

## Is Einstein's Formula True?

Le Van Cuong

Email: [cuong\\_le\\_van@yahoo.com](mailto:cuong_le_van@yahoo.com)

I wonder whether my thoughts about Einstein's mistaken formula are correct. In fact, I hope my sudden thoughts on this topic are only a cultural assessment and not a scientific one... that present physical science and Einstein's formula are correct. But what will happen if my hope is not satisfied? If so, human intellect is losing its way. Billions of people, dozens of year later will regret it when they understand the truth. It is a pity. So I have again and again checked in order to deny my thoughts. It is unbelievable that the more I try to deny my thoughts the more correctly the theory appears to me. For example, relativity and the dependence of light velocity on space and time can be calculated in the textbook: "**Physics principles & problems**", published by **Merrill Publishing Company – Columbus, Ohio 43216**.

We can see the experimental apparatus to measure time using light at pages 551 and 552:

"Appendix, A: 4 *the meaning of time*.

Einstein noted that these postulates seemed to contradict each other. Taken together, they did not seem to make sense. The problem, wrote Einstein, was that the measurement of position and time had to be considered very carefully.

Time, said Einstein, is something measured by clock. Consider a special clock installed on a satellite. At one end of a stick of length  $L_s$  is flash lamp and detector. At the other end is a mirror. The light flashes and the mirror reflect the flash to the detector. The detector triggers the lamp, producing another flash. Each flash is like the tick of a clock. Now, this is not a practical clock, but it is one that illustrates the principle. An astronaut at rest with respect to the clock would find that the time between ticks,  $t_s$ , would be equal to the distance traveled,  $2L_s$ , divided by the speed of light,  $c$ . That is,  $t_s = 2L_s/c$ . In other words,  $ct_s = 2L_s$ .

If the satellite is moving with velocity  $v$  in a direction perpendicular to the stick, consider what an observer on the earth would see. The lamp would flash, but in the time it takes the flash to reach the mirror,  $t_m$ , the mirror would have moved a distance  $vt_m$ . As shown in Figure A-2, the path taken by light is the hypotenuse of a right triangle. The altitude is  $L_s$ , or  $ct_s/2$  and the base is  $vt_m$ . Because light moves at the same velocity  $c$  for all observers, the distance traveled by the light is  $ct_m$ . The Pythagorean theorem states

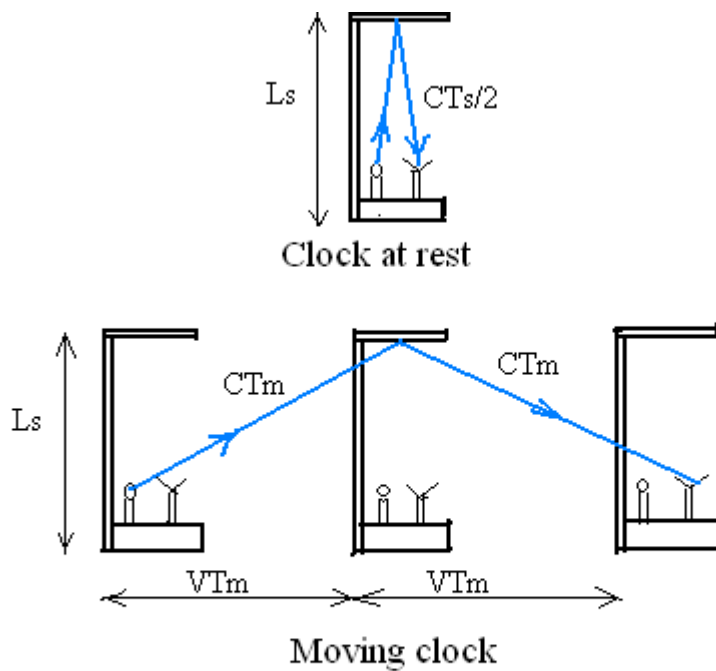
$$\left(\frac{ct_s}{2}\right)^2 + (vt_m)^2 = (ct_m)^2 \qquad t_m = \frac{ct_s}{2\sqrt{c^2 - v^2}}$$

The return trip to the detector takes the same amount of time. Let  $t_e$  be the time between “ticks” measured by the observer on the earth. Then  $t_e=2t_m$ , which is

$$t_e = \frac{t_s}{\sqrt{1 - \frac{v^2}{c^2}}}$$

The velocity is always smaller than  $c$ , so the denominator is always smaller than one. Thus  $t_e$  is always larger than  $t_s$ . That is, the moving clock on the satellite runs slowly as measured by an observer on the ground. This is called time dilation.”

**Figure A-2 . Experimental apparatus to measure time using light**



**Note:** We realize that  $t_s$  is the time passing in the frame at rest and  $t_e$  is time passing in the moving frame.

$$t_e = \frac{t_s}{\sqrt{1 - \frac{v^2}{c^2}}}, \text{ because: } \gamma = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}} . \text{ So } t_e = t_s \cdot \gamma$$

( $\gamma$  is the shrinkable coefficient of Lorentz)

Since *Figure A-2 is an experimental apparatus to measure time using light*, we find that

light velocity in the moving frame is  $c_r = \frac{l_e}{t_e}$

$$l_e = 2ct_m, \text{ because } t_m = \frac{ct_s}{2\sqrt{c^2 - v^2}} = \frac{t_s}{2\sqrt{1 - \frac{v^2}{c^2}}}, \quad \text{so } l_e = 2ct_m = \frac{ct_s}{\sqrt{1 - \frac{v^2}{c^2}}}$$

$$l_s = ct_s \text{ and } \gamma = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}} \rightarrow l_e = l_s \cdot \gamma$$

We call,  $l_s = km_o$  and  $t_s = s_o$  the units of light velocity:  $c_o$  of the frame at rest, and  $l_e = km_r$  and  $t_e = s_r$  are the units of light velocity:  $c_r$  in the moving frame. Then

$$\frac{l_e}{t_e} = \frac{l_s \cdot \gamma}{t_s \cdot \gamma} = \frac{km_r}{s_r} = \frac{km_o \cdot \gamma}{s_o \cdot \gamma} \quad \text{or} \quad c_r = c_o \cdot \gamma$$

Einstein's formula for the energy of the moving frame with changes in mass, space and time, can't be  $E_{re} = m_o \cdot \gamma \cdot c^2$ . It has to be  $E_r = m_o \cdot \gamma \cdot c_o^2 \cdot \gamma^2$  or  $E_r = m_o \cdot \gamma^3 \cdot c_o^2$ .

Einstein has shown the change of space and time in the frame when it moves rapidly, but he has been confused by his concept of invariable light velocity. If we don't accept Einstein's mistaken formula, we will discover and understand nothing in the universe in the future. I think that it is time we have to turn on the new pages for physical science and my paper: "Three physical factors: space, time and light velocity" will be helpful in this.

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