

Date: 2020	1 512	31
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Experiment No.: .....1 Set: .....

PHY 1701 (Engineering Physics) Reg. No: - 208050405

MONOCHROMATORS IN SOPHISTICATED INSTRUMENT  APPRICATUS AVAILABLE:-  (1) Laser Source  (11) Grading  (111) Scale with measurements.  SLO:  To determine the wavelength of light produced by given laser source using transmission differention grating.  Suppose D= the distance from the grating to the screen.  d= the spacing between every two lines (same thing as every two sources).  If there are 'N' lines per mm of the grating, then (d), the space between every two adjacent sources) is  d= 1.  N  The diffraction grating formula for the principal maxima to the dising in N  where, n is the order of diffraction(=1,2,3,) and 8 is the angle of diffraction.  \[ \hat{\text{3}} = \frac{\text{sing}}{\text{N}} \text{ the principal} \text{ maxima to the angle of diffraction.}  \[ \hat{\text{3}} = \frac{\text{sing}}{\text{N}} \text{ the principal} \text{ maxima to the angle of diffraction.}  \[ \hat{\text{3}} = \frac{\text{sing}}{\text{N}} \text{ the principal} \text{ maxima to the angle of diffraction.}  \[ \hat{\text{3}} = \frac{\text{sing}}{\text{N}} \text{ the principal} \text{ the principal} \text{ maxima to the angle of diffraction.}  \[ \hat{\text{3}} = \frac{\text{sing}}{\text{N}} \text{ the principal}  the princi	OBJECTIVE OF THE EXPERIMENT:	Pa	Page: 1			
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dsing = n \( \text{N} \)  where, \( \eta \) is the order of diffraction (=1,2,3) and \( \text{0} \) is the angle of diffraction.  \[ \text{N} = \frac{\single \text{of diffraction}}{\text{N} \text{N}} \]  \[ \text{N} = \frac{\single \text{of diffraction}}{\text{N} \text{N}} \]  \[ \text{N} = \frac{\single \text{of diffraction}}{\text{N} \text{N}} \]	- : : : : : : : : : : : : : : : : : : :	1 156 140	An all	Age Joseph	41724	
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angle of diffraction.  \[ \lambda = \fraction \text{\text{(meter)}} \]  \[ \lambda \text{Nn} \\ \text{Nn} \]	dsing= n )					
angle of diffraction.  \[ \lambda = \fraction \text{\text{(meter)}} \]  \[ \lambda \text{Nn} \\ \text{Nn} \]	where, n is the	ne order a	f diffra	tion (=1.	2,3) and 8	9 is the
28SERVATION:						
28SERVATION:	λ= sing (m	netera)				
	Observation:					

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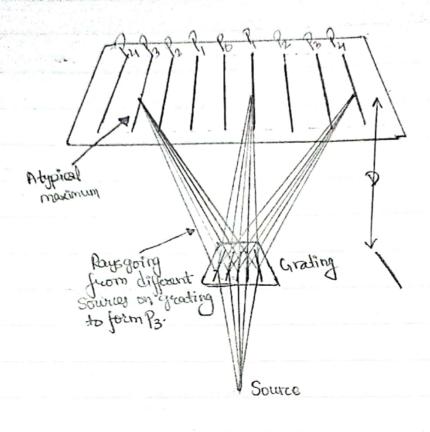
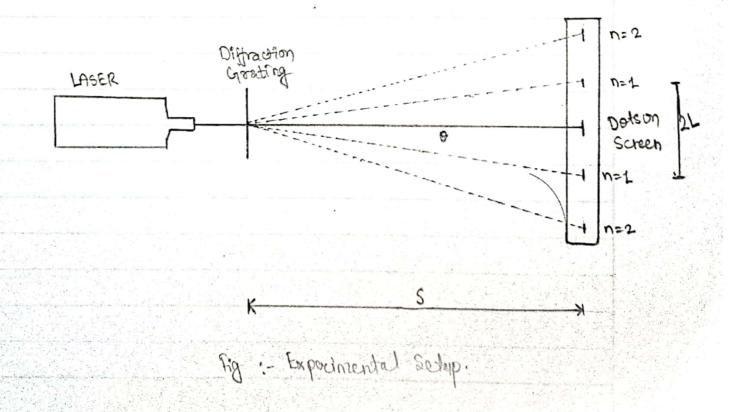


Fig: Diffraction through a greating



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1	h	78-77	21	Lan	tano=45	0=tani(45)	simo	Mean	λ
		(cm)	(cm)	:(cm)					(mm)
	•	25	3.3	1.65	0.066	3.7760°	0.0659	nag arr	
	1	30	4.0	5.00	0:067	3-8141	0.0665	0.066	660
-		કેઇ	4.6	2.30	0.066	3.7597	0.0656	(1)	
		25	5.5	2-75	0.17	6.27.73	0-1093		
	2	30	7.8	3-9	0-13	7.4069.	0.1289	0.1228	614
		35	9.2	4-6	0.1314	7-4874	0.1303	10.13	
-	:	25	9.9	4.95	0.136	11.1997	0.1942	12 -17	
	3	30	12	6 .	0,2	11.3099	0-1961	0.1959	653
		35	14.1	7.05	0.2014	11.38%	0.1975		

Sample Calculation: -

:. 
$$\lambda = \frac{4 \sin \theta}{5 \cdot N} = \frac{0.1959}{10^5 \times 3} = 6.5311 \times 10^{-7} \text{ m}$$

$$\approx 6531 \text{ A}$$

$$= 653 \text{ nm}$$

Similarly, the calculations were carried out for 1st and 2nd order maxima and respective to results are noted in the table.

= 642 nm

	Date: 2020/12/31	PILY	(10701 (Engino	leving Phoseics)	Rog No: 2 Page: 4	al and Record 08050405
	RESULT:					
	The convelength	of the	laser source	is found to	be 642	ham.
-						