

Is light matter?

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ABSTRACT

So what do you think is the universe made up of?

Well we all know that matter, energy and time. Why not only matter?

May be because we came across these Electro-Magnetic Waves and Light which do not seem to be matter.

We have these three vital components to deal with here. "Time, matter and energy".

Keywords Matter, Energy, Light, Waves

Introduction



Figure 1: Light which do not seem to be matter

As per physics, relativity is everywhere and as per mathematicians symmetry is everywhere. As per Schrodinger's cat theory everything is probable not exact. So these leads to a virtual belief in the existence of parallel universe concepts or the existence of us somewhere far in time and space and along with us.

Parallel universe is where we are supposed to be existing with some probability, in a state which we are not exhibiting here as shown in Figure 1.

By saying relativity, I mean relations, you may consider it as the physics equations or human relations, everything is related or simply somewhere back in time were all a part of that super dense dot from where we all are supposed to evolve [1].

We hardly knew that electric and magnetic were related to each other until someone accidentally discovered it. So, maybe many other things are which we do not supposed to be are relative say the Gravitational field and Magnetic field.

We do not know mass of light, I mean photons. Why?

Maybe we do not try to think it as matter but what about the photo electric and Davidson-Germer experiment???? They say our most popular EM wave, the light as matter or photon or particle and knowing physics it is quite obvious to think it having some mass.

So what exactly is energy?

$E=mc^2$ or mass which is having acceleration or velocity.

So, if we say light is a form of energy we expect some mass say photon which moves at a speed of 3×10^8 m/s.

In contrast to electrical energy in which we have electrons which are driven with Electro Motive Force and we know electrons have mass and hence is matter. So, why shouldn't we expect the same from the photons.

In contrast to sound energy we have air molecules, again mass and in thermal also we have air molecules under vibrations.

So, what I want to convey is photons are quantum matter particles under extreme speed.

If you say that how come light is a matter when we see it pass through transparent objects, if it would be a matter it should have been reflected back [2].

Let me remind you light can travel through a transparent object same like an electron can go through a barrier even having potential less than it, or, the so called Tunnelling effect of electrons.

POSTULATE

"Everything in universe is made up of matter, the size it what it matters. The quantum sized and the Macro sized matter and time is what the universe is comprised of."

EXPERIMENTAL EVIDENCE

The Compton scattering

Arthur H. Compton observed the scattering of x-rays from electrons in a carbon target and found scattered x-rays with a longer wavelength than those incidents upon the target. The shift of the wavelength increased with scattering angle according to the Compton formula:

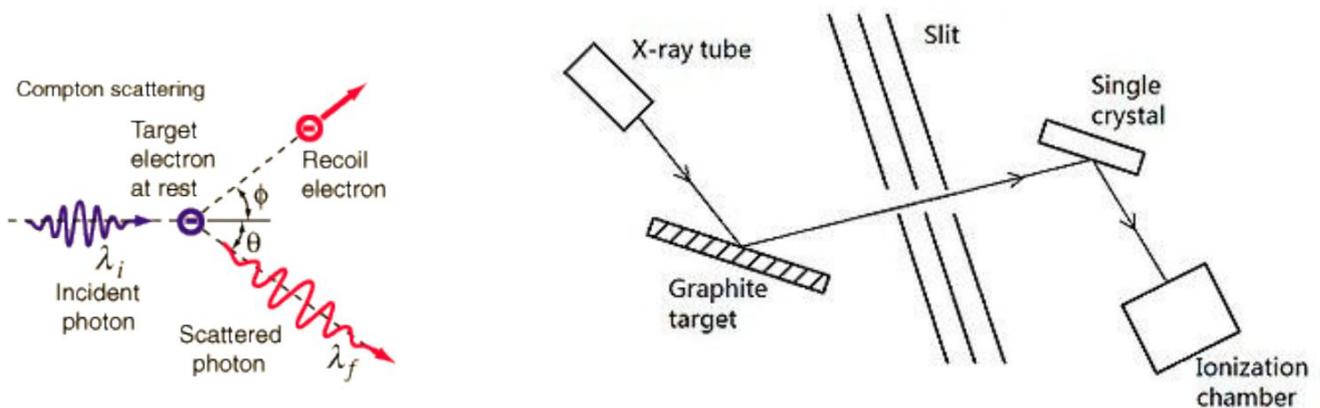


Figure 2: Modelled the data by assuming a particle nature for light

Compton explained and modelled the data by assuming a particle (photon) nature for light and applying conservation of energy and conservation of momentum to the collision between the photon and the electron as shown in Figure 2. The scattered photon has lower energy and therefore a longer wavelength according to the Planck relationship.

CONCLUSION

We all are surrounded by matter; we know matter possess the character of a particle as well as wave, under motion.

So, viewing all possible circumstances of mathematics and modern physics I hereby give my thesis on the believe of mine of all thing of the universe is matter, including the photons of light.

REFERENCES

- [1] <http://hyperphysics.phy-astr.gsu.edu/hbase/quantum/comptint.html>
- [2] <http://www.vit.ac.in/academics/library/eresources>