

Re: Equilibrium and Elastic Collisions

Source: <http://sci.tech-archive.net/Archive/sci.physics/2005-05/msg00183.html>

- *From:* mmeron@xxxxxxxxxxxxxxxxxxxx
 - *Date:* Mon, 02 May 2005 03:07:29 GMT
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In article <Xns9649724B174BBsgray2cflrrcom@xxxxxxxxxxxx>, sgray2@xxxxxxxxxxxxxxxx (Steven Gray) writes:

>pi2ovr6@xxxxxxxxxxxx wrote in <news:1114907198.126541.82190>

>@z14g2000cwz.googlegroups.com:

>

>> Hi,

>>

>> In working out the perfectly elastic collision of two spherical
>> particles of equal mass, I noticed that the solution was very simple:
>> they just exchanged velocities! (It is easy to see this if you
>> transform the problem to the rest frame of one of the particles).

>

>If they hit in an absolute head-on collision, yes. It's not so if they
>make glancing contact. Consider firing a cue ball at a target ball so that
>it barely brushes the target ball. The cue ball is deflected slightly and
>the target ball moves off slowly at right angles to the final path of the
>cue ball (neglecting spin, friction, and all that). Any amount of the cue
>ball's energy, from none to all, can be imparted to the target ball by
>varying the angle of impact.

>

In the CM frame of both bodies, their velocities are always equal and
opposite, by definition, and if the collisions are elastic, the
magnitude of said velocities never changes. Only the directions do.

Mati Meron | "When you argue with a fool,
meron@xxxxxxxxxxxxxxxx | chances are he is doing just the same"

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• *References:*

◆ *Equilibrium and Elastic Collisions*

◇ *From:* pi2ovr6

◆ *Re: Equilibrium and Elastic Collisions*

◇ *From:* Steven Gray

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Re: Equilibrium and Elastic Collisions

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