

The Relativity Speed Confusion

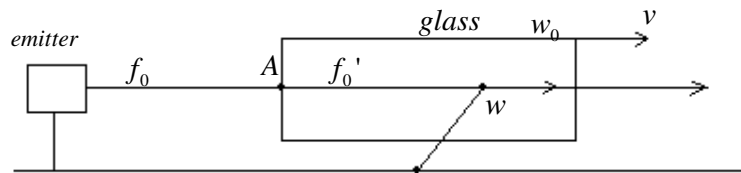
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The relativistic physicians use the speed addition formula in wrong cases:

$$w = c^2 \frac{w_0 + v}{c^2 + vw_0}$$

If $w_0 = c \Leftrightarrow w = c$ -- There's no addition

But this formula is true for only one case:



We have a piece of glass moving at speed v . The speed of the light with frequency f_0 is w_0 . But when the light enters the glass at the point A it changes the frequency to f_0' with speed w_0' . This light is totally carried by the glass so the total speed is $w_0' + v = w$

$$w_0' = c^2 \frac{w_0 + v}{c^2 + vw_0} - v \quad \text{and} \quad f = \frac{cf_0 \sqrt{c^2 - v^2}}{c^2 + vw_0}$$

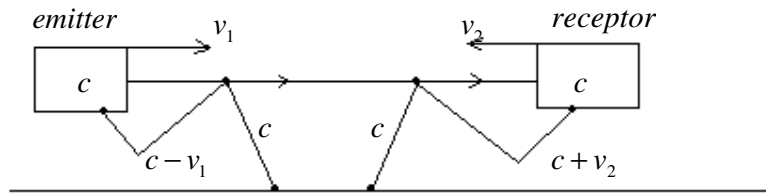
$$w_0' = w_0 \frac{f}{cf_0} \sqrt{c^2 - v^2} \quad \Leftrightarrow \quad c - v = \frac{f}{f_0} \sqrt{c^2 - v^2}$$

$$\Leftrightarrow \quad f = f_0 \sqrt{\frac{c - v}{c + v}}$$

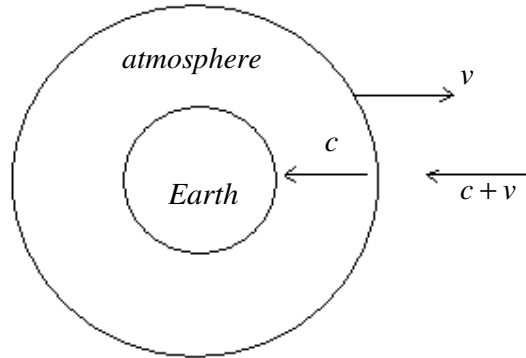
As we have said we found the formula of the variation of frequency when the light enters the glass.

There is another formula that the relativistic physicians deny:

$$w = c \pm v$$



Those are the relative speeds of light.



At Earth we can't measure the relative speed of the light because it changes to c when enters the atmosphere.