

# Apparent and Actual Path and Velocity Due to a New Internal Dynamics of Quantum Particles – Scientific Proof of God

Henok Tadesse  
Email: entkidmt@yahoo.com

01 February 2021

## Abstract

In my previous papers, I proposed that the point on the detecting screen of a double slit experiment where a photon lands is completely predetermined by the initial conditions of the photon at the instant of light emission, just as the point where a ball lands on the ground is predetermined by its initial conditions. I proposed a new complex internal dynamics of quantum particles such as photons and electrons. This led me to think that, due to this complex internal dynamics, it is difficult (perhaps not impossible) for a photon to travel both in a straight line and with constant velocity  $c$  along its path. In this paper I propose that it is not necessary for a photon to always travel in a straight line and with constant velocity along its path. Only the *average* velocity of the photon in vacuum needs to be exactly constant  $c$  and its *average* path needs to be straight. This requires almost infinite fine tuning of the initial conditions of the photon, pointing to an intelligent, supernatural being (God) Who always fine tunes the photons at the instant of light emission. To make light appear to always travel in a straight line, nature aims the photons to the observer's eyes only when there is no obstacle between the light source and the observer. To make light appear to always travel with constant velocity  $c$ , nature sets the initial conditions of the photon so that its average velocity (that is distance divided by time) is always exactly equal to  $c$ . To make star light appear to be bent by massive objects such as the sun, the atoms in the star emit photons with initial conditions fine-tuned such that the light arrives from an apparent direction of the star. To make electric and magnetic fields appear to accelerate electric charges, nature fine tunes the initial conditions of the electrons during emission from the source so that the velocity, direction and time of arrival of the electron at the detector is exactly as predicted by classical electrodynamics.

## Introduction

One of the long standing enigmas in physics is the double-slit experiment, particularly the Which-Way experiment. How can a distant light source “know” whether or not there is a polarizer in front of the second detector so that it “aims” the photons accordingly? This is a phenomenon that has glaringly defied science and the scientific method. Quantum mechanics is only a *description* (perhaps incomplete) of what is happening, not an *explanation*.

## New internal dynamics of quantum particles

In my previous papers[1][2], I have proposed that the point on the detecting screen of a double-slit experiment where a photon lands is predetermined by the initial conditions of the photon at the instant of emission. I have proposed a complex internal dynamics of quantum particles such as photons and electrons, which is so far unknown to physics. The new explanation of the Which-Way experiment is that God always watches the experimental setup, sees whether or not

there is a polarizer in front of the second detector, and fine tunes the initial conditions of the photons during emission accordingly.

The new theory is that photons and electrons have complex internal dynamics. Photons and electrons are not point particles but localized time varying (dynamic) fields, spread over finite space, with infinite internal degrees of freedom. The internal energy distribution of the photon is governed by the new law that energy within the photon field always flows towards and tends to be concentrated in regions of higher *rate of change* of electromagnetic field. This creates a dynamic field in which the photon energy is localized but internally continually flows from one region to another region within the photon field. This internal dynamics completely determines the direction, velocity and path of the photon. Note that the direction, the velocity and the path of the photon (or electron) continuously changes in its path, and all this is completely predetermined by the initial conditions of the photon (or the electron). Similarly, the mass of the electron tends to be concentrated and flows towards regions of higher *rate of change* of electron mass density within the electron mass density field, and this region of higher rate of change itself is in continuous change.

### **Apparent and actual velocity and path of quantum particles**

The new theory successfully explains the enigmas of quantum phenomena. However, I realized that this theory may not be compatible with the known facts that particles such as photons and electrons travel in straight lines and with the fact that the speed of light in vacuum is always constant  $c$ . Due to this complex internal dynamics, it is difficult to imagine (perhaps not impossible) a photon always travelling in a straight line with constant velocity along its path.

This led me to the conclusion that photons need not actually travel in straight lines, and with constant velocity. Only the *average* velocity of the photons needs to be always constant  $c$  and its *average* path needs to be always straight. From knowledge of the distance between the light source and the observer, God fine tunes the initial conditions of the photons during emission so that the photons always arrive at the observer with time delays such that the apparent (average) velocity (distance divided by time interval) of the photons is always equal to  $c$ , and that the photons always *appear* to have travelled in a straight line between the light source and the observer. The photons may accelerate, decelerate and travel along curved paths during their flight from the source to the observer. This is illustrated in the figure below.

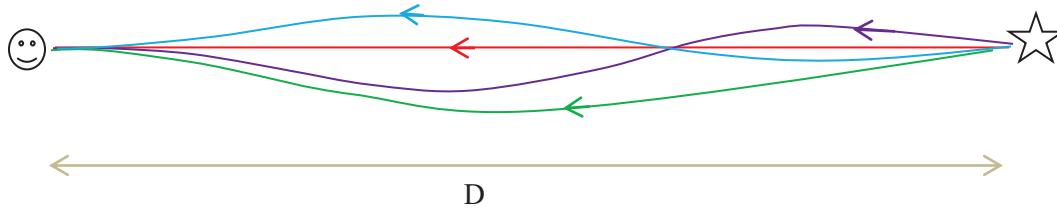


Fig.1

We can see that the tangent line at the point of observation to the actual paths of the photons passes through the light source, so that it appears to the observer that the photons came in straight lines along the red path from the source. Also, for all the photons the average velocity is always constant,  $V_{av} = D/t = c$ . Note again that the photons will actually accelerate, decelerate along their paths, and sometimes travel at superluminal velocities and sometimes at subluminal velocities.

One may argue that placing an obstacle on the straight path connecting the source and the observer would not block the light, and the fact that light travels in a straight line would disprove the new theory.

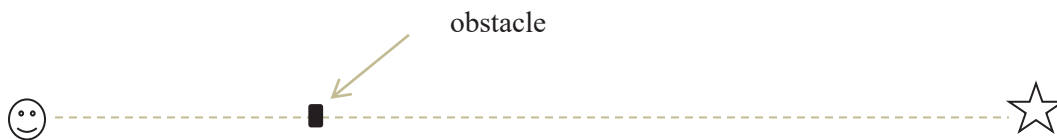


Fig.2

The explanation is that God always watches the experimental setup and sees that there is an obstacle and therefore no photons will be emitted from the source in the direction of the observer's eyes if there is an obstacle on the straight line connecting the source and the observer. One may also ask: what if there is an obstacle on the green, blue or purple paths in Fig.1 ? The explanation is that God has a complete knowledge and foreknowledge of the obstacles and emits the photons that avoid any obstacles.

Let us consider the phenomenon of star light bending near the sun (Fig.3). I have proposed an alternative explanation in my paper[3]. Assuming that this is a correct theory, it is only what happens *apparently*, not actually. According to the new theory proposed in this paper, nature fine tunes the initial conditions of the photons emitted from the atoms in the stars, so that the photons arrive on earth from the right apparent direction of the star (Fig.4).

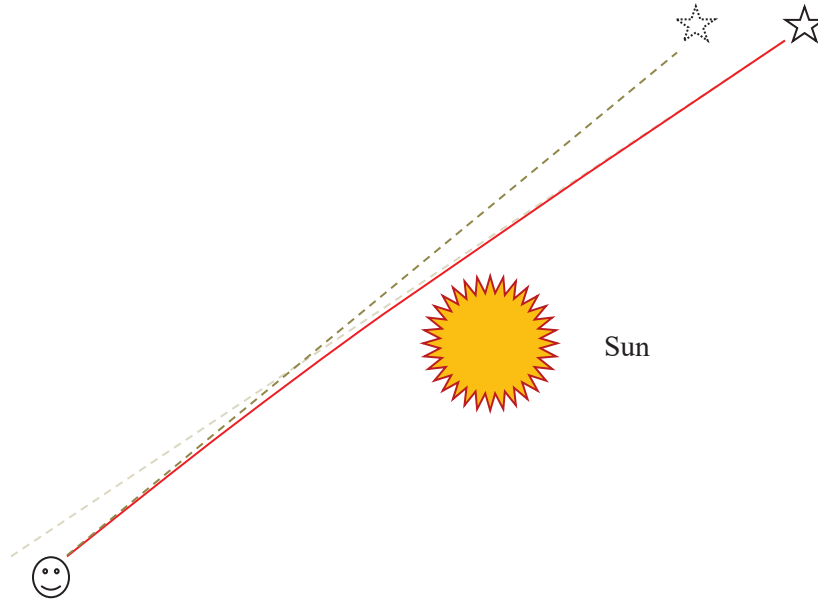


Fig.3

The initial conditions of the photons emitted by the stars are fine-tuned so that the photons arrive exactly from the right direction at the observer. Note that the red, blue and green paths (Fig.4) are the paths of different photons arriving at the observer from the same direction. That is, the tangent of all the three lines at the point of observation passes through the apparent location of the star,  $S'$ . Also, if all the three photons are emitted at the same time from the star, then all will arrive at the same time at the observer. Since the actual path lengths of the photons differ, therefore, their velocities along the path should also differ. Moreover, a photon cannot have a constant velocity along its path, and it will accelerate some times and decelerate at other times, so that the average velocity of the photons is always constant  $c$ . Note that a photon accelerates or decelerates *by itself*, due to its own internal dynamics, not because it is 'pushed' by some external force. The same applies to the electron.

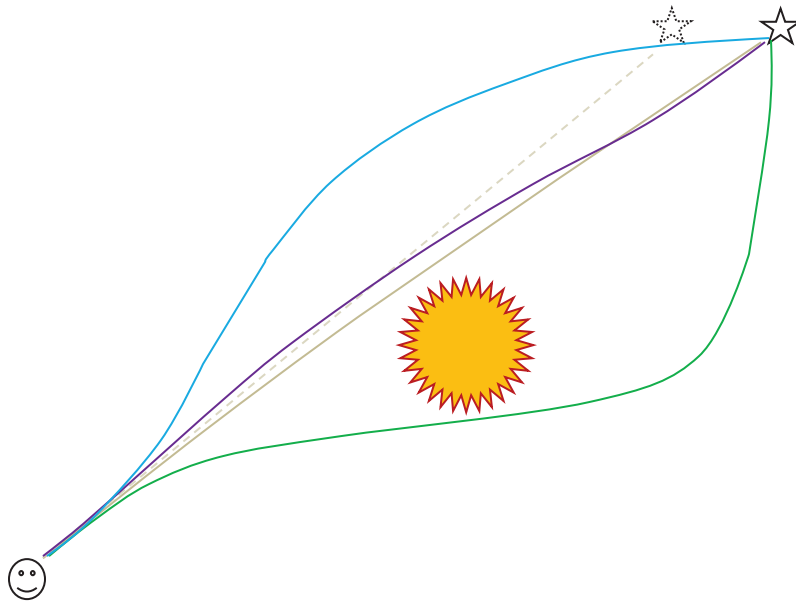


Fig.4

The red light path shown in Fig.3 is what *apparently* happens and the light paths in Fig.4 is what *actually* happens.

Now let us consider the phenomenon of acceleration of electric charges by electric or magnetic fields. According to the new theory proposed so far, the path, velocity, acceleration and all motion of the electron along its path after emission from its source is completely predetermined at the instant of electron emission, by the fine-tuning of its initial conditions. This means that once an electron is emitted from its source, all its motion is predetermined by its initial fine-tuning.

One may ask how to reconcile this theory with conventional knowledge that an electron can be arbitrarily accelerated at any time after its emission. The new explanation is that God has a foreknowledge of the electric and magnetic fields in the path of the electron and therefore fine tunes the initial conditions of the electron at the instant of emission so that the electron arrives at the detector exactly from the right direction, with the same velocity and at the same time instant predicted by classical electrodynamics. This means that the electron can take any path between the source and the detector as long as these conditions are met.

Consider an electron source, an electron detector and two oppositely charged parallel metal plates, arranged as shown in Fig.5. Conventionally, the electron follows the red path.

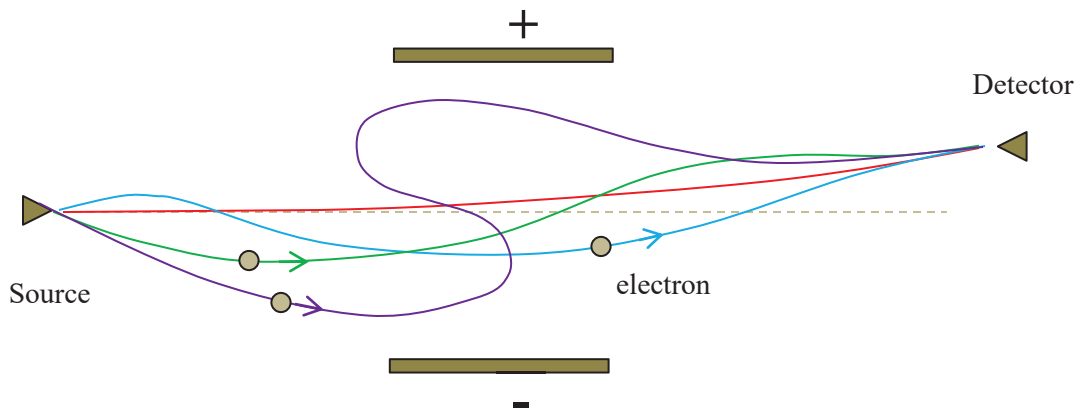


Fig.5

According to the new theory proposed in this paper, however, nature fine tunes the initial conditions of the electron so that it arrives at the detector from the direction, with the velocity and with the time instant exactly predicted by classical electrodynamics. Therefore, it is as if the electron actually followed the classically predicted path (red) , but *actually* it follows the blue, green or purple path or any other path as long as it arrives at the detector as predicted by classical electrodynamics. The same theory applies if we used a magnetic field to deflect the electron instead of charged plates.

One may raise the following question. Suppose that the plates were not charged when the electron was emitted from the source and the plates can be suddenly charged at any instant of time after the electron is emitted. Or the plates may not be charged at all. One may ask: how can the initial conditions of the electron be set without knowledge of whether or not the plates will be charged, the time instant of charging and the magnitude of the electric fields (the amount of charges)? The answer is that God has foreknowledge of all these and He will set the initial conditions of the electron accordingly.

The instantaneous velocity, acceleration and path of the electron at any instant of time is predetermined by the initial fine-tuning of the electron at the instant of emission. The electron accelerates or decelerates *by itself* once it leaves its source, not by the electric field. *The role of the electric or magnetic field is only to constrain the velocity (magnitude and direction) and time of arrival of the electron at the point of detection according to classical electrodynamics.*

## Discussion

One may wonder how the new theory that photons accelerate and decelerate along their path by themselves is related to the fact that the speed of light is a constant determined by vacuum permittivity and permeability. I think that the vacuum permittivity and permeability we know are only *apparent (average)* values themselves. Classical electrodynamics, including Maxwell's equations, describes only what happens apparently, what happens on average.

One may also ask how the new theory that an electron can accelerate by itself be reconciled with Newton's first law that an object will continue to travel with a constant speed, in the same direction unless it is acted upon by an external force. Again, according to the new theory, I propose that Newton's first law is only what *apparently* happens, on *average*.

## Conclusion

The Which-Way quantum phenomenon has no scientific *explanation* so far. In previous papers I proposed a compelling, unconventional theory that the point on the detecting screen where a photon (electron) lands is predetermined by the initial conditions of the photon at the instant of emission, analogous with the fact that the point where a ball lands on the ground is predetermined by its initial conditions. This is due to a new complex internal dynamics of quantum particles (photons, electrons) unknown to physics so far. This internal dynamics determines both the instantaneous speed and direction (path) of the photon at all times during the photon propagation. Initial fine tuning of the photon completely predetermines all the motion (velocity, acceleration, deceleration and path) of the photon between the source and the observer. However, this led to another problem that, if photons have such complex internal dynamics, it is difficult or impossible to imagine a photon travelling in straight line with constant velocity at all points along its path. The same applies to the electron. This question led to the new theory proposed in this paper: the fact that photons travel with constant velocity in a straight line may only be *apparent*. It is the *average* velocity of the photon that is always constant  $c$ . The *instantaneous* velocity and direction can vary along its path. This theory has implications to all classical electrodynamics and Newton's laws. If the motion of the electron is completely predetermined by its initial conditions during emission, then the fact that electric and magnetic fields accelerate charged particles may only be apparent.

Thanks to Almighty God Jesus Christ and His Mother Our Lady Saint Virgin Mary

## References

1. *Scientific Proof of God Based on Quantum Phenomena - Wave Particle Duality as an Overwhelming Evidence of Direct Divine Intervention !* by Henok Tadesse, [www.vixra.com](http://www.vixra.com)
2. *Causality Violation in Quantum, Electromagnetic and Gravitational Phenomena – Wave-Particle Duality as an Overwhelming Direct Evidence of Divine Intervention!* by Henok Tadesse, [www.vixra.com](http://www.vixra.com)
3. *Star light bending near the Sun – an insight into Huygens-Fresnel principle* by Henok Tadesse, [www.vixra.com](http://www.vixra.com)