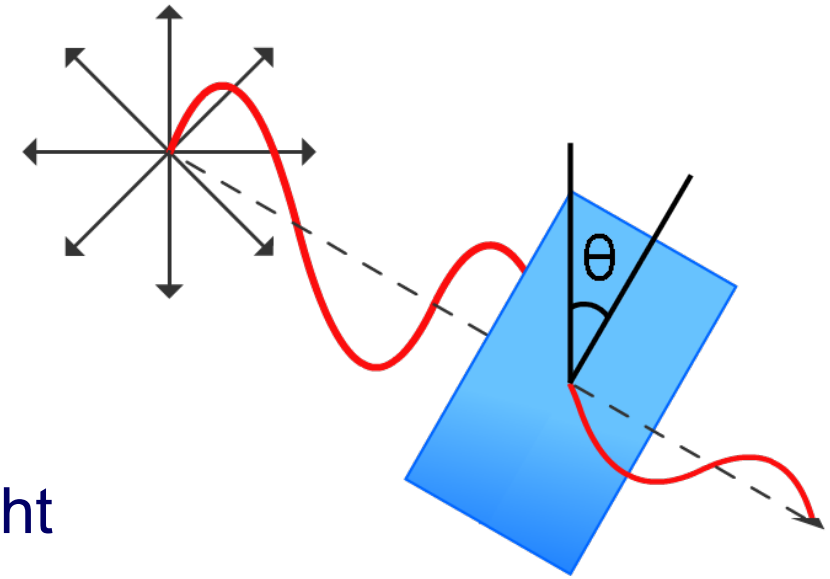
Malus's law

If a beam of plane-polarized light is shone through a polarizer, its subsequent intensity, I, is calculated as follows:

$$I = I_0 \cos^2\theta$$



where:

- I_0 = initial intensity of light
- θ = angle of polarizer relative to position of initial polarized light

This is **Malus's law**, named after Étienne-Louis Malus, a French physicist, mathematician and officer.

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Uses of polarization

Polarizing filters in objects such as sunglasses can reduce glare by reducing the partially plane-polarized light created when light is reflected by transparent materials like water.

Polarizing filters are used by photographers to alter the appearance of the sky. This is because particles in the atmosphere cause partial polarization by scattering sunlight.

Polarization can be used in stress and strain analysis of certain plastics, such as plexiglas. Polarized light micrography is a useful technique in the analysis of crystal structures.

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