

Re: The inertial forces and the law of conservation of the energy.

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Stamenin wrote:

THE INERTIAL FORCES AND THE LAW OF THE CONSRVATION OF THE ENERGY

Speaking about the relations that exist between the first law of the mechanics, the principle of the relativity, the Galilei's transformation, and the behavior of the inertial forces and the gravitational forces to act upon every atom of the matter, I had omitted there to put in a first position the importance that has the law of the conservation of the energy in these relations. Now I'd like to remedy this omission.

The first law of the mechanics I could say is a consequence of the law of the conservation of the energy and especially in this case of the kinetic energy of the material bodies. So we can conclude that the material bodies tend to keep their kinetic energy if there are not acting upon them external forces.

Learn so basic mechanics before you spew crap all over the place. Tie a stone to a rope and whirl it above your empty head uniformly. The KE of the stone is constant. YET, there is a force acting on the stone, a centripetal force. This force is what is called a "central force" similar to the one acted upon earth by the Sun in Newtonian Mechanics.

To change this level of kinetic energy is needed to act upon them an external force. Then the material body, respecting the law of the conservation of the kinetic energy opposes to that action with the inertial force that is produced by the material body. This phenomenon could be compared with the phenomenon of the production of electrical current in a generator in a power station producer of electrical energy. To the mechanical torque produced by the turbine, the generator opposes a torque that is produced by the induced electrical current in the generator. In this case we have a transformation of the mechanical energy in electrical energy. In the

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case of the inertial forces we have a change of the level of the kinetic energy of the material body and this results as a change of the speed of the material body accordingly to the known relation:

$$E_k = mv^2/2$$

KE is not always conserved. This is a notorious mistake dated back in the 17th century until Bernulli showed that it is Mechanical Energy that is conserved.

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In such a way we can conclude that a material body posed far away in a portion of the space where doesn't exist gravitational forces will keep its state of staying or moving in a right line and with constant speed. Of course the material body acts in this way taking in consideration his previous state of motion, but minded people like Newton imagined the absolute system of coordinates that describes perfectly the behavior of the material body. Evidently we with this interpretation of the first law of the mechanics doesn't change anything in respect to the efforts done by scientists in the past, trying to explain why the laws of the mechanics are valid and for a coordinate system rigidly attached to the center of the earth.

Your misconceptions are very clear. The laws of mechanics are valid in inertial reference frames. If you use a FoR attached to the center of the earth you have to correct for Centrifugal and Coriolis motion. Using the fixed stars does a little better.

[snip remaining gross misconception]

Mike

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