Interference of Two Independent Laser Beams – Scientific Evidence of God

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Abstract

Centuries of experimental and theoretical investigations have established beyond doubt that light cannot be a classical wave phenomenon. In contrast to this, the interference pattern of two independent laser beams, as observed in experiments, can be explained only if light was a classical wave phenomenon. According to quantum mechanics, two laser beams cannot form an interference pattern because the wave function (Ψ) is defined for and is associated with a single quantum particle (photon). The wave functions of two photons from two independent lasers are independent/ unrelated. The solution to this puzzle is not only new physics but also a new scientific paradigm.

Introduction

After centuries of theoretical and experimental investigations, the problem of the nature of light was finally settled at the beginning of the 20th century. The failure of the Michelson-Morley experiment to detect the ether and the advent of quantum mechanics led to the abandonment of the classical wave view of light. Light is now known to be a stream of particles (photons). Today, from quantum mechanics we know that the interference pattern in the double-slit experiment is due to each photon interfering with itself, not because of two photons interfering as in classical physics.

However, decades after the advent of quantum mechanics, some physicists started to wonder: what will happen if two independent laser beams are superimposed on a screen? Will there be an interference pattern or not? After many decades of triumph of quantum mechanics, such question can only be asked from curiosity, as a leisure time mental exercise, not as any serious problem. This is because physicists knew the answer. According to quantum mechanics, two independent laser beams cannot form an interference pattern. Paul Dirac, considered as one of the great physicists, asked and answered this question. He famously said that a photon can only interfere with itself.

However, experiments[1] done to investigate this question gave an unexpected result which seemed to take physics one hundred years back. Experiments showed that two coherent independent laser beams can in fact form an interference pattern. But this is possible only if light was a classical wave phenomenon, a view abandoned one century ago. According to quantum mechanics, two laser beams cannot form an interference pattern because the wave function (Ψ) is defined and associated only with one photon. The wave functions of two photons from two independent lasers are independent/unrelated.

Today, the scientific community is just silent about this phenomenon, and there is not much discussion about it. This is not because any capable physicist could ignore it, but because he/she

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basically had nothing to say or think about it anymore. It is like when you reach the top of a mountain, after a long arduous climb, begin to celebrate it, but then discover that you are not at the top yet.

Is nature playing tricks on humanity again? Physicists labored for a century to develop quantum mechanics. Now this phenomenon appears to nullify all that effort. It is similar to the situation in the past when the classical wave nature of light seemed to have been settled by the Young's double-slit experiment, for nearly a century, but was then disproved around the beginning of the 20th century.

The situation in physics today seems to be pointing to the beginning of the end of physics and the scientific method as we know them. By 'end' I mean the end of the paradigm that reigned in physics since Galileo.

In this paper, I propose a new theory that is not only new physics but also a new scientific paradigm.

Interference of two independent laser beams- scientific evidence of God

I formulate the problem as follows:

Centuries of experimental and theoretical investigations have established beyond doubt that light cannot be a classical wave phenomenon. In contrast to this, the phenomenon of interference between two independent laser beams can be explained only if light was a classical wave phenomenon.

Now, what is the way out of this puzzle? I have already been able to unlock many of the mysteries of the speed of light and quantum mechanics in my previous papers [2][3][4][5][6].

For example, I have shown that the 'Which-Way' double-slit experiment is an overwhelming evidence of God. I have also shown that God is behind all the puzzles of the speed of light, including the constancy of the speed of light [5][6].

In those papers, I have shown that self-interference of a photon is not real, but simulated, and that ‘wave-function collapse' does not exist.

In this paper, I propose that the only explanation for the interference between two independent laser beams is that it is not a real interference as in classical waves but a simulated interference.

Consider two coherent laser sources S_1 and S_2 , and a detector screen (Fig.1).

With only one laser beam at a time, there will be no interference pattern. But when both laser beams are superimposed on the screen, an interference pattern appears. The only explanation would be to assume that the two lasers somehow 'communicate' to 'coordinate' how they aim each photon towards the screen.

Fig.1

Therefore, the only explanation is that an intelligent being is aiming each photon (at the instant of emission) from each laser to create an interference pattern, simulating the interference pattern of classical waves.

A photon emitted from one of the lasers does not actually interfere with any other photon. Neither does it interfere with itself. *Each photon is aimed at a specific point on the detecting screen, at the instant of emission*. Thus, the photon emissions from the two lasers are *coordinated* to create/simulate an interference pattern. It is this coordination that points to God.

Thus, a photon detected by an atom on the detecting screen comes from only one of the lasers. An atom on the detecting screen, for example an atom at a point of maximum constructive 'interference', could first detect a photon coming from laser S_1, then a photon coming from S_2, then from S_2 , then from S_1, then from S_1, then from S_1, then from S_2, then from S_2, and so on.

So far we have assumed that lasers S_1 and S_2 are coherent. What if the two laser beams have slightly different frequencies? Suppose that S_1 and S_2 have frequencies f_1 and f_2, respectively. We know that for classical waves of different frequencies there will be a moving interference pattern. As in the case of coherent lasers, in this case also the emissions of photons from the two lasers are coordinated so that a moving interference pattern is formed as in classical waves. If a snapshot of the moving interference pattern is taken, it will be similar to the corresponding snapshot of the moving interference pattern that would be formed if light was a classical wave phenomenon.

For further illustration, consider two laser sources S_1 and S_2 with frequencies f_1 and f_2, respectively (Fig.2).

Fig.2

Imagine that there are photon detectors/ counters at every point on the detecting screen. The photon detector/counter at point P, for example, could first detect a photon from S_2, then a photon from S_1, then from S_1, then from S_2, then from S_1, then from S_2, and so on, 'randomly' from S_1 or from S_2. The photon detector/counter at point P counts all photons counted at point P. This means that the total number of photons detected at point P will be the sum of all photons from S_1 and from S_2, detected at point P. To take a snapshot of the moving interference pattern, the photon detector/counter counts only for a short duration of time. For every point on the detecting screen, the number of photons detected at that point is recorded and a graph plotted. The resulting curve/pattern will be similar to the pattern that would be formed if light was a classical wave phenomenon.

The question arises: what if the detector can detect the frequency of each photon? From our experience from other quantum experiments, the (moving) interference pattern should disappear.

Conclusion

With the revelation of the quantum nature of light, it was established theoretically and experimentally that the interference pattern in the double-slit experiment is created due to each photon interfering with itself. This led to the conclusion that a photon can interfere only with itself. Thus, when scientists wondered, out of curiosity, what would happen if two laser beams were superimposed on a screen, they did not even feel the need for a physical experiment to test it. According to quantum mechanics, there will be no interference between two independent laser beams. This is because the wave function of a photon from one laser beam is independent of / unrelated to the wave function of a photon from the other laser. The wave function is *defined* with respect to a single quantum particle (photon). However, actual experiments showed that two independent laser beams can interfere. But this can be understood only if light was a classical wave phenomenon, a view abandoned a century ago, and contradicting the quantum theory. In this paper we have resolved this puzzle by proposing that interference pattern in light is simulated, and not real as for classical waves. In the case of two independent laser beams, 'interference' happens because photon emissions from one laser are coordinated with photon emissions from the other laser to create an interference pattern. Each photon is aimed at a specific point on the detecting screen, at the instant of emission. This means that interference in light is not real as in classical waves, but simulated. A photon does not actually interfere with itself or with another photon. The question arises: what/who aims each photon at the instant of emission? In this paper we have argued that the interference of two independent laser beams is a scientific proof of God.

Glory be to Almighty God Jesus Christ and His Mother Our Lady Saint Virgin Mary.

References

1. *Interference of Light Beams from Two Independent Lasers*, by Doug Marett

http://www.conspiracyoflight.com/LaserInterference/LaserInterference.html

2. *Scientific Proof of God Based on Quantum Phenomena- Wave-Particle Duality as an Overwhelming Evidence of Direct Divine Intervention!*, by Henok Tadesse

http://vixra.org/pdf/2006.0083v3.pdf

3. *Causality Violation in Quantum, Electromagnetic and Gravitational Phenomena – Wave-Particle Duality as an Overwhelming Direct Evidence of Divine Intervention!* by Henok Tadesse

http://vixra.org/pdf/2006.0084v1.pdf

4. *Light Speed, Absolute Motion and Quantum Phenomena- Does Nature Have a Foreknowledge of Observer's Motions and Actions? Scientific Proof of God*, by Henok Tadesse

http://vixra.org/pdf/2007.0162v2.pdf

5. *Co-Existence of Absolute Motion and Constancy of the Speed of Light – Scientific Proof of God*, by Henok Tadesse

http://vixra.org/pdf/2008.0084v4.pdf

6. *Constancy of the Speed of Light Relative to All Observers*, by Henok Tadesse

http://vixra.org/pdf/2110.0162v1.pdf