Report on Laboratory Experiment No 2
Determination of Dependence of Refractive Index of Prism from Wavelength of Light

The student:

Group _____
First name_____
Last name_____
is **allowed** to do the laboratory work.

_____ _____
Date Signature of the teacher

Purpose of work

Determine the dependence of the refractive index of the glass prism from the wavelength of light. Draw the curve of dispersion

Theoretical principals of work.

1. The absolute refraction index of a glass is _____
_____
_____
2. Dispersion of the light is called _____
_____
_____
3. Theory of the dispersion is based on electromagnetic theory of light and electronic theory of a substance:
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

CALCULATION FORMULA

Refractive index ***n*** for given wavelength can be found from the next formula:
_____
_____
_____

Angles A and δ_{min} are shown at the Figure 1.

Fig.1.

Measurements of the angles A and δ_{min} carried out by mean of goniometer with accuracy _____

Determination of the refraction angle of the prism

Figure 2 shows the disposition of the prism on the goniometer table when determine the refraction angle ***A*** of the prism.

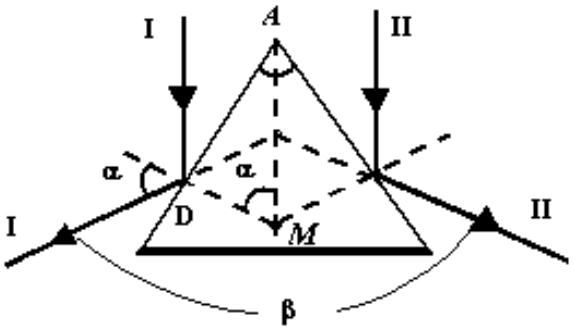

Fig. 2

Determination of the Least Deflection Angle

Figure 3 shows the disposition of the prism on the goniometer table when determine the least deflection angle δ_{min}

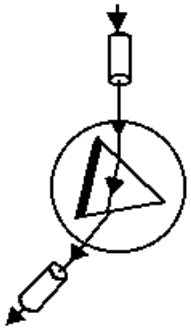

Fig.3

Measurement results

Record the data of measurement of angles A and δ_{min} and refractive index calculated for all observed wavelengths in the Tables 1 and 2.

TABLE 1

No.	Readings of the limb and nonius		Angle β	Average β	$A = \beta/2$
	Right side	Left side			
1					
2					
3					

TABLE 2

No.	Color of line	Brightness of line	λ, nm	Readings of limb and nonius		$\varphi' - \varphi''$	δ_{min}	n
				Right side	Left side			
1	Red	Bright	670					
2	Orange	Faint	612					
3	Yellow	Bright	579					
4	Yellowy-green	Bright	538					
5	Bluish-green	Faint	489					
6	Blue	Bright	436					
7	Violet	Bright	405					

Diagram of refractive index of prism as function of wave length of light (curve of dispersion)

Resume

_____

_____

_____

_____

Test questions.

1. What is a dispersion of light? What properties of light the phenomenon of dispersion testifies?
2. What is a curve of dispersion?
3. What is the design of goniometer?
4. What sours of light is used in this work?

Answers.

Realized by the student:
Group _____
First name_____
Last name_____
Approved by the teacher:

_____ _____
Date Signature of the teacher