

$E=MC^2$

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## ABSTRACT

The formula  $E=mc^2$ , which states that the energy content of a massive object is equal to that object's mass times the speed of light squared, is incorrect. Why?, because that formula implies that a mass requires an infinite amount of energy to reach the speed of light. The term "infinite" is often used by physicists but they don't seem to realize that it's unrealistic/unnatural, it tells us that  $E=mc^2$  is a mistake and I can explain why.

## INTRODUCTION

There are several ways to derive the formula  $E=mc^2$ , I will use two examples to explain what went wrong.

There is an explanation (a mind experiment) on Youtube, the title of that video is "Einstein's proof of  $E=mc^2$ ". In that video we can see a radioactive cat which floats freely in space and it emits a flash of light in all directions, the velocity of the cat doesn't change and that it loses energy. But that explanation implies that there is a difference in energy loss as the result of time dilation when we look at the cat from a stationary reference frame and a moving reference frame, but that relativistic doppler effect is a fallacy.

Length contraction is also a fallacy and I explained why in my Vixra paper 1612.0206, that paper also explains why time is not relative and why Einstein's theory of special relativity is wrong. Time dilation is not a difference in the speed of time, you can trace back that it's a difference in the length of the seconds. You can trace back (in 3 ways) that time is a continuous process whereby atoms continuously absorb and use ether, there is a difference in the length of the seconds because time adjusts itself to the speed of the surrounding ether. Time is a continuous process which can extend or contract when it's necessary, that extension or contraction is determined by the speed of the surrounding ether. Time itself has no speed but the seconds create the illusion of speed, time looks relative when you look at the amount of seconds in a certain time period but the seconds are not the same in length for an observer and a traveller.

You can trace back that the process that forms a second in an atomic clock is affected by the speed of the surrounding ether, an atomic clock requires more time to form a second when there is an increase in the speed of ether and that results (unnoticed) in a longer second (and vice versa). And that is why time is not relative, physicists think that time slows down because they see that there are less seconds in a certain time period but they don't see/know how long those seconds are.

So when ether rushes by more quickly then it gets more difficult for the atoms to absorb it, and at that moment time adjusts itself to that speed by extending itself. And that is why length contraction is a fallacy, the length of an object can remain the same because time adjusts itself in length. So you might think that time runs slower for a traveller when an observer looks at that traveller but it doesn't, the seconds of the traveller become longer in length (unnoticed) and the total time period remains the same for the observer and the traveller. And that is what happens at a gps satellite, time runs faster on a gps satellite because the seconds are shorter then the seconds on Earth. The correction for your navigation software is not a correction in the speed of time, it's a correction in the length of the seconds. So you cannot compare a stationary reference frame to a moving reference frame, the seconds in those reference frames are not the same in length. So there is no relativistic doppler effect because time is not relative and that means that there is no difference in energy loss, so the formula  $E=mc^2$  is a mistake.

There is also another explanation, it explains how you can derive  $E=mc^2$  with a mind experiment whereby a photon is placed into a stationary box in space. The box has two mirrors on either side, the photon departs from the mirror on the left and it travels to the mirror on the right. The box was stationary, but the photon imparted its momentum to the box and it started to move in opposite direction of the photon. And when the photon reached the mirror on the right the box stopped moving when the photon bounced back, that conclusion would have been right if the speed of light was a velocity of propagation but the unique properties of light tell us that it's not.

You can see that light has the properties of a transfer speed of a medium in my Vixra paper 1706.0367, and that tells us that the speed of light is not the speed of light. So if the speed of light is the transfer speed of a medium then it must be the transfer speed of ether, so we can conclude that the box must be completely filled with ether. But when a medium transfers something then it will only have momentum when it hits something, it will never have momentum when it starts to move. So the photon inside that box was transferred from one ether particle to another with a transfer speed of 300.000 km/s until it reached the mirror on the right, but the photon's transfer speed cannot result in thrust at its starting position. And that means that the box would only move when the photon bounced back from the mirror on the right, the box would move to the right and it would move back to the left when the photon bounced back from the mirror on the left. So this mind experiment is also incorrect, so the formula of  $E=mc^2$  is a mistake.

## CONCLUSION

The formula  $E=mc^2$  is a mistake, there is no relativistic doppler effect or relativistic mass because time is not relative.