

## Explaining Mass as a Variable for the Layman

*"Whoever undertakes to set himself up as a judge of Truth and Knowledge is shipwrecked by the laughter of the gods." - Albert Einstein ( 1879 - 1955 )*

Remember this: if you stay with a body ( or particle ) of mass, called proper or rest mass, the amount of mass is constant! Common sense.

It is only when you are stationary and stand back, so to speak, and then measure the amount of mass a *moving* body ( or particle ) has, that you will both observe and hence measure different amounts of mass directly related to the velocity of the passing body of mass!!

Different observers moving at relatively different velocities to the passing body ( or particle ) of mass, will therefore observe and measure different amounts of mass.

Different velocities == differently observed and measured masses

The constancy of rest ( or proper ) mass is otherwise proven due to the "[Invariance of the energy - momentum vector](#)" which is another way of saying that the total energy of a system is always constant.

And, therefore, rest or proper mass is always a constant!

But, mass ( of body or particle ) in motion is always a variable!!

Directly dependent upon relative motion to an observer or observers, plural.

Question: what therefore exactly is "mass"?

Dunno.

In fact, the entire physics world is awaiting the LHC - Large Hadron Collider - to eventually answer this question: what is "mass"?? From where does it come??

Also, what makes 'gravity'?

Ditto ... dunno.

Again: the LHC and associated mathematical physicists will hopefully answer these profound physics and philosophical questions during the next decade.

Good luck to all!

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