

2.5.03-00 Fresnel's equations – theory of reflection



What you can learn about ...

- Electromagnetic theory of light
- Reflection coefficient
- Reflection factor
- Brewster's law
- Law of refraction
- Polarization
- Polarization level

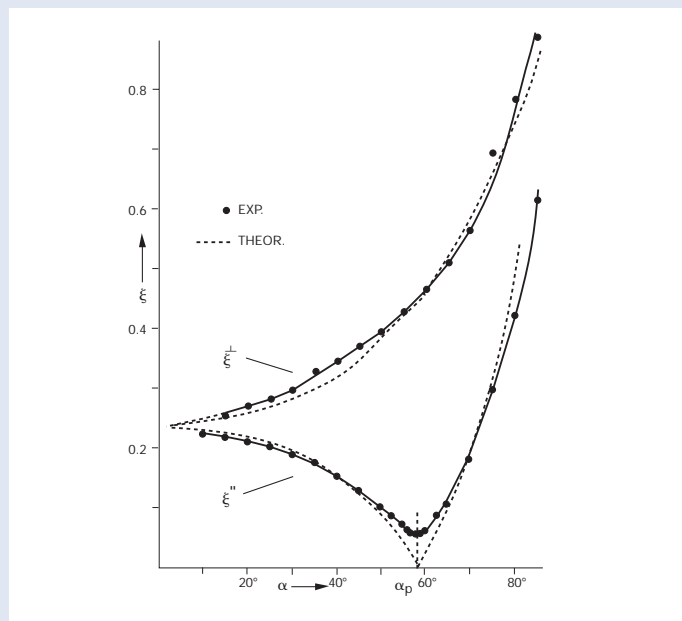
Principle:

Plane-polarized light is reflected at a glass surface. Both the rotation of the plane of polarization and the intensity of the reflected light are to be determined and compared with Fresnel's formulae for reflection.

What you need:

Laser, He-Ne 1.0 mW, 230 VAC	08181.93	1
Polarisation filter on stem	08610.00	2
Prism, 60 degrees, $h = 36$ mm, flint	08237.00	1
Prism table with holder	08254.00	1
Photoelement for optical base plate	08734.00	1
Protractor scale with pointer	08218.00	1
Articulated radial holder	02053.01	1
Stand tube	02060.00	1
Tripod base -PASS-	02002.55	1
H-base -PASS-	02009.55	2
Right angle clamp -PASS-	02040.55	4
Support rod -PASS-, square, $l = 250$ mm	02025.55	1
Support rod -PASS-, square, $l = 630$ mm	02027.55	2
Multi-range meter with amplifier	07034.00	1

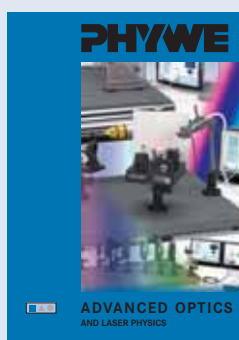
Complete Equipment Set, Manual on CD-ROM included
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Measured and calculated curves for ξ_{\perp} and ξ_{\parallel} as a function of the angle of incidence.

Tasks:

1. The reflection coefficients for light polarized perpendicular and parallel to the plane of incidence are to be determined as a function of the angle of incidence and plotted graphically.
2. The refractive index of the flint glass prism is to be found.
3. The reflection coefficients are to be calculated using Fresnel's formulae and compared with the measured curves.
4. The reflection factor for the flint glass prism is to be calculated.
5. The rotation of the polarization plane for plane polarized light when reflected is to be determined as a function of the angle of incidence and presented graphically. It is then to be compared with values calculated using Fresnel's formulae.



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