

2008 JUNE

Date:- 24/10/2024

P-1

Sem-I (MJC physics)

Unit-IV

17

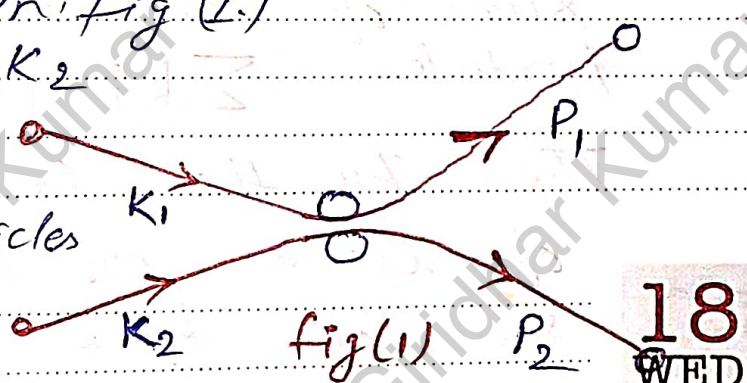
TUE

Topic:- Elastic collision or scattering.

Laboratory and centre of mass system

In general, when the velocities of the two particles are very small, both the particles move in such a direction that they come closer and collision takes place. in fig (1)

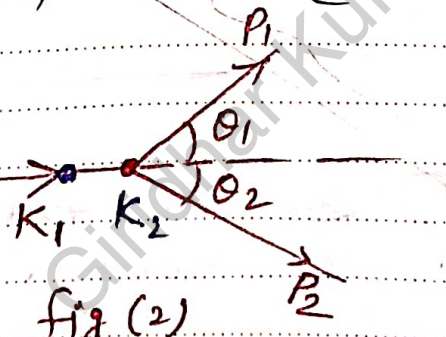
Here K_1 and K_2 are initial momentum of the two particles and P_1 and P_2 are final momentum of the two particles.



18 WED

If one of the particles is at rest in the laboratory and other particle approaches it and collision takes place, then the setup is called laboratory frame (Lab frame) in fig (2).

Here K_2 is at rest and K_1 strikes the particle K_2 then it has two momenta P_1 and P_2 with angle θ_1 and θ_2 in opposite directions.



Notes

July 2008	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		

P2-2

Sem-1

Date - 24/10/2024

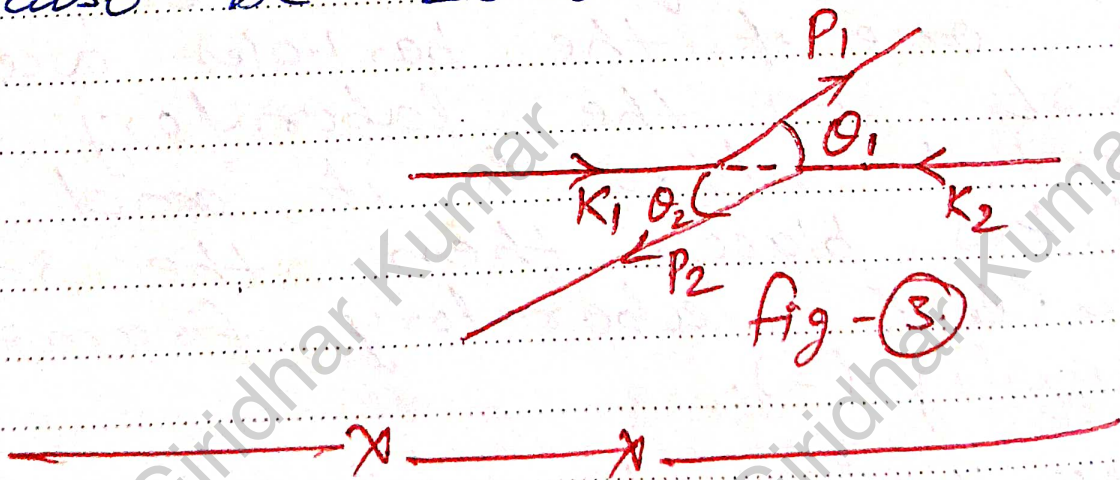
JUNE

2008

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THU

In centre of mass system, the collision of the particles is treated as if they are moving with equal and opposite momentum initially. In this case, we can say that centre of momentum of the particles is fixed. If momentum of colliding particles are more than two then in centre of mass system vector sum of initial momentum of the particles $\sum K_i$ is zero.

Then by the laws of conservation of linear momentum the vector sum of final momentum must also be zero.



Define the Elastic collision or scattering.