

# Photons have mass $m$ and speed $v$ varying according to light frequency $f$

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Date: 03/12/2021

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## Abstract :

debate, Feynman was strictly a particle man:

**We know that light is made of particles because we can take a very sensitive instrument that makes clicks when light shines on it, and if the light gets dimmer, the clicks remain just as loud — there are just fewer of them. Thus light is something like raindrops — each little lump of light is called a photon... You might wonder how it is possible to detect a single photon. One instrument that can do this is called a photomultiplier... You might say that it's just the photomultiplier that detects light as particles, but no, every instrument that has been designed to be sensitive enough to detect weak light has always ended up discovering the same thing: light is made of particles. — R. Feynman**

Why Cern have found many Higgs Bosons with mass  $m$  and width.

They simply intentionally or unintentionally changed Beam frequency.

Photons massless with speed  $C$  at a certain frequency  $f$  they didn't eject electrons from metal potassium plate when we change frequency  $f$  at a certain value they eject electrons. According to me changing the frequency  $f$  of the beam light change photons nature. Photons have mass  $m$  and speed  $v$  varying according frequency  $f$

[https://www.researchgate.net/publication/263911540\\_Evidence\\_for\\_a\\_photon\\_mass](https://www.researchgate.net/publication/263911540_Evidence_for_a_photon_mass)

"Furthermore, the author's work over the past years has, on the other hand, indicated that the photon has a mass  $\sim 10^{-65}g = 10^{-33}eV$ ."

[https://www.researchgate.net/publication/1889436\\_Photon\\_mass\\_and\\_quantum\\_effects\\_of\\_the\\_Aharonov-Bohm\\_type](https://www.researchgate.net/publication/1889436_Photon_mass_and_quantum_effects_of_the_Aharonov-Bohm_type)

## Mathematical Physics Proof

$E = mc^2 / \text{square root } (1 - v^2 / c^2)$  (I) And  $E = hf$  (II)

1. If  $m = 0$  and  $c$  as speed in (I) and (II)  $E = 0/0 = hf$  ( no indeterminate form in physics)

Planck constant and  $f$  known which non-sense

2. If photon has mass  $m$  and speed  $c$  as de Broglie said  $E = mc^2 / 0 = \infty = hf$   $h$  Planck constant and  $f$  known which is not sense too

It remains only photon has a mass and a speed.

3. Photon has a mass  $m$  and speed  $v$  that depends on light frequency

$$hf_1 = m c^2 / \text{square root } (1 - v^2 / c^2)$$

$$hf_2 = m c^2 / \text{square root } (1 - v^2 / c^2)$$

Linear system with 2 unknowns we can figure out  $m$  and  $v$

if we use a third frequency

$$hf_3 = m c^2 / \text{square root } (1 - v^2 / c^2)$$

It is impossible for the same values of  $m$  and  $v$  figured out with  $f_1$  and  $f_2$  to be the same as with  $f_3$

$$hf = m c^2 / \text{square root } (1 - v^2 / c^2) \quad (\text{III})$$

We can do  $(\text{III})^2 * (1 - v^2/c^2) * c^2$  then we have  $\Leftrightarrow c^6 m^2 + h^2 f^2 v^2 = h^2 f^2 c^2$

We Suppose  $X = m^2$  and  $Y = v^2$  and  $C = h^2 f^2 c^2$  and  $a = c^6$

and  $b = h^2 f^2$

We will have  $a X + b Y = C$

We will vary  $f$  for  $b$  and  $C$  from red to blue and we use Matlab

<https://www.mathworks.com/matlabcentral/answers/440463-matlab-polyfit-with-ax-by-c-format>

## Conclusion

Photon has mass  $m$  and speed  $v$  the two vary according to light frequency. Higgs boson like photon its mass vary according to beam frequency

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Minds, like parachutes, function best when open. ,,,

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