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-	Experiment 2 -> Particle size determination using las
A	tin the second of the second o
	To determine the size of micro particles sing laws.
u	sing laser.
-	
A	Fire nicro particles having nearly are size (say lycopodium powder), a glass plate say nicroscopic slide), diode loser, and a screen
	Fire niero particles having nearly
8	are size (say lycopodium powder), a glass plate
1	say microscopic slide), diode loser, and a screen
P	rinciple
	When laser is passed through a glass plats on which him basticles of reasty unitaries will
	are spread due to diffraction circular sings are
C	observed From the measurement of rader of the
0	showed sings, we can calculate the size of
P	articles. Since for diffraction to occur size of
t	he obstacle must be comparable with wavelingt
1	only for extremely fine particles of nucron or
/	still leser dinsersion, diffraction pattern can
-	be obtained.
	Diffraction is very often referred to as the
	bending of the neares around an obstacle. Whe
0	circular obstacle is illuminated by a cohere
J	collinated bear such as laser light, due ?
1	diffraction, rireular sings, are obtained. as I

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Skreen with Diffraction Pattern Glass plate with fine particle spread * Particle size idetermination using

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and "D" is the sadius of the first dark sing
and screen on which the diffraction pattern is obtained, then
tan 0 = r/D
since & is very small in this experiment
$tan \theta = \theta = r/D$
According to the theory, the diameter 1a' of the circular obstacle is given by
$2a = 1.22 n \lambda D$
rn
where,
r _n = sadius of the nth order dark ring (m) D = distance between the obstacle and the dereen (m)
1 = Wavelingth of laser light (A)
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* Determination of Particle Size

 $2a = \frac{1.22 \, \text{n} \, \lambda D}{r_n}$ $\lambda = 6238 \times 10^{-10}$

Sr No	Distance	Diffraction	Radius of	Particle size
	(D)	order (n)	darkering	(20)
unit	cm		cm	Mm
				= 1.22 × 6238x
		1		1×15 × 10-10
	and Sinal			1.3
1.	15 6	had mis	مميل ليمه	= 8.907 mm
فعقيت	يد منظ ألف	ا منفطه الم	Sale Signis	Crains Pos
		2	2.6	8.781 pm
				Mindele
Link 4	rough a glais	at home is	Aug Laure	G.
	angion !		إنمد فلسد	8.953 µm
	20		2.5	8.697 µm
- 4	nader of			8,691 µm
10	10 AF 301		in the sale	المعاددات الم
3.7	on Him	wandara	2.2	8.648 µm
	25		philipping the	with miles
	A CONTRACT A		4.4	8.648 µm
		344	- b	l le phrain
1	cas all has	and and	Mean =	8.772 µm
and a	in platacia.	Lauren 6	Sugar int	o galbard

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a - Library son son some valuable material

and the state of t

* Result The average size of the particles measured using laser = 8.772 µm hat give some some some some some some Change man go agreement as

	Date
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	Procedure
1.	Fine powder of particles is sprayed spread on the glass plate.
	on the glass plate.
2.	Laser is held horizontally and the glass
	hasir is held horizontally and the glass plate is inserted in its path.
	act may and all all the derein
	Position of the glass plate is adjusted to get maximum contrast rings on the screen which is at a distance more than 0.5m.
4.	A nepite paper is placed on the screen and the positions of the dark rings are marked. The radii of different order dark rings (m) are measured using a scale.
	the positions of the dark rings are marked.
	The radii of different order slark rings (m)
	rare measured using a scale.
5.	The distance between the screen and the glass plate (D) is also measured - using the
	glass plate (D) is also measured - using the
	given formula,
	$2\alpha = 1.22 \text{ nAD/rn},$
	the average diameter of the particles is
	ical culated -
(J 1 2 4 2 201 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2
6.	The experiment is repeated for different D
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