

Polarised Light

What do you see when you look through the glass?



Rotate the disc using the red handle until the light seems to be dim.

Now hold one of the plastic objects underneath the disc. How do they change when you turn the disc?

Twist or bend the object and see what colours appear.

The light from the panel below is polarised, i.e. the light that propagates as a wave only oscillates in one direction. The disc is made of polarising material. In one position it won't let any light from the panel below through. Some of the plastic objects rotate the plane of polarisation, so light can pass through the disc once again. The amount of rotation depends upon how stressed the plastic is and upon the colour of the light. Because white light consists of all colours, you observe coloured patterns.

A mechanical model can be used to explain polarisation: If you take a rope and move its end up and down, the whole rope will swing up and down. If you move your hand from right to left, the rope will swing from right to left. Just like the rope makes waves, light also propagates as a wave. Sometimes up and down, sometimes from right to left – light does not initially have a preferred direction of oscillation, it is non-polarised. The light from the panel below, on the other hand, is polarised, it oscillates only in one direction (e.g. exclusively up and down).