The Dipole Interpretation
A Formal Protest Against the Concept of Duality, and the Superposition of Light Waves (Duality is Solved)

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Abstract

A formal protest is submitted regarding the concept of wave-particle duality. This paper offers a classical solution to the wave-particle duality dilemma introduced by the double-slit experiment. It is found that only a dipole shape and impingements are required to solve the mystery of duality.

Primitive ideas are being used to explain the phenomenon of wave-particle duality. Comparing the interference of light waves to that of water waves has caused significant confusion, distorting our understanding of the double-slit experiment and the concepts of duality and reality. Light does not behave like water; it only takes on the character of superposition and emulates water waves. The rules governing the superposition of electromagnetic waves are erroneous.

The dilemma can be easily resolved by reconsidering a few fundamental concepts: The photon is a dipole shaped like a dumbbell and is capable of exhibiting two distinct types of impingements. One type of impingement appears as a particle, while the other results in a combination of impingements and rotations, creating a deceptive illusion of superposition.

This paper will present undeniable evidence of electromagnetic wave collisions and rigorously dissect how these two types of collisions produce the false appearance of duality. The dumbbell shape thus creates the illusion of duality, as when dumbbells collide, they spin around one another, giving the appearance of passing directly through each other. Depending on the setup, variations in the side-by-side alignment of the dipole dumbbell shape can give the appearance of switching back and forth between a particle and a wave.

Keywords

Wave Particle Duality, Double Slit, Superposition, Impinge Theory, Quantum Theory, Interference

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1. Introduction

The double slit experiment has had a most unfortunate outcome. It can only produce unreal theories because it is based on an error! ***Wave-particle duality, and quantum mechanics are in a huge debacle due to an error in superposition.***

A formal protest is submitted on the concept of 'superposition of light waves' and how it has been applied to the double slit and quantum mechanics resulting in illogical unreal conclusions. Included are supporting arguments. The subject of the discussion here is the 'root cause of the interference of light waves', not the generally correct mathematics. The subject reaches into the depths of the foundation of physics.

Presented here are the basic foundations to correct the irrational findings from the double slit and duality. The mathematics is purposely not included, as they have already been done. If you don't follow through closely or read with a skeptical attitude, you will miss the point and be left with what we have presently, an unreal concept. In the current state of unreality, magnetism and gravity will never be fully understood.

This paper reveals the physical foundation. The mathematics now can be rebuilt upon the physical foundation presented herein. The previous foundation has an error called superposition! Physicists have run into a blockage because of the early error of studying water ripples. Just take a look at all the YouTube videos and papers published that are presented in this paper. That is what has happened.

What you see in the media: They cut all the good stuff out. Hype and hyperbola are skimmed off the top and presented by media artists. The rest is hidden in complex mathematical iterations from specialized theoretical physics. Theoretical physics is a branch of physics that employs mathematical models and abstractions to rationalize and explain natural phenomena. This is in contrast to experimental physics, which uses experimental techniques to probe the phenomena. Because these mathematical theoretical wizards are so adept and convincing their work is often unquestioned, however they can still make a conceptual mistake. The authors have chosen the experimental, common-sense route to solve the wave particle duality dilemma. There is no need to change the mathematics, only the way we think about it.

Whether a photon is a wave, or a particle has been an age-old controversy. Currently, the interference of light waves is considered similar to water wave superposition in which waves add constructively and destructively. The double slit has been studied for over 200 years, and it appears as though water wave superposition is still the foundation of the concept. The double-slit is a weird experiment that changes when observed. The causality or mechanism causing the phenomenon of wave-particle duality is obscured.

The Huygens Principle, developed in the year 1656, is still in use today. The principle, designed around wavelets (semi-circular waves), states, "Every point of an advancing wavefront is a new center of disturbance from which emanate independent waves in all directions."
https://en.wikipedia.org/wiki/Huygens%E2%80%93Fresnel_principle

Isaac Newton proposed a particle-like corpuscular theory, while Thomas Young's double-slit experiment indicated a wave-like behavior. Later concepts combined the two, resulting in the concept of duality. https://en.wikipedia.org/wiki/Uncertainty_principle

1.2. Many Interpretations

Look at how many interpretations there are. They're not going to believe any one of them! They all come from mathematics, and none have reality. See the link below.

'We are hunting for the proper mathematical structure.'
Something Strange Happens When You Trust Quantum Mechanics 32:40
The proper structure to build upon is the dipole and wave-to-wave impingements.

A host of various interpretations (all illogical) attempt to integrate both the wave and particle perspectives, culminating in the concept of duality, which also encompasses the Heisenberg uncertainty principle. Many of these interpretations lead to perplexing and unrealistic conclusions, giving rise to ideas such as the universe existing solely as a product of our consciousness, the existence of multiple universes, and the famous thought experiment involving Schrödinger's cat being both alive and dead. Among the most recognized interpretations of quantum mechanics are the Ensemble interpretation by Max Born, the Copenhagen interpretation, De Broglie-Bohm theory, Quantum logic, Transactional interpretation, Objective collapse theory, Relational Interpretation, Bims, Time-symmetric theory, Many-worlds Interpretation, Consciousness causes collapse theory, Many-minds Interpretation, and Consistent histories theory.

Richard Feynman's 'Infinite or all possible paths.
Debunking the "All Possible Paths" Myth: What Feynman Really Showed

These interpretations always rest on assumptions regarding the superposition of waves, which can lead to conclusions that do not accurately reflect reality.
https://www.youtube.com/results?search_query=bohmian+interpretation

Sir Roger Penrose argues that the principal of equivalence, which is the basis for relativity, is in ***conflict with the principal of superposition***.
Roger Penrose: "Quantum Theory is Wrong!" 7:20

Using Critical Thought Theory we need to regroup, and rethink, using a physical structure of the photon. I suggest the dipole dumbbell shape presented here. When the dust settles, the electron structure can be considered too.

We will reveal in this paper that the water wave principal of superposition is wrong with light, and that dipole impingements can replace it.

These are only interpretations! The theories are all tied to the double-slit experiment. A precise definition of the Copenhagen interpretation is difficult to find, as it was developed and argued by several men. All these theories are erroneously based on incorrect assumptions of the superposition of waves, resulting in unreal, illogical conclusions. It looks like a classic case for Occam's razor. We have put the cart before the horse. It is not the equation first; it is the concept first!

The Einstein-Podolsky-Rosen Paradox argues that quantum mechanics provides an incomplete description of physical reality. A pivotal decision made during the Copenhagen Interpretation of Quantum Mechanics Conference in 1929 has greatly influenced this discourse, as documented in the Stanford Encyclopedia of Philosophy: Copenhagen Interpretation of Quantum Mechanics 10. Complementarity, Decoherence, and Probabilities https://plato.stanford.edu/entries/qm-copenhagen/
It is crucial to recognize that the wave function serves as a mathematical construct and does not necessarily correlate directly to reality; it functions as a mathematical explanation.

1.3. Quantization of the Electromagnetic Field (QED)

The quantization of the electromagnetic field is a mathematical procedure in physics that turns Maxwell's classical electromagnetic waves into particles called photons. Photons are massless particles of definite energy, momentum, and spin. To quantify something, you're putting it in numbers. In short, in a bit of nonsense, mathematics has turned the photon into a particle.

Wikipedia: https://en.wikipedia.org/wiki/Quantization_of_the_electromagnetic_field
To explain the photoelectric effect, Einstein assumed heuristically in 1905 that an electromagnetic field consists of particles of energy of amount hv, where h is the Planck constant and v is the wave frequency. Paul Dirac was able to weave the photon concept into the fabric of the new quantum mechanics and to describe the interaction of photons with matter. Here, we see that the photon must be mathematically changed from a wave into a particle. Immediately, this is an error. As you will soon find out, all this confusion comes from the water wave concept of superposition. As will be covered later, equal-sized electromagnetic waves do not superimpose.

Renormalization is required to prevent infinities. Infinities appear during calculations, and adjustments must be made to the equations. These adjustments are called renormalizations. Renormalization is a collection of techniques in quantum field theory that treat infinities arising in calculated quantities by altering the values of these quantities to compensate for the effects of their self-interactions.
Renormalization is a form of adjusting the equations to fit the experimental results.
https://en.wikipedia.org/wiki/Renormalization

https://physics.stackexchange.com/questions/375209/dirac-once-said-that-renormalization-is-just-a-stop-gap-procedure-and-there-had
Paul Dirac said that renormalization in quantum field theory is just a stop-gap procedure. There must be some fundamental change in our ideas, probably a change just as fundamental as the passage from Bohr's orbit theory to quantum mechanics. When you get a number turning out to

be infinite, which ought to be finite, **you should admit that there is something wrong with your equations** and not hope that you can get a good theory just by doctoring up that number.

Turning photons, which are electromagnetic waves, into point-like particles is where large parts of this theory got off track. Since radio waves are photons, this also assumes that radio waves are particles, too! Cell phone radio waves are everywhere now; in reality, they do not seem to be particles. There is another, more real way to approach this. If similar-sized (quantized) electromagnetic waves impinge, then they would appear to be like particles. As will be covered in this document, the photon is a dipole wave with two types of basic collisions, giving it the illusion of appearing as a particle.

The words self-interactions and wave-to-wave impingements relate closely. As will be shown later, without impingements, a form of cheating or altering the values (renormalization) is required to compensate for the effects of their self-interactions. Impingements would be classified as self-interactions. Moving from superposition to a dipole (dumbbell shape) impingement clarifies the problem, which will be covered in this document.

Presently the wave-particle duality from the double slit ends up with many different conclusions, none are based on reality. The double slit demonstrates a limitation of the ability of the observer to predict experimental results; Richard Feynman called it "a phenomenon which is impossible to explain in any classical way. It contains the only mystery of quantum mechanics."

“The Crisis in Fundamental Physics is Worse than You Think”:
https://www.youtube.com/watch?v=9AoRxtYZrZo&t=35s

“The Measurement Problem, and Schrödinger's Cat”:
https://en.wikipedia.org/wiki/Measurement_problem

“Two slits and one hell of a quantum conundrum”:
https://www.nature.com/articles/d41586-018-05892-6

Looking Glass Universe
"Standard" quantum mechanics is obviously wrong

See below, all this is from an error in superposition, and from treating the photon as a point particle.

“Something is wrong in the state of QED”. This paper has over 220,000 views.
In section 2.1, Oliver Consa states, "The acceptance of quantum mechanics meant the acceptance of strange explanations, such as the wave-corpuscle duality, the uncertainty principle or the collapse of the wave function”. https://ariv.org/abs/2110.02078

Built on a lie. Quantum electrodynamics is rotten to the core:
https://etherealmechanics.info/discussion/504/something-is-rotten-in-the-state-of-quantum-electrodynamics-qed

Oppenheimer and Quantum electrodynamics (QED):
https://www.oliverconsa.com/2024/03/quantum-electrodynamics-qed.html

Forget about quantum electrodynamics:
https://www.youtube.com/watch?v=wvz4MRpq6xs

Why Quantum Mechanics Still Makes No Sense. Leonard Susskind
https://www.youtube.com/watch?v=onXeawt4pWs

The Crisis in String Theory is Worse than You Think.
https://www.youtube.com/watch?v=2p_Hlm6aCok&t=417s

This paper is a submission formally protesting the concept of light wave duality. We will introduce the impingement theory and the electromagnetic dipole, supported by experimental evidence and conceptual frameworks, to resolve the ongoing dilemma associated with duality. Our goal is to demonstrate that light wave duality does not stem from the idea of superposition. Presented is a mind-blowing, detailed description of how all these unreal concepts materialized.

We have found the absolute definitive answer to light wave duality. The authors went through conducting every basic experiment to find out what went wrong. We will present a new conceptual framework to replace the notion of light wave superposition, revealing how photons can exhibit characteristics of both waves and particles. We will critically examine how the double-slit experiment has led to numerous illogical interpretations. Several experiments and scholarly references will support our critique of the foundational principle of light wave superposition.

Duality ends up with unreal concepts because something unreal or wrong is in the foundation, and that something is superposition! A new concept replacing light wave superposition is disclosed, revealing how photons can appear as either waves or particles. How has the double-slit experiment led to so many different and unreal concepts? Several experiments and references challenge the principle of light wave superposition. Additionally, we will introduce the concept developed by David Miller See Ref [12] enhancing Huygens' monopole wavelet to an electromagnetic dipole model and illustrate it as a flexible dumbbell shape. We will argue, and demonstrate with experimental evidence, that electromagnetic wave collisions can effectively replace the traditional understanding of superposition.

Two concepts are disclosed: the *'dumbbell shape'* and *'impingement'*. Depending on the circumstances, these dumbbell-shaped waves can either appear to pass directly through one another or collide. If two waves could temporarily be forced to collide and bounce apart, then they would appear to have solid particle-like attributes. How can light, as an electromagnetic wave, have both particle and wave attributes? It is found that flexible dipole (the dumbbell) collisions are the culprits that give light its dual nature of appearing as either a wave or a particle.

Several experiments are conducted proving that collisions form at the slits. An enhancement of Huygens monopole wavelet is replaced by the electromagnetic dipole and described as a dumbbell shape. The dumbbell dipole is illustrated and placed into a collision state with one another. The dumbbells are found to be able to give the appearance of superposition through two types of

collisions. The appearance of passing directly through one another by means of spinning dumbbell collisions and a side-by-side alignment collision, resulting in the interference pattern. Combining both types of collisions results in the appearance of duality. Superposition of light is not required and is replaced by dumbbell collisions. Both types of collisions will be covered in this paper.

Though this document is much more complex, for beginners, an interference pattern can be seen simply by shining a laser pointer at a thin wire from a wire brush. Also, the reflection of a laser off a DVD disk reveals the interference pattern.

2.1. Formal Protest to the Concept of Superposition and Introduction to the Impingement Theory

We hereby respectfully submit a formal protest on the concept of 'superposition of light waves' and how it has been applied to the double slit and quantum mechanics resulting in illogical unreal conclusions. Included are supporting arguments. The subject of the discussion here is the 'root cause of the interference of light waves', not the generally correct mathematics.

In our formal protest, we have these grievances about the concept of duality and light wave superposition:

1. The irrational concepts that have arisen from the double-slit and duality.
2. The superposition of electromagnetic (photons) light waves.

The lack of superposition, wave-to-wave collisions, and the dipole shape take precedence.

In a nutshell, this paper will show that there is an error in the rules of electromagnetic wave (EM) superposition. They are not like water waves! The photon is a dipole shaped like a dumbbell and is capable of exhibiting two distinct types of collisions. One collision type appears as a particle, and the other combines the two and appears as a superposition. This paper will present evidence of EM wave collisions and dissect how the two types of collisions result in the appearance of duality.

If you have not read the introduction, please read at least section 1.3. This is a major fundamental breakthrough in quantum mechanics. Presented here are the basic foundations to correct the irrational findings from the double slit and duality. The mathematics are purposely not included, as they have previously been done. If you don't follow through or read with a skeptical attitude, you will miss the point and be left with what we have presently, an unreal concept, and in a state of unreality again. Hang on till the end, we are going to kill Schrodinger's cat for good!
Most people don't get Schrodinger's Cat (including you?)
https://www.youtube.com/watch?v=T3D_uajKw2o

This paper will disclose the only logical answer to light wave duality. We will aim for an intuitive understanding of the subject instead of mathematical manipulations. The conclusions are absolute and unrefutable. Hidden right before our eyes is the only logical answer to light wave-particle

duality. Complicated mathematics is not required. It is a simple puzzle that can be resolved. Presented in this paper are the properties needed to solve the puzzle. It is time to end this conundrum. This revelation rocks the foundation of physics. Due to the complexity of the phenomenon, only low-energy light wavelengths are investigated.

How did it happen? Primitive ideas are being used to explain the phenomenon. Several mistakes have been made that everyone has built upon. For starters, the particle description from the photoelectric effect. Einstein said photons need to be particles. Another is the early comparisons of light to the water wave ripple tank, which resulted in the concept of superposition. Both these concepts are wrong and have resulted in dozens of interpretations of duality; none are based on reality. The electromagnetic wave foundation is incorrectly based on the superposition of water waves.

Einstein developed the particle nature of photons from the photoelectric effect because photons could knock electrons off the surface of a metal. This disclosure will reveal why the particle description of a photon is a misnomer! The correct size wave can knock off an electron. A particle is not required! This paper covers how a dipole wave collision gives the appearance of a particle, resulting in the erroneous concept of duality. Because photons, as electromagnetic dipoles, collide, they give them particle-like attributes.

An important aspect of Planks constant that will show up later in this paper. Evidence of the equal sized electromagnetic dipoles.

Interview by Curt Jamungal: Why the Wave in Quantum Physics Isn't Real:
https://www.youtube.com/watch?v=TaBthP_BAlM

Water ripples, the foundational error: https://www.youtube.com/watch?v=Jqm4f55soJQ
Lightwave superposition is currently based on small, controlled, undulating (not traveling) ripples like those produced from a ripple tank. However, this is not always the case; two large traveling water waves will crash into one another, transferring energy.
Unlike ripple tank waves that only pass through another without transferring a force, these ocean waves crash with force, and jets of water can be seen squirting skyward.
https://www.youtube.com/watch?v=6EKZKaWhufI/
As we will discover in this paper light waves, as electromagnetic waves, do not superimposition at all!

Because in our day-to-day experiences, it appears as though two beams of light pass directly through one another, so our minds are fixed on the belief that water wave-like superposition is the only thing left to consider. However, this disclosure will reveal that two light waves ***always impinge*** on one another, and superposition does not occur at all. A dipole dumbbell shape enables them to appear to pass directly through one another. Two types of collisions based on the dumbbell shape give the appearance of superposition and duality. How this happens will be described in detail. The dipole dumbbell shape and impingements are the key to understanding light duality.

"There is only one interpretation of quantum mechanics" | David Deutsch FULL INTERVIEW
13:23 and 18:28

This paper presents a revision to the complex irrational concepts encountered by the current foundation for the double slit experiment. The foundation of our understanding of reality should be based on a coherent and realistic framework. Currently, many theories are constructed on assumptions that lead to unrealistic conclusions. To enhance the accuracy of the existing theoretical model, it is crucial to address the key parameters of interference.

To Construct a New Model for Duality, the following basic parameters of interference must be satisfied:

- The principles of superposition must in some way be represented.
- Interfering waves must result in an intensity increase by a factor of four. Double Slit Debunked 5 4:10–6:40. REQUIRED.
- Must represent waves that ***appear*** to directly pass directly through one another unaffected, demonstrating their ability to coexist without interference.
- The model must incorporate wave-particle duality, exhibiting characteristics of both phenomena.

We will show that water waves do not correctly represent light. Hiding in plain sight is the key to duality. This is just a puzzle to solve and moving a few pieces around solves it. Emphasizing the phenomena of impingements and the distinctive dumbbell shape are the most tangible aspects to consider. Impingements and the dumbbell shape will be the only real interpretation left to believe. There simply is no other way!

Weaknesses of the Copenhagen Interpretation – Ask a Spaceman:
https://www.youtube.com/watch?v=cU8_n2h6bJg At 3.5 minutes.

2.2. Review of Edge Diffraction (on the reflected side)

Often brushed over when evaluating the double slit. Not all of the photons pass directly through the slit. Half of the beam is blocked by the edge of the slit. Half of the photons from the beam must strike the edge of the slit and reflect off to the sides, else the interference pattern will not form. Also, the inside light diffracts inward. **Without this collision with the edge the interference pattern cannot form.** Depending on the slit separations, there are two or more edge collisions, one edge, or with two or more edges. When the slit dimensions are set correctly the patterns clean up.
https://sciencedemonstrations.fas.harvard.edu/presentations/edge-diffraction#:~:text=A%20point%20light%20source%20will%20produce%20seemingly

A point light source will produce seemingly sharp shadows, which turn out to be not at all sharp when viewed under magnification. Narrow interference bands are seen within the shadow of a

straight edge, while more complicated shapes yield more complicated interference bands and striations. We are simply looking closer here.

We will introduce how wave-to-wave collisions (Impinge theory) are related to wave-particle duality and approach this dilemma from a logical, non-mathematical perspective. The findings are surprising. Presented is a logical solution to wave-particle duality, and the dilemma of wave-particle duality is resolved. Very few, if any, looked at wave-particle duality correctly. Many worked from past work and blindly accepted it as fact.

This disclosure reveals that an electromagnetic dipole (dumbbell) shape gives photons two basic types of collisions. The collision can have the appearance of passing directly through another unimpeded or impinging side-by-side, resulting in the interference pattern. It will be revealed that only collisions occur, and water wave-like superposition is an error. The two different types of wave-to-wave collisions give the appearance of duality and superposition. Without this concept of impingement, only unreal conclusions can be reached—and this is what has happened! https://en.wikipedia.org/wiki/Quantum_decoherence

2.3. MIT Interferometer "Where Did the Light Go?" REQUIRED

As an introduction to the concept of wave-to-wave collisions (impingements) we will look at the MIT video YouTube video "Where Did the Light Go?" In this MIT experiment, a rare absolute head on collision prevents light from reaching the screen. Ref [1]. When the interferometer is **critically and precisely aligned**, only one circular spot appears on the main output screen, as found in the MIT YouTube video "Where Did the Light Go**?"** https://www.youtube.com/watch?v=RRi4dv9KgCg. This *perfect* circular spot is an interference pattern with only one fringe, only possible with absolute precision alignment. *Due to the alignment difficulty such a pattern is rarely shown*, but is an absolute must to understand wave-to-wave impingements. Professor Shaoul Ezekiel at MIT runs a well-executed, difficult precision aligned Michelson interferometer. He attains the condition of 'total destructive interference,' where the two beams are given the misnomer 'cancellation by destructive interference.' In reality, the photons, as dipole waves, have hit precisely dead head-on and have bounced directly back to the source. At 4:30 minutes into the video, the professor places a second beam splitter immediately after the laser to determine where the missing light has gone. He then asks, "Where did the light go?" and leaves no explanation. If they don't hit precisely head-on the dipole shaped waves impinge at slight angles forming a pattern relative to the wavelength, thus instead leaving fringes. During this head-on collision, having nowhere to go, it is known that the missing light from the screen returns to the laser, thus increasing the temperature of the laser tube and can slightly diphase the laser. The clearest way to describe this phenomenon is through the impingement theory. Later we will reveal how a dipole shaped wave-to wave impingements can appear as both duality and also give the appearance of superposition.

3.1. The Duality Properties of Dipole Dumbbell Collisions (the on/off switch)

It is a bit more complicated than simple water waves or billiard balls. The most important part of this disclosure will be the 'dumbbell' shape, and electromagnetic wave-to-wave impingements, not superposition. This section of this document discusses the concept of duality in light waves and introduces the idea of a dumbbell-shaped dipole to explain the phenomenon.

The keys to understanding the impingement theory of duality are the following:

1. The impingement of electromagnetic waves.
2. The photon is an electromagnetic dipole.
3. The mystery of duality results from '*two basic variations'* in the alignment of the dipoles, resulting in the appearance of an '**on/off**' switch (duality).

Primer: Two opposing beams of light with different polarizations affect the interference pattern: https://physics.stackexchange.com/questions/4862/interference-of-polarized-light. This indicates alignment is required for the collision. The light field (dumbbells) resembles a three-dimensional net (field of waves).

The basic requirements to solve the duality dilemma are the dumbbell shape and the knowledge acquired from radio wave theory. Radio waves are photons.

Not all experts agree that Huygens' principle accurately represents reality in a microscopic way. It does give the correct answer but for the wrong reasons. Current theory suggests photons are considered " point particles" with no known internal structure. https://en.wikipedia.org/wiki/Point_particle. The heavily used in physics, 'point-like particle' description is wrong.

How can a photon appear to be either a particle or a wave? Huygens described light as wavelets, and current interference theory is based on these wavelets and seems to be directly related to water ripples.
Huygens Principle. wavelets (semi-circular waves):
https://www.youtube.com/watch?v=he8jSyRWvxE
https://en.wikipedia.org/wiki/Huygens%E2%80%93Fresnel_principle

An enhancement to the structure to Huygen's 'wavelet' is suggested to correct the unreal concepts that have arisen from the double slit. This study investigates a dumbbell-shaped wave based on the idea of the electric dipole. The dumbbell shape gives the photon unique attributes that appear as superposition but are not.

Huygens could not explain the deviations when light diffracts as it encounters edges.
David A. B. Miller, See Ref [12] resolved this in 1991 by introducing the electric dipole, replacing the monopole wavelet assumed by Huygens. See Figure (1).

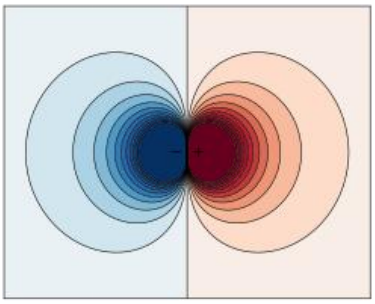


Figure 1.A. The Electric Dipole. The photon's dumbbell shape. Wikipedia Creative Commons. Image by Geek3: https://en.wikipedia.org/wiki/Dipole

Similar articles on the photon dipole can be found at Ref. [13] and [15].

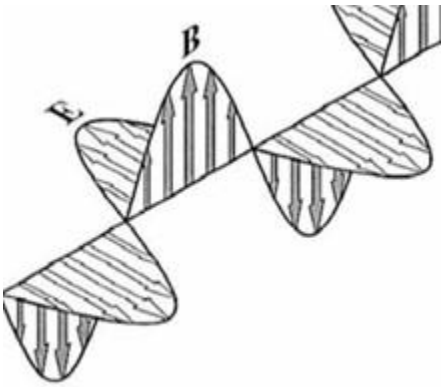


Figure 1.B. Light is a wave composed of oscillating electric ($\vec{E}$)and magnetic ($\vec{B}$) field vectors that give the appearance of dumbbell shapes. This dumbbell-like shape when split into individual wave sections (photons) can give the appearance of either a particle or a wave. This splitting apart can be as small as Planks constant or one wavelength. Wikipedia Creative Commons.

The principles of superposition and interference do not apply in the strict sense we have used them when describing light. The concept is difficult to explain and comprehend because we must transition from superposition to impingement when dealing with electromagnetic waves. Our minds must transition from water wave superposition to electromagnetic wave impingement. A paradigm shift is required.

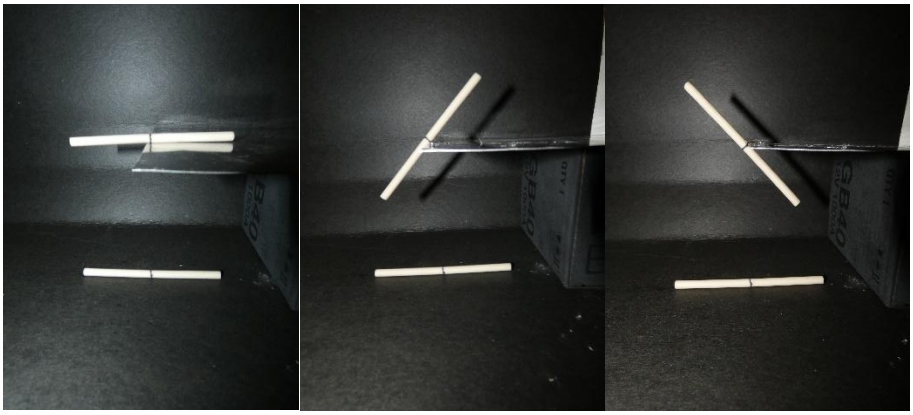
Superposition occurs when two waves add constructively, doubling the amplitude, thus increasing the intensity to four. The dumbbell shape mechanism can reproduce this and show classically how the intensity can become four times greater and take on the appearance of either a particle or a wave.

So now we have some physical properties that will make the ‘wave collapse’ introduced by the Copenhagen interpretation a reality that is describable and conceivable.

3.2. ‘The Key to the Conundrum’. How the Dumbbell Collisions Have Fooled Us

Drop a flexible rod on a thin, straight edge. When the rod hits the edge, it spins around it, giving the appearance of passing through it. This type of collision is the first step in understanding duality. See (Figure 2) Collision with an edge. A right edge imparts a CCW spin, and a left edge imparts a CW spin on the object. Opposing edges create opposing spins, and linear momentum and energy are conserved. The final position of the rod is shown on the bottom. The rod and plate can be replaced with dumbbell shapes, and the results are the same.

Elastic Scattering: https://en.wikipedia.org/wiki/Elastic_scattering



Step 1. **Step 2.** **Step 3.**

Figure 2. Steps 1-3. A rod dropped from above impacts an edge spinning around it, giving the appearance of passing through the obstacle. The rod shown at the bottom is the result.
1. Rod impinges with the edge. 2. Rod begins spin around the edge. 3. Rod rotates fully around the edge, leaving the appearance that the right half has somehow passed through the edge. Try it yourself; Just drop a pencil on the edge of a thin flat plate.

A much better illustration can be found in the link below.
How light deceives us. Represents two beams of light passing through another.
Two Electromagnetic Dipole Dumbbell Shapes Impinging. A short video REQUIRED.
https://youtu.be/-vCaMZ__b-w
The demonstration represents how two opposing beams of light can give the illusion of flowing directly through one another, through these dipole (dumbbell) impingements. Each dumbbell represents a single photon. Notice that the collision results in both dipoles rotating in the same direction and momentum is conserved.

3.3. Solving the Puzzle with Reality

How to unravel the mystery of duality: Light can pass through a smaller gap than its wavelength, which indicates a flexing, squeezing attribute.
Light is a transverse wave that oscillates perpendicularly to the direction of propagation: https://en.wikipedia.org/wiki/Transverse_wave

We would like here to treat light as an electromagnetic field and explore the dynamics of this field as a ***fluid of dipoles***. Similar to Brownian motion, a beam of light consists of dipoles of random orientation. The intensity is the density of the fluid, or the number of dipoles per unit area within the fluid.

The impinge theory presented here proposes that photons are jumbled up flexible dumbbell-like electric dipole shapes. They can be arranged in several ways, resulting in several types of collisions, giving the false appearance of superposition and duality. The superposition of light waves is an illusion created by the impingement of the dipole dumbbell shape.

In the 'Strands Experiments' section, we will establish that collisions are a significant phenomenon in our study. But how do these collisions illustrate the concept of duality?

When considering the dumbbell-shaped electric dipole, we encounter two distinct types of collisions, each influenced by the alignment of the dumbbells. In type (1) collisions, a remarkable occurrence happens where one dumbbell appears to pass through the other. Conversely, in type (2), we observe a fascinating fan-like interference pattern resulting from the collisions. Both interactions are pivotal and categorized as collisions.

The variations in the alignment of the dumbbells lead to two fundamental types of elastic collisions, each producing unique and intriguing outcomes. Understanding these differences is crucial to grasping the broader implications of these collisions.

Type 1 (Figure 3) reveals how two beams of light can pass directly through one another unaffected. Type 2, shown in (Figure 4) occurs when light photons, as a dumbbell shape bunches up as the wavefront encounters a barrier. The bulging or piling up can be seen in daylight simply by closing one eye and looking over the rim of your eyeglasses. This will be shown later in the razor blade experiment. This piling up also occurs with flowing water when it encounters a barrier. See (Figure 4). When light strikes any edge or barrier, the dumbbells bunch up temporarily, forcing them into lateral coherent alignment. In type 2 collisions, the waves as dumbbells are forced into lateral coherence when they pile up and strike the barrier (slit); these are side-to-side aligned collisions. The collision with the barrier and passing through the slit breaks the transverse wave into dipoles (the dumbbells). Notice the final row where the alignment occurs. The dumbbells align and squeeze together, temporarily deforming to pass through the slit. Impinging off the edges of the slit and against one another, fanning out into the interference pattern.

Type 2 collisions only occur at the slit. The collision accomplishes two things simultaneously: it redirects the dumbbells into the interference pattern, and it reverts them into a Type 1 disassociated state, allowing the pass-through through dumbbell spin collisions once again as they travel to the

screen. The act of colliding has altered their alignments, allowing the dumbbells to pass directly through one another again. These two types of collisions are analogous to a switch.

Depending on the framework, the elastic colliding dumbbell-like shapes can either impinge off center one ball to one ball (Figure 3) or in perfect alignment bump together side by side, bounding to the sides, resulting in the interference pattern (Figure 4).

3.4. The Two Basic Types of Elastic Dumbbell-like Collisions

Type 1. Pass By Collisions (Figure 3).

How two opposing beams of light can appear to flow directly through one another:
Out of alignment, elastic dumbbells collide, flex, and spin around one another.
(Figure 3) Rotating around their centers, the dumbbells convolute and spin around one another, giving the appearance of directly passing through one another. Two opposing beams of light impinge and flow through one another through dipole dumbbell interactions. Similar to the guillotine magic trick where the blade rotates around the victims neck. The dumbbells rotate around each other fooling the observer.

Type 2. Collisions (The Steps Going Through the Slit) (Figure 4).

1. Jumbled dumbbells approaching the slit (Figure 4)
2. Strict alignment occurs due to impinging on the barrier. (Notice the final row where the alignment occurs.) Temporary, flexible, dumbbell-like collisions occur due to the strict side-to-side alignment, but only when they strike a barrier or edge. They are forced into temporary alignment when impinging on a barrier. There is the possibility of a broken field when the dipoles impact with the slit.
3. Aligned dumbbells squeezing between the slit. (Note: the dumbbells could be forced vertically)
4. The collisions fan the dumbbells out into the interference pattern. The collisions also revert and dissociate the dumbbells (lateral coherence is altered), preventing further collisions. The collisions cause the dumbbells to de-align (disassociate, or decohere), resulting in type *'1'* conditions again. This is analogous to a kind of switch mechanism.

The two basic collision types, *1'* and *'2'*, result in the appearance of a temporary particle-like behavior, then immediately after a wave appearance. Condition *'one'* (Figure 3) results in light waves that appear to simply pass through another, like water waves. Condition *'two'* results in interference patterns.

This is the source of the confusion of duality, simply two different types of dumbbell dipole wave collisions.

The double slit or single slit gives the appearance of superposition. Superposition does not occur with light; it only occurs with controlled, undulating water waves. One can easily be misled by the mistake of using water wave superposition to explain light wave duality and end up with unreal concepts. Only unreal concepts can be derived from the original idea of the controlled undulating water wave superposition, analogous to ripple tanks.

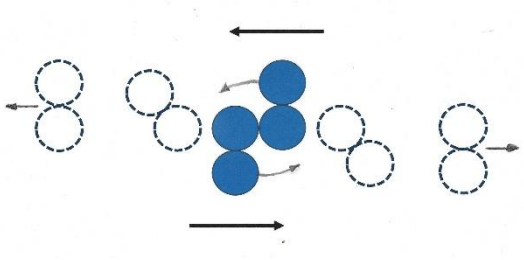


Figure 3. Similar to (Figure 2). The collision of two off-center dumbbells in the absence of a barrier. How two opposing beams of light can appear to pass directly through one another. The dumbbells rotate around their centers. Shown is a two-dimensional representation. A 3D net is required for full representation. https://youtu.be/-vCaMZ__b-w

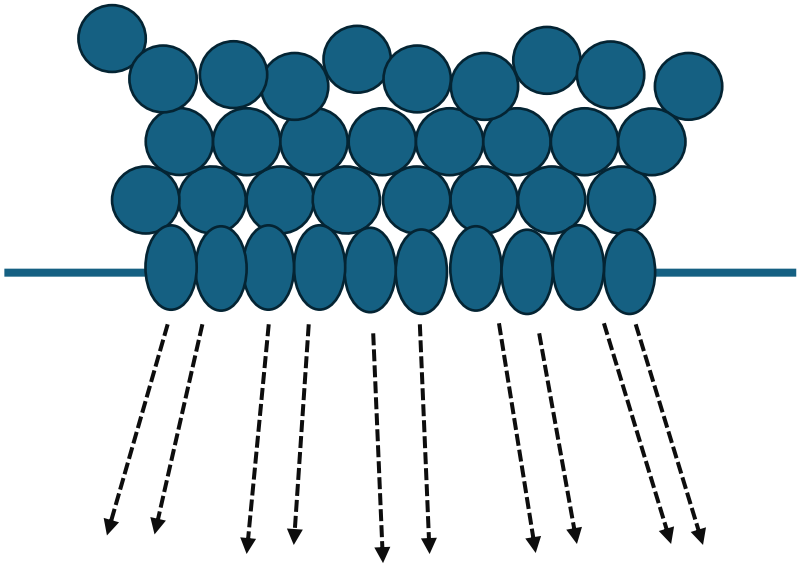


Figure 4. Creating the Interference Pattern (not to scale).
A transverse wave approaching a single slit barrier opening. Bunching up at the barrier, breaking apart, and sliding, filling the gaps, the dumbbells are ready to fan out into an interference pattern. This illustration is for example only. The positioning, bulge, and flex proportion are unknown.

The two types of collisions allow the dumbbells to overlap, resulting in an intensity increase of four.

The dumbbells fan out into their pattern based on the wavelength and slit dimensions. Probability distributions arise from the many possible collision angles and the switching between the two types of collisions. Only some angles allow the dumbbells to get through the maze of impingements.

As mentioned previously, you can see this bunching up and collisions simply by looking over the rim of your eyeglasses. Astonishingly, the brightest line in the fringes you see is four times brighter than the light that it came from and formed it (this is only true with one color or wavelength of light). The human eye is not able to discern intensity correctly. If you are a neophyte, you will not believe this statement, so we will discover how this becomes to be, later. Unfortunately, a confusion exists because the energy in water waves increase by four times also, but we will prove that water waves and light waves are not related and the intensity or energy increase of light comes from dumbbell impingement mechanics.
The human eye intensity response:
https://www.telescope-optics.net/eye_intensity_response.htm

3.5. Elaboration on Dumbbell Impingements

Only the principle is covered here. Mathematics can be derived from flexible dumbbell collisions. There are more complex collisions known as caustics. It would seem that if a certain off-axis alignment angle is exceeded, then the results of the collision would change abruptly.

When the dumbbells approach the slit barrier (see Figure 4), The impingements at the barrier causes the transverse wave of dipoles to fan out into strands of light. The wavefront flattens out (lateral coherence) when they incident the slit (barrier). The temporarily flattening out of the alignment of the wavefront enables the photon dumbbell shape to properly impinge at the slit fanning out into the interference pattern.

A feedback reflection, as will be covered later in radio theory, aligns the dumbbells as they bulge, flex, and jam into alignment. The photons convolute, deform elastically and squeeze through the opening, impinging upon one another from side to side, fanning out into the pattern. Immediately after the collisions, the photon dumbbells are misaligned due to the collisions and cannot interfere again unless the wavefront incidents another slit (barrier). The process can be repeated many times by placing further slits (as wavefront alignments) in a fringe. Any barrier causes interference by collision, even with white light. The waves, like dumbbells, always misalign from the collisions. The impingement caused by the collision at the slit alters their lateral coherence alignment and prevents further interactions. Placing a detector at the slit de-aligns the dumbbells resulting in state one condition.

It is difficult to explain due to the combination of the two types of collisions or situations, and the misuse of the word light wave superposition results in the appearance of duality, causing great confusion. Due to the lobe-like dipole, the photon's wavefront lateral coherence prefers to misalign just enough to disable the interference pattern (it requires an edge or barrier for alignment).

The trajectories of the impingements vary somewhat from the imperfect alignment of the dumbbells. The dipole form structure of the wave allows variations in the angle of impingements. Collisions occurring in the center of the slit must pass through other dumbbells to fan out to the outer edge of the interference pattern, this reduces the intensity in the outer bands. This also results in a sinusoidal intensity variation across the screen. Reducing the slit and wavelength increases the alignment of the impingements, thus sharpening the pattern. If the variation between the side-to-side alignment is too great, impingement ceases, and the pattern disappears. Any detector alters the dumbbell alignment, collapsing the interference pattern. A detector is akin to putting a baseball bat out to detect a weightless object. If something that is weightless strikes a solid object. The detector certainly would knock the photons out of alignment, preventing the interference pattern. Photons must be coherent (in alignment) to interfere.

The act of measuring alters the dumbbell alignments with one another, changing the type of collisions, which alters the outcome, preventing the interference pattern. Only during precise alignment from impinging a barrier are the dumbbells aligned long enough to put them into a condition where they can collide with one another, sending them into the pattern correctly. It is easy to be fooled because immediately after their collisions with one another, they have forced one another out of alignment (Type 1 collisions). The alignment and collision with the barrier create the pattern (Type 2 collisions).

Superposition, as currently described today (unlike water ripples), never actually occurs with light. Depending on the angle of collision created by the slits, the dumbbells gradually change from the appearance of passing by another to the collision state. This gradual change can be seen in the variation in the intensity of the pattern. As the collision angle increases, the photons eventually pass by one another again through flexible dumbbell impingements.

Another indication of collisions comes from the placement of lenses before the barrier or slit. The addition of lenses of different powers changes the collision angles at the opening, altering the interference pattern. A rod-type lens seems to stop the interference pattern completely. Videos of this can be found at Ref [2].

There is no other logical answer for duality than this! Because of weightless, speed-of-light collision type of switch (switching from Type 1 to Type 2 and back again), and because we cannot visually see the light wave-size dumbbell collisions, we simply assume they have superimposed. However, we know that a spin is imparted when an edge is encountered, so now we see how a spin can be imparted. The theory presented here can be applied to the double-slit and multi-slit light wave interference.

As will be shown later with radio theory, radio waves can impinge and take on new directions. If there are collisions and not superposition, then there must be an answer as to how two objects

(wave-like photons) can appear to pass through one another. The answer to this question is the flexible dumbbell lobe shape.

3.6. Overview of Dipole Dumbbell Shapes Passing through the Double Slit

1. **Misuse of Superposition**: The document argues that the concept of superposition has been misused and that the observed phenomena can be explained by the dumbbell shape and collisions.
2. **Superposition and Interference**: The terms superposition and interference are redefined in the context of dumbbell-shaped electromagnetic dipoles.
3. **Dumbbell Shape**: The dumbbell shape is proposed to solve the duality dilemma in light waves.
4. **Types of Collisions**: Based on the alignment of the dumbbells, there are two types of collisions, which result in different outcomes.
5. **Single and Double Slit Experiments**: The document explains how single and double slit experiments produce interference patterns due to wave-to-wave collisions.
6. **Photon Behavior**: Photons are described as flexible, dumbbell-like dipoles that can align and collide in different ways, creating the appearance of superposition and duality.
7. **Experimental Demonstration**: A simple experiment with a flexible rod illustrates the concept of duality and collisions.
8. **Impinge Theory**: The impinge theory suggests that photons are jumbled up into flexible, dumbbell-like dipole shapes that can result in different collisions. There are only collisions, and the dumbbell shape allows photons as waves to appear to pass through one another through a spin-around collision.

3.7. Going Back to Basics with the Knife Edge. (or one side of a slit)

See (Figure 5) Single edge and single slit breakdown.
If you measure the intensity of the diffracted and the reflected sides at the exact location from the center, you will find they are not of the same intensity. The reflected side (Figure 6) is brighter than the diffracted side. The ratio is approximately 1.35 to 1. This ratio may give us some insights into understanding the mechanism of how the interference pattern forms.

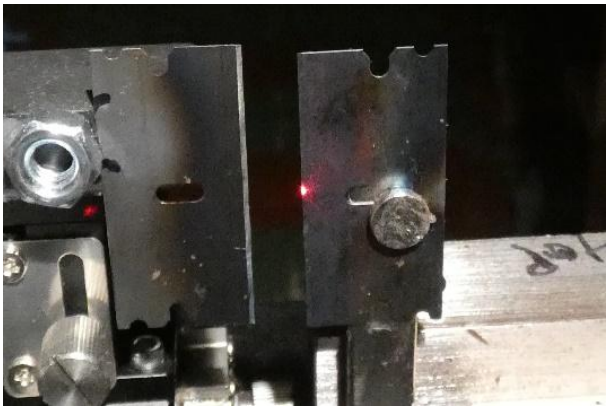


Figure 5. The Beam Striking Only the Right Edge.

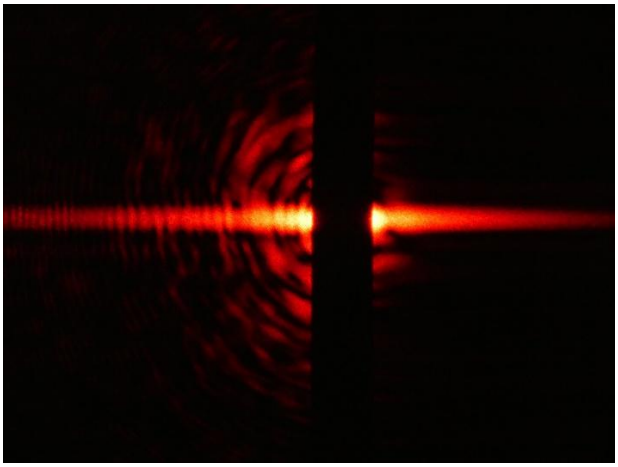


Figure 6. The Photons have Reflected to the Left and Diffracted to the Right. The line to the left of center is also considered diffraction. Note: The center bright spot was blocked off to avoid over exposure. Note: The human eye is unable to determine intensity differences correctly. https://www.telescope-optics.net/eye_intensity_response.htm

Interference From Beam Striking a Right Edge Only (no lens was used).
Notice that the left side has an interference pattern, and the right side does not.
The right side is diffraction, and the left side is reflection off the edge. This is common whenever light strikes an edge. How can the left side have an interference pattern? Water waves from a ripple tank lack this phenomenon. The only reasonable answer is that the incoming waves are colliding with the light reflected off the edge. Of course, the wavelength will change the spacing.

Below video: A flat plain water waves striking a single edge only. Notice there is no interference pattern on the opposite side or can something faintly be seen. Does the ripple tank represent light correctly?
https://www.youtube.com/watch?v=2h6gx4bS944

A video with circular water waves hitting edge.
https://www.youtube.com/watch?v=LAQ1m_1W5ys

See **more** on https://www.youtube.com/watch?v=cDt7gJlCXEs

When two edges are moved together closing the slit, the light as dumbbell-shapes impinges off both edges of the slit and against one another, fanning out into the interference pattern. When two of these lines are placed over one another (one from the right edge and the other from the left), strands of light appear, and the intensity of each strand increases by four. This intensity quadrupling requires the two types of impingements explained here, and it becomes the only logical answer. Present theory suggests that the missing energy is somehow invisibly stored in the electric or magnetic field. A video is shown at Ref [2].

Solving the resulting angles of the collisions using the dumbbell shape might be a good exercise for a savvy mathematician. Only the concept is presented here. A single slit can make a pattern also from the diffraction off the side of each edge. There are two edges, so there are two diffraction patterns. The single edge, single slit, and double slit are all the same phenomena, only the variables change. It is a mistake to try to separate these into separate phenomena. All three produce an interference pattern. The diffraction pattern from a single slit or a single edge produces a pattern. There is no reason to say they are different; they are all interference. A double slit has four diffraction edges that light can diffract from.

The addition of a lens reveals interference at the edge. Harvard University.
https://sciencedemonstrations.fas.harvard.edu/presentations/edge-diffraction#:~:text=A%20point%20light%20source%20will%20produce%20seemingly

4.1. Single Edge Razor Blade Diffraction Review

Possibly getting a little ahead of ourselves here. We will start with this basic experiment. The name ‘edge diffraction’ can be misleading. (Figure 8) is the interference from the reflected knife edge created by wave impingements.

Edge diffraction: A point light source will produce shadows which turn out to be not at all sharp when viewed under magnification. Narrow interference bands are seen within the shadow of a straight edge while more complicated shapes yield more complicated interference bands.

Knowing how the image was taken gives evidence of collisions (Figure 7). Interference only occurs at the barrier (razor blade). Placing a lens in and out gives a minute clue to wave collisions. Is a lens required to produce the pattern? This is normally called diffraction, and it

also has an interference pattern. This not well covered when we move on to the double slit experiment.

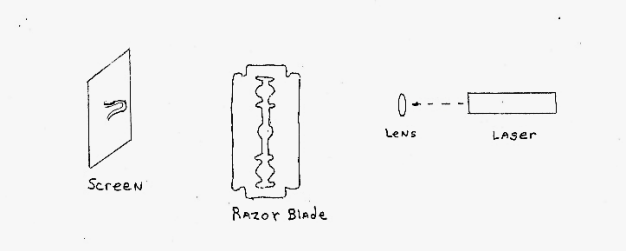


Figure 7. Razor Blade Setup.
Setup for Single Edge Razor Blade Diffraction and Interference. The screen is 3-4 meters from the blade. **Interference seems to only occur on the side facing the light source, and not behind it.** This knowledge is often left out when advancing to the double slit experiment. Smoke may allow the minute collisions to show up at the blade.

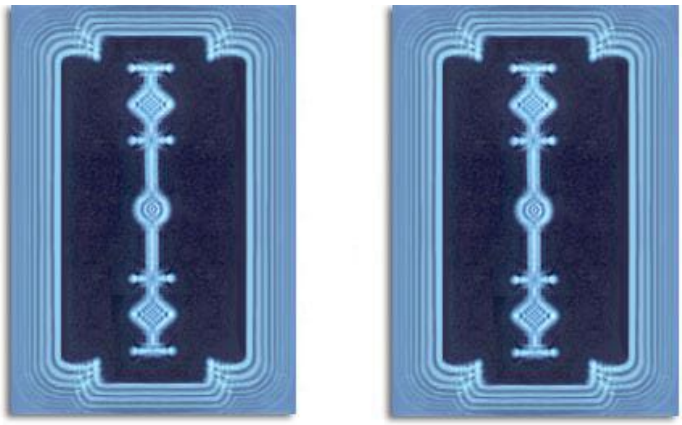


Figure 8. Diffraction at a Single-Edge Razor Blade Photograph. Stack Exchange. Clearly, this is an interference pattern. This pattern has formed on the outer edge, which would be the internal edges of a single or double slit. This is not always considered interference, another historical mistake. Note:Two razor blades are shown because each represents a single edge, and one might imagine moving the two blades closer to form a slit.

One can see from this photo (Figure 8) how confusion arises from this simple phenomenon. Diffraction curves inward around an object. This clearly is bouncing off the outer edge similar to reflection. The term diffraction might be split into two different catagories: Diffraction and edge reflection. This photograph also reveals that the interference occurs at the razor blade, so making calculations to solve for the interference pattern using the distance to the screen is another error, which simply ends up with a correct mathematical answer, bypassing reality. The pattern

actually begins between the slits openings. The answer should be arrived at the barrier or slit only. The equation should only require a few light waves and the dimensions of the slits.

Diffraction and interference are two terms often used interchangeably. In the process of spreading out it, light interferes with itself to create the interference pattern. Bypassing our congnitive ability. This interference is not reconized correcty with the single, or double slit. It requires the magnifacation setup as shown.

As shown in (Figure 9), merge the above two left and right edges together and the single slit interference pattern developes. Now slowly move the two side-by-side razor blades closer together. **When the opening narrows the overlapping pattern shifts and the fringe pattern changes.** Closing the slit changes the collision angles. If one conducts all these experiments disclosed within this document many times over with the possibility of dipole impingements in mind, eventually a light will turn on!

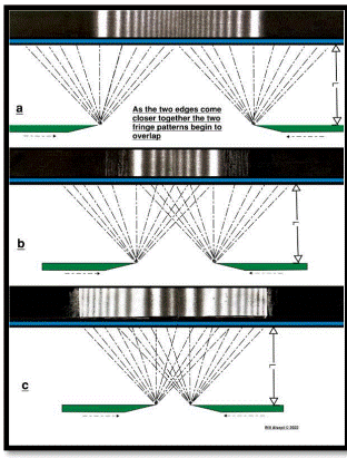


Figure 9. Bill Alsept
Bill Alsept has a unique method to calculate the interference patterns from 1 to 4 slits.
https://billalsept.com/

5.1. The Three Polarizer Experiment

Paul Dirac's 'Three Polarizer Experiment' is often described as a paradox or just a strange phenomenon. Usually demonstrated with the use of only three polarizers, the experiment easily arrives at the wrong conclusion, so it is not adequate to explain the phenomenon. Here, we will discuss, using common sense, how this dilemma can be resolved using the concept of impingement and the dumbbell dipole shape.

The experiment arrives at an incorrect conclusion using the principles of superposition. It is not superposition at all! Currently, there are no concrete (based on reality) conclusions on why light behaves this way. The present findings are based solely on mathematics.

A significant variation of this experiment, not often discussed, gives new insight into the three-polarizer experiment. In this variation, light passes through a row of 90 polarizers. The axis of each consecutive polarizer is rotated 1 degree further from the previous polarizer. In this case, only 3% of the light is lost (assuming ideal polarizers) in the 90 after the first one loses 50%. See the YouTube video by: Michel van Biezen
https://www.youtube.com/watch?v=S-ZEWGdGmak

Combined with the knowledge from the impinge theory presented in this document, the 90-polarizer experiment (only six are required at 15 degrees) strongly indicates there are dumbbell re-alignment impingements with each consecutive polarizer. In short, the dumbbells must rotate slightly to pass through the next polarizer.

The impingement explanation follows: The photons as dipoles bump (impinge) with the long molecule grid in the polarizer, and the dipole dumbbells flex, and their axis rotates, matching the axis of the polarizer as they pass through. This conclusion is based on common sense, not the Schrödinger wave equation, which has its roots in water wave superposition. Continuous dumbbell rotations occur with each consecutive polarizer. A high-efficiency thin film polarizer is required for maximum transmission. The number of dumbbells passing through depends on the angle and follows Malus's law. The dumbbells can pass through polarization angles of less than or equal to 45 degrees.

Malus's law states that the intensity of plane-polarized light that passes through an analyzer (polarizer) varies as the square of the cosine of the angle between the plane of the polarizer and the transmission axes of the analyzer (polarizer).
https://www.omnicalculator.com/physics/malus-law

The dipole dumbbells should be able to rotate or turn back and forth, first clockwise, then counterclockwise, through a series of polarizers, with only the loss calculated by Malus's law.

Due to some slight misalignment and side-by-side bumping impingements, not all the dumbbells manage to get through. The probability of passing through the polarizer arises from these factors and is calculated by the Malus law.' The same phenomenon occurs with radio waves, which will be discussed later in this document.

Radio waves are considered to be photons. They are similar and turn to align if the angle is not too great (requiring a special polarizer filter). The intensity is related to how many radio wave dipole dumbbells can turn enough to pass through the polarizer, and also follows the Malus law of polarization.

REQUIRED: Partial answer using microwaves.
HOW THE TRIPLE POLARIZER PARADOX REALLY WORKS
https://www.youtube.com/watch?v=wv5tUwDtZ2M

5.2. Circularly Polarized (Chiral) Light.

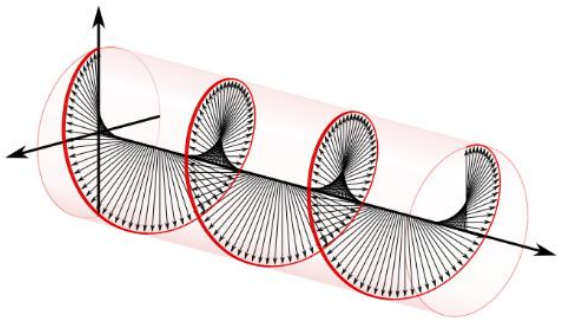


Figure 9.2. Circularly Polarized Light
Public domain: Dave3457
https://en.wikipedia.org/wiki/Circular_polarization

See below: Combining the two videos' concepts explains how circularly polarized light passes through a linear polarizer filter rotated at any angle. Simply explained as a flat spiral wire spinning through a slot (Needs Review).

At 1:48, a rotating helix wave from a cell phone is able to slide through a linear polarizer.
A. Circular Polarization:
https://www.youtube.com/watch?v=ycY2mUZHS84

B. Optical Tractor Beam with Chiral Light:
https://www.researchgate.net/publication/270906155_Optical_Tractor_Beam_with_Chiral_Light

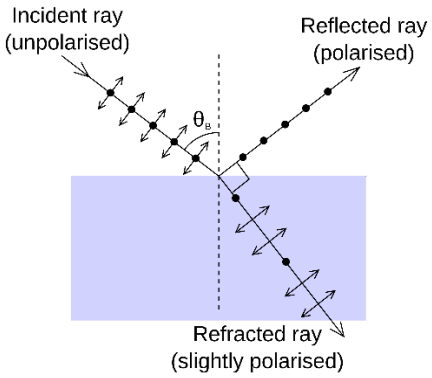


Figure 9.3. Unpolarized Light Reflecting off a surface
When unpolarized light impinges with a surface the electric field component turns and aligns parallel to the surface, while the magnetic field component oscillates perpendicular to the electric field. Another example of dipoles turning and aligning with a barrier.
(Wikipedia public domain: Pajs)

6.1. The Strand Experiments

Here are several examples of light impinging and bouncing apart, redirecting its paths into the bright fringe areas. This bounce and redirection would logically result in an intensity nearly four times greater, which is verifiable. This indicates that the words constructive and destructive are misused with light and only apply to undulating water waves.

Regarding Young's two slit diffraction for water waves experiment. See (Figure 10). This drawing works for water only and does not represent light correctly. This was many years ago, in the early 1800s, and is errantly used today for comparison to light. There are many simulations and drawings found on the internet which errantly show this type of pattern or something similar when describing the double slit experiment with light. The ripple tank does not represent light correctly. Note: The ripple tank forms neat, low-height undulating ripples that always pass directly through one another. However, large traveling ocean water waves will collide, transferring energy. Note: A ripple tank driven excessively produces waves that collide.

Making comparisons to water waves is an error! Note the dense crosshatch pattern shown in (Figure 10). If one calculates the path length difference in odd and even intervals with water, a dense crosshatch pattern results.

Of great importance to point out; the water interference pattern would disappear if a *tape barrier* (Figure 11) were placed in a water ripple tank as shown. This important difference between water and light waves cannot be ignored. Placing a tape barrier shown in blue in (Figure 15) between the path lengths does not change the interference pattern with light waves, so something else must be considered.

The tape (Figure 15) (shown in blue) has totally separated the two beams of light from each slit. Now, the so-called interference pattern comes from continuous strands of light. This indicates with light; collisions must have occurred at the slit and the light has fanned out into the pattern. The continuous concentric circles from each slit shown in (Figure 10, and 11) are not there with light. Because the light from each slit has collided at the slit and spread out into strands, there is no crosshatch pattern with light. After the initial impingements, there are no light waves there to overlap, as they have been completely separated by the collisions at the slit.

There is an error in understanding the double-slit experiment. The evidence clearly shows wave-to-wave collisions occurring starting at the slit. The current method to calculate the interference pattern arrives at the correct answer but for the wrong reason. It was all based on a mistake made years ago that everyone assumed was correct. Wave-to-wave collisions are difficult to accept because our mindset assumes that waves can only pass directly through one another. Light waves are not superimposing like water waves.

Two types of collisions based on alignment. They are either collide bouncing to the side, or collide spinning around one another. An early fundamental physics error: How the double slit experiment has sent physics down the wrong path. When light strikes any edge, the photon waves bunch up temporarily, forcing them into coherent alignment. The photons are squeezed together in order to pass through the narrow opening of the slit. This bunching up, into a temporary precise coherence, forces the impingements to occur, causing the light to form strands. After the collision, they immediately decohere after the edge collision, and the waves again pass directly through one another. This is why it looks like duality, but in reality, it's not. This applies to the double slit as well. The double slit only makes a cleaner pattern and is more prone to reach unreal conclusions.

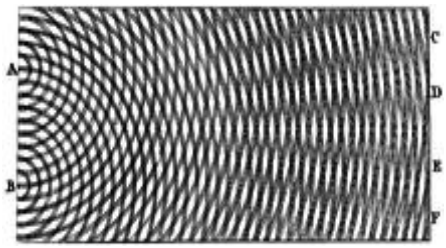


Figure 10.
Water Ripple Tank Interference

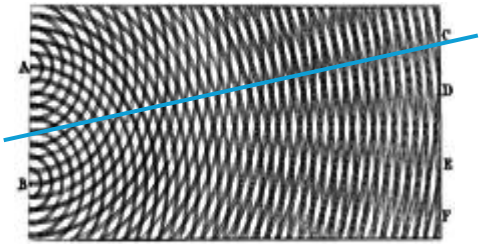


Figure 11.
Tape separating and preventing water or light from slit A from interacting with B.

https://en.wikipedia.org/wiki/Diffraction (Public domain.)

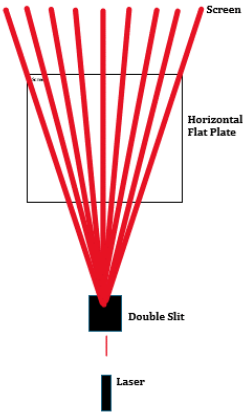
This indicates that the light has arranged itself at the slit and is not being canceled at the screen by the superposition of a crest and a trough, as is currently believed.

Revealed here in (Figure 12, 13, 14), impingement and redirection (at the slit) have totally separated the paths, and the dark, missing light through collisions has bounced, forming isolated

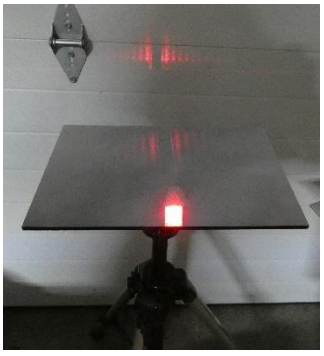
strands of light, as shown in (Figure 14). The intensity of each strand is the light from each slit plus what has bounced from the dark region into the strands. The equations for calculating the angles for the pattern are the same, except the path length difference is minuscule and occurs between the slits. It is important to note that collisions only occur at the barrier (slit). After that, the waves pass directly through one another again. The photons have changed from a particle-like behavior to a wave. However, they were never a particle. They simply collided for a brief moment, displaying a brief, solid-like behavior. A detector placed in the slit disrupts coherence and prevents the collisions. A detector cannot be placed at the slit without dissrupting the dipole dummbell allignment. To be blunt, the unreal nonsense of duality should be revised. Use your intuition: How does the individual strand's intensity increase by four?

S. Dutt. Ref [1]. Here, S. Dutt studies the strands of light from the double-slit experiment, explaining and concluding that they are discrete strands and supporting the particle theory of light. Dutt explained the interference patterns as photo-strand interaction patterns.
https://pubs.sciepub.com/ijp/9/4/2

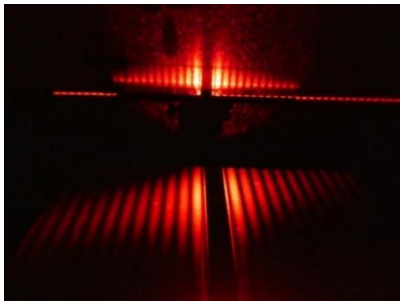
Interference pattern perpendicular to the beam. Light strands from double-slit interference and the free space between the strands. ***Note that this is not the same as water wave interference patterns. So obviously immediately something is wrong!***



Setup
Figure 12.



Room lights on
Figure 13.



Strands of Light
Figure 14.

Figures (12, 13, 14). Note: A card was placed in the center to block the intense center region required for the photographs (Figures 13 & 14).

A wide tape 16-feet long, as shown in Figure 15. separates the fringes, which should affect the pattern, but does not. Light from slit B cannot interact with slit A. Yet the interference pattern still forms. Unfortunately, the light on the right side was blocked off by a mount, but can be seen in the YouTube video. Required video: Double Slit Debunked 5 13:58-18:30

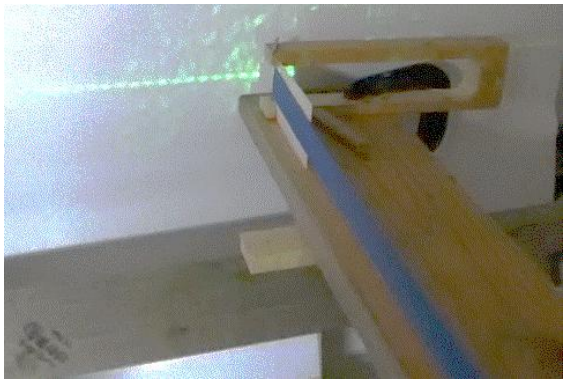


Figure 15. A 16-Foot Blue Tape Separates the Interference Fringes. Note only the last several feet are shown, and the slit is over 16 feet away.

The drawings in (Figures 16, 17, and 18) given in most explanations are incomplete, not revealing the complete arrangement or maze of interconnected dumbbell-shaped knit-together waves.
J S Lundeen at the English-language Wikipedia, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
https://en.wikipedia.org/wiki/Coherence_(physics)

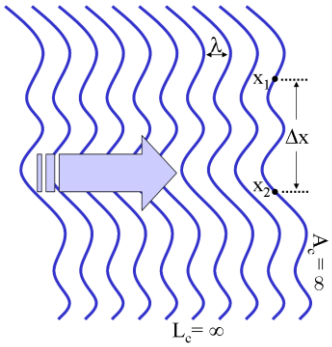


Figure 16. A Wave with Varying Profile (wavefront) and Infinite Coherence Length.

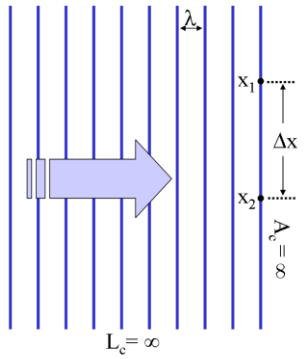


Figure 17. A Plane Wave with Infinite Coherence Length.

A wave with finite coherence area in incident on a pinhole (small aperture) (Figure 19). The wave will diffract out of the pinhole. Far from the pinhole, the emerging spherical wavefronts are approximately flat. The coherence area is not infinite, while the coherence length is unchanged.

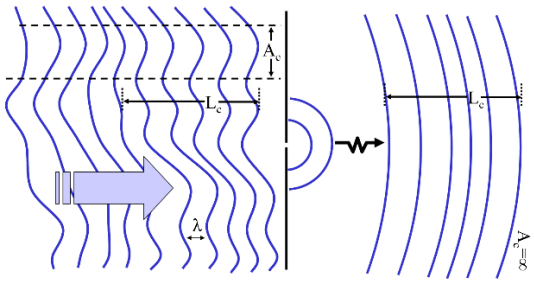


Figure 18. Pinhole Spatial Filter (example of a type of wave alignment)

The current concept of the addition of waves (Figure 19) is based upon water ripples and does not represent light correctly. The concept of the impingement of waves will replace this for electromagnetic waves (photons). They are totally different. The addition of waves drawings commonly used to describe photons is wrong. The photon as an electromagnetic wave height is fixed and is directly related to its wavelength. The use of an addition of water waves drawing is prohibitive with light which does not travel upon itself as water waves do. Water wavelengths which require water to propagate within can have any height. These are substantial differences. The drawing shown below is not a correct representation for electromagnetic waves (photons).

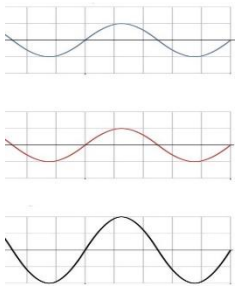


Figure 19. The Addition of Water Waves
This representation is not quite correct for light waves. However, it does represent the increase of intensity correctly. Occasionally the oscilloscope is used to show the addition of light waves, which promotes a misconception.

What happens to the light energy when waves perfectly cancel each other? All kinds of different answers are given (the main one is it goes into the magnetic field). However, it still ends up with unreal conclusion.
https://physics.stackexchange.com/questions/23930/what-happens-to-the-energy-when-waves-perfectly-cancel-each-other/23953#23953. Circular reasoning is used to explain why the intensity is four times greater and how it is explained in quantum mechanics. With current theory, there is a weak argument about where the extra light intensity in the bright regions comes from, and is assumed to be from superposition as that of the water in the ripple tank. With the current physics theory of superposition, somehow the light intensity energy is hidden in the electric or magnetic field, then suddenly appears again when undergoing constructive interference. This is nonsence! Because unlike water we have identified there are impingements that form light strands. The intensity of the bright fringe's quadruples. Where do you think the light from the dark areas went, and how did it get there? Or conversely, where did the four times intensity increase of the bright fringe get its extra light from? Why isn't it just two times intensive? Is the energy from the dark areas hidden somewhere? Ask yourself using the principles of logic, impingements, and the dumbbell shape how can the intensity become four times greater? Remember the crosshatch pattern is not there!

6.2. Interference Between Side-by-Side Coincidence Light Waves

Evidence of a temporary alignment at the slit. "Light waves can combine and interfere when the vibrations produced by the electric field vectors from each wave are parallel. If the vectors are vibrating at some angle between 90 and 180 degrees with respect to each other, then the waves cannot interfere."
https://www.microscopyu.com/techniques/polarized-light/principles-of-interference

7.1. The Phase Conjugate Mirror Collision Principle

(Further evidence of light wave collisions).
Steven Lehar, in his paper '[An Intuitive Explanation of Phase Conjugation]', describes the mysterious phenomenon as wave collisions.

How do phase conjugate mirrors reflect light directly back to the source regardless of the angle of the incident beam? Similar to high amplitude (non-linear) water waves that collide, the waves do not simply pass directly through another unaffected; instead, part of the wave collides, and momentum is transferred. This collision concept gives us insight into the principle of phase conjugation.

This implies there is a minuscule interaction and transfer of a force between similar-sized waves from the impingement of waves during the interference of light. A superposition duality illusion has resulted in misinterpretations and delusion. Waves also vibrate the molecules, the principle behind the microwave that heats our food, a particle is not required.

8.1. The Photoelectric Effect

Another misconception becomes apparent with the photoelectric effect theory. A light wave of the proper frequency can knock an electron off. It does not require a solid particle. It does not have to be like billiard balls. Only the correct wavelength is required (not the intensity). The dumbbell alignment collisions forming the interference pattern should be proof enough for this. Electromagnetic collisions make light waves appear as particles. Impingements replace particles here. Also, the fact that monochromatic light is required for observing clear and consistent interference patterns supports the collision model. If the photon waves are not the same size, they align at the barrier (slit) uneven resulting in a fuzzy pattern.

8.2 Planks Constant

Einstein's quantum hypothesis: The energy of each individual oscillator can take on only value that are integer multiples of hf. In the nth "level," the energy is En = nhf where n = 0,1,2,3, . . . Einstein's hypothesis implies that an oscillator can emit or absorb radiation only in multiples of hf. The spacing between the energy levels depends on the frequency.

Planks constant and the one Hertz (one cycle) viewpoint:
You might find this on the origin of Planck's constant interesting. Blackbody radiation: What causes it to be divided into this very small unit? Using this model of a string of dipole waves we can clearly see what Planck's constant origin is. Never before described in detail. This is the source for the quantum. Neatly formed single wavelength helix waves connect everything. Connected in strands side by side they interlock and will split apart into single dipoles when impinged against a similar sized wave. The unlocking and locking (splitting and re-combing the helix strands) is the foundation of chemistry and will be revealed how

it is connected to magnetism and gravity, but only possible with the impingement attributes given in this paper.

Starting with the conversion factor for Energy Units:
1.509 E+33 cycle/sec = 1 joule. Ref. [16]

Taking the inverse of the above we find the energy of 1 cycle per second:

$1/(1.509\ \text{^}33) = 1\ Hz$ (1 cycle) = $1\ Hz = 6.626^{-34}$ Joule-seconds or (Planks constant)

So, we find that 'one cycle per second' of any sized wave is Planks constant. This is how any wave string can split apart into single sized waves, thus having causality.

All these attributes given within this paper have to be considered together to solve the delema of duality.

9.1. Quantum Entanglement

When two particles, such as a pair of photons or electrons, become entangled, they remain connected even when separated by vast distances.
https://scienceexchange.caltech.edu/topics/quantum-science-explained/entanglement

One Photon in, TWO Photons out
https://www.youtube.com/watch?v=1MaOqvnkBxk
https://en.wikipedia.org/wiki/Quantum_entanglement

For the most part, we will only cover light waves because electrons are more particle-like and unlike free photons can have any velocity, might require a revision, a similar transition to that from water to light.

Radio waves are considered as photons. Since light is an electromagnetic wave, it should be no surprise that a similar phenomenon of entanglement can be found in radio waves. The mystery of quantum entanglement can be solved by the knowledge of radio wave communications, and the concept of 'impingement'. Currently radio waves are considered to be similar to water waves and pass directly through one another. Since we have already given plenty of evidence of the contrary, we may consider dipole impingements again.

Quantum entanglement is briefly covered here because it is part of the subject matter. As previously covered, light wave duality can be explained by dipole impingements. To explain entanglement, however, part of the knowledge from a sub-branch of electromagnetism is required. The classical physics sub-branch we will need is 'radio wave communications and detection.' Wave-to-wave collisions will also be required.

We will focus on '*radio'* electromagnetic radiation and feedback. The essential parts we will use to explain entanglement are antennas, coax cable, reflection, radio electromagnetic radiation, and radio wave interference.

Radio and light are equivalent in that they both have dumbbell like collisions. Like light the dumbbell shape from the dipole is required. The dumbbells in this case are the size of the wavelength of the radio wave. For example, at 300 MHz frequency, the dumbbells would be one meter long, a trillion times larger than a light wave. The radio wave size dumbbells perform the same function as described previously in the 'dumbbell section', in the case of radio waves it is far more apparent.
Shown below are several examples of similarities of entanglement from classical radio theory.

Example 1:
Radio wave entanglement occurs between two nearby antennas emitting the same carrier wave. This phenomenon affects each antenna's output by altering its polarization, a process known as cross-polarization isolation. Although each polarization has its own radio frequency (RF) feed, they still influence one another. For instance, vertical polarization can be affected by horizontal polarization and vice versa:
https://www.bing.com/search?q=2+antennas+in+proximity+interfere&FORM=QSRE2
If only superposition was in affect this could not occur without altering reality.

Example 2:
A radio tower emitting a sine wave is picked up by the antenna of a nearby radio receiver. If a large metal plate is placed nearby, the signal reflects off the plate, altering the polarity of the receiving antenna. Turning the plate changes the polarity angle. With the higher frequency of light, the detector polarizer plate in the quantum entanglement experiment is analogous to the metal plate reflector of the radio wave.

See Ref. [9] Hans G. Schantz Q-Track Corporation. "On the Superposition and Elastic Recoil of Electromagnetic Waves" http://arxiv.org/abs/1407.1800/

The paper argues that the energy, and thus the waves, rebound elastically from the location of a perfect constructive or destructive interference.
"Interferences of identical waveforms allow no energy transfer between opposite ends of a transmission line the waves appear to recoil elastically one from another.

Schantz states; "Asking what really goes on is irrelevant because we already have a mathematical description of electromagnetic phenomena that matches our measurements. Hence, there is no need to have a real description since the mathematics already work. This is the state the double slit is in.

See (Figure 20) Magnets have no clear explanation or causality. They are still a curiosity with a good mathematics relationship.

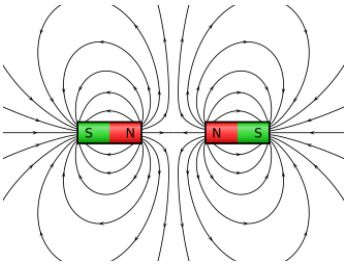


Figure 20. Opposing poles of magnets repel and push apart (They feel like elastic wave like impingements). Wikipedia (Public Domain)

9.2. Impedance Matching (SWR)

Example 3:
What impedance matching actually look like?: BetaPhoenix.
https://www.youtube.com/watch?v=RkAF3X6cJa4&t=12s

Nearly comparable to example (2) entanglement occurs when a radio wave traveling down a coax cable feeds back to the source. Instead of a coax, a wake is left (may only apply to electrons) and can reflect back. Light traveling in a straight line gives the appearance of traveling down a radio coax cable, or a fiber optic cable.
Hypothesis: The light beam in the quantum entanglement experiment *acts* like (an illustration) an invisible coax cable, and energy is reflected back to the photon-splitting crystal (beta barium borate). The act of measuring changes the spin polarization by dumbbell collisions.

The reflecting photon affects the polarization at the crystal or simply impinges with the incoming waves, altering the polarity. Changing the angle of the detector alters the outcome by altering the feedback, turning it on or off. Either way, wave-to-wave impingements are the simplest explanation.

Hypothesis: Moving the detector linearly with the beam with a micrometer will also alter the outcome.

Similar to a mirror (or a steel plate in the case of a radio wave), energy is directly reflected back to the source, altering the polarization. Moving the detector angle polarizer to the side prevents the direct feedback in the entanglement experiment.

https://diy.stackexchange.com/questions/153190/can-two-antennas-in-proximity-interfere-with-each-other-if-theyre-not-amplifiedhttps://www.youtube.com/watch?v=tfmBvu30RfY

Example 4:

A ham radio emits a 1000-watt 1 kHz sine wave from its antenna. If the antenna coax is suddenly disconnected, the sine wave energy hits the end of the coax and reflects (bounces) back into the radio, causing overheating. This is the same as the interferometer light during the blackout condition MIT YouTube video "Where Did the Light Go**?"** blackout and the Einstein-Podolsky-Rosen Paradox. Electromagnetic wave feedback is measured as the standing wave ratio (SWR) in radio coax circuits.

In the EPR experiment, feedback similar to a radio wave, either free or in a coax, explains this part of the phenomenon. Spooky action at a distance, Einstein could not explain it because of the strict rule of superposition only.

Electrons may be constructed of waves and, unlike photons, are more particle-like entities and may require a variation. Unlike directly passing two opposing beams of light directly through one another without any apparent effects. Passing two opposing beams of electrons, the billiard ball effect occurs. Yet still we have wave-like effects. One possible answer is a missing field. For lack of a better word, we will call it the sea, like the ocean sea, or the 'Dirac Sea'. The electron leaves a wake when traveling through this wave net like sea.

10.1. The Single-Photon Experiment and the Pilot-Wave Theory

Introduction of a classical explanation to the single-photon and the pilot-wave theory. The current analysis and conclusions of the single-photon experiment are faulty. There are other ways to approach this. Only the foundation principles are covered in this paper. We will briefly cover this part of the subject regarding the pilot-wave theory and the single-photon experiment. Some refinements will be suggested for the electron, which is already more particle-like.

Piolet wave theory Wikipedia: https://en.wikipedia.org/wiki/Pilot_wave_theory

Louis de Broglie developed the dynamical equations for his pilot-wave theory. Initially, de ***Broglie proposed a double solution approach, in which the quantum object consists of a physical wave (u-wave) in real space which has a spherical singular region that gives rise to particle-like behavior.*** He later formulated it as a theory in which a particle is accompanied by a pilot-wave. de Broglie presented the pilot-wave theory at the 1927 Solvay Conference. Notice his description of a 'spherical singular region' and how it compares to the dipole dumbbell shape.

De Broglie later formulated it as a theory in which a particle is accompanied by a pilot- wave. However, Wolfgang Pauli raised an objection to it at the conference, saying that it did not deal properly with the case of inelastic scattering. De Broglie was not able to find a response to this objection, and he abandoned the pilot-wave approach. Unlike David Bohm years later, de Broglie did not complete his theory to encompass the many-particle case. The many-particle case shows mathematically that the energy dissipation in inelastic scattering could be distributed to the surrounding field structure by a *yet-unknown mechanism* of the theory of hidden variables.

Hence the piolet wave theory was abandoned because it did not deal properly with inelastic scattering and an unknown mechanism.

The de Broglie-Bohm theory: Wikipedia:
https://en.wikipedia.org/wiki/De_Broglie%E2%80%93Bohm_theory

The de Broglie-Bohm theory works on particle positions and trajectories like classical mechanics, but the dynamics are different. In de Broglie-Bohm theory, the quantum **"field exerts a new kind of quantum-mechanical force".** Bohm hypothesized that each particle has a **"complex and subtle inner structure"** that provides the capacity to react to the information provided by the wavefunction by the quantum potential.
objections

The impingement theory answers the objections that made the pilot-wave theory incomplete:

A. 'Yet unknown mechanism' Answer: (dumbbell collision mechanics).
B. 'Inelastic scattering' Answer: (weightless EM wave to wave collisions).
C. 'Complex and subtle inner structure' Answer: (dipole dumbbell shape).

So, what we have here now is: The dumbbell shape, impingements, and EM Feedback. This seems to fulfill the hypothesizes Bohm presented. A mathematician armed with the *'dumbbell shape'* and *'impingements',* may develop a realistic mathematics theory.

Note the hypothesis by Bohm: "New kind of quantum mechanical force", and "complex and subtle inner structure". The authors hypothesize: 'The new force is dipole collisions, and the inner structure is the dumbbell dipole shape.'

Photon Feedback loop. Related to the single-photon experiment.

The authors believe that the pilot-wave theory failed because of the strict rules of (water wave like) superposition. The authors suggest that part of the pilot-wave theory can be revived by combining the aspects of the impingement theory with the piolet wave theory. The impingement theory fulfills the objections of inelastic scattering and the unknown mechanism that Pauli raised. Also, there is a strong possibility of a field in the vacuum of space (aether field), and the possibility the photon or electron leaves a wake on the aether field.

The Vacuum Catastrophe. Al Labs https://www.youtube.com/watch?v=_lkFqQG1Aio

The purpose of the main document was to disclose the error in the superposition of light waves and to introduce the impingement theory. However, there are some experiments that still don't have complete logical answers such as the single-photon and the pilot-wave theory briefly covered here.

This problem requires detailed logical reasoning and can be solved using the principles of logic!
https://en.wikipedia.org/wiki/Logic

The initial conditions and principles for logical reasoning are given below:

Do Electrons Really Exist? Neil deGrasse Tyson Explains
The electron is a point particle, too small to measure. Indicates it is a vibration on a field.
https://www.youtube.com/shorts/RJdadlwaamk

The Strands section gives adequate proof that the photons impinge, and the light separates at the slit. Enhancement to the piolet wave theory is suggested.

The authors believe the single-photon experiment and the piolet wave theory are related.
Single-photon experiment on the proof of pilot-wave existence V.A. Skrebnev
https://vixra.org/pdf/1912.0371v1.pdf

All the double slit experiments before 1961 were performed using light. However, in 1961, Jönsson demonstrated diffraction from different number of slits using electrons instead of light (Jönsson, 1961, 1974). Similarly, the attributes of water waves were applied to light. Now the results from light are applied to electrons and vice versa. There is a good possibility that these should be separated.

Shown below are some basic principal concepts to consider when considering, or relating the pilot-wave theory and the single-photon experiments:

1. Wave-to-wave dipole collisions and not superposition.

2. Refinements to the pilot-wave theory with the possibility of a broken field (See #6 Majorana photons)

3. There is the possibility that the electron requires an aether and the photon does not. The electron is particle like and leaves a wake. It would seem logical that light travels on the aether field, and the more particle like electron travels through the aether field.

4. Possibility of an aether field where a wake can be formed similar to a torpedo in the water. The aether field was ruled out years ago but is still in contention today. It looks like the aether field is required. Can both the collisions and the wake be in effect? Yes, both can be in effect as the pitcher and batter standing on the platter paradigm suggests. See Theory file at Ref [2].

5. The magnetic permittivity of free space: ($8.85x10\text{^}(-12)$ Farad/meter or 376.7 ohms). Some physicists believe this indicates the presence of an aether field (3-d net).
https://en.wikipedia.org/wiki/Vacuum_permeability

6. Majorana photons: There is evidence of photons splitting in half when they impact a solid (the edges of the slits) called a Majorana Boson.

7. The aether and why it is not detected. The molecule's gear mechanism.

The Misinterpretation of the Michelson Morley Experiment. (The Constant Velocity of Light and the search for aether.
See file: Theory Ref [2]. Pg 12. **Three-dimensional net like field.**
Molecules Act Like Gears

8. Oscillator radio feedback on the aether field.
https://aetherczar.substack.com/p/347-what-is-free-space

As previously mentioned, this paper is about the dipole dumbbell collisions to solve the dilemma of duality. However, because the rats nest reaches into the depths of physics, the simple illustration (Figure 21) is provided to ease the tension in the minds of naysayers.

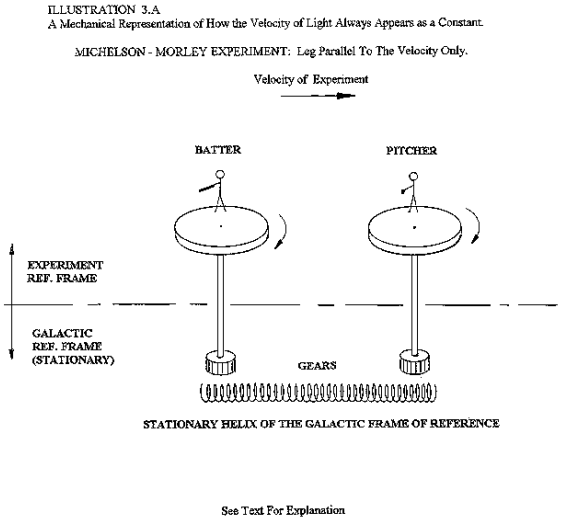


Figure 21. Mechanical Representation of How the Velocity of Light Always Appears as a Constant

In (Figure 21) we can visualize how all things are connected together by gears and spinning dipole helix waves. Duality, chemistry, gravity, inertia to name a few. A more complete explanation can be found at Theory Ref [2].

Mach's principle, in cosmology, hypothesis that the **inertial forces experienced by a body in nonuniform motion are determined by the quantity and distribution of matter in the universe**. Einstein found this hypothesis useful in formulating his theory of general relativity.
https://en.wikipedia.org/wiki/Mach%27s_principle

Piolet wave video. Watch the last 2.40 minutes
Yves Couder . Explains Wave/Particle Duality via Silicon Droplets [Through the Wormhole]
https://www.youtube.com/watch?v=W9yWv5dqSKk

All the interpretations of quantum mechanics have some difficulties.
Weakness of Pilot-Wave Theory – Ask a Spaceman! Dr. Paul M. Sutter
https://www.youtube.com/watch?v=t7zoJLuRb6c

The below three YouTube videos are very interesting. The barber pole effect of shining polarized light into sugar water. The Barber Pole Effect: By: 3Blue1Brown
https://www.youtube.com/watch?v=QCX62YJCmGk&list=PLZHQObOWTQDMKqfyUvG2kTlYt-QQ2x-ui

How wiggling charges gives rise to light: https://www.youtube.com/watch?v=aXRTczANuIs

The below YouTube video appears to support the pilot-wave theory and is similar to the radio wave theory in this paper. But why would light slow down?
https://www.youtube.com/watch?v=KTzGBJPuJwM

Modeling the Aether: Interviewing Chantal Roth:
https://www.youtube.com/watch?v=THLV7PRYJGI

Locality Wikipedia: Something in the vacuum of space (a missing field). Something must carry the influence: https://en.wikipedia.org/wiki/Principle_of_locality

Single-Particle Diffraction and Interference at a Macroscopic Scale:
DOI: https://doi.org/10.1103/PhysRevLett.97.154101
file:///C:/Users/Scott/Downloads/Couder-Fort_PRL_2006.pdf
file:///C:/Users/Scott/Downloads/The_photon_Experimental_emphasis_on_its.pdf

https://www.researchgate.net/search?q=Single-Particle%20Diffraction%20and%20Interference%20at%20a%20Macroscopic%20Scale

11.1. The Uncertainty Principle

Wave-to-wave impingements are the source of Heisenberg's Uncertainty Principle. Attempting to find a particle's position requires an impingement, which disrupts its momentum. This leads to the loss of the interference pattern and the collapse of the mathematical wave function, which is then caused by the impingement of waves. In short, the collision disrupts the position and changes the outcome. An impingement is required to detect the position which in turn decoheres the dipoles resulting in (type 1) conditions again. https://plato.stanford.edu/entries/qt-uncertainty/

11.2. The Collapse of the Wave Function

What real thing can the collapse of the wave function be describing? Currently there is no casual explanation for it. and the description is only in a mathematical form. It has no casual equivalent.

Or one might ask, what is it really? Can it have a tangible explanation, or is it only a mathematical explanation without any physical connecting attribute? Yes, that is what it is, it only describes the results. Here we will find that two basic types of collisions of the dipole dumbbell shape, defines exactly what the mathematical collapse of the wave function represents. Before this disclosure there was no explanation for what the collapse of the wave function represented. Hence it had no connection to reality!

The complete FUN TO IMAGINE with Richard Feynman.
https://www.youtube.com/watch?v=P1ww1IXRfTA 1:01:30
Richard hints that he did not understand the source of mathematics. He just knew the equations worked. This is what is happening with the current understanding of the double-slit. We're allowing the equations to describe the phenomenon. If only Feynman had known that EM waves could collide.

13.1. Conclusion
Summary of the Formal Protest on the Concept of Superposition of Light Waves.

Dozens of illogical interpretations have previously attempted to integrated both the wave and particle perspectives. Richard Feynman described superposition of light waves as "a phenomenon which is impossible to explain in any classical way. It contains the only mystery of quantum mechanics." However, a classical explanation for this phenomenon has now been proposed.

The experiments provided and the evidence show that the water wave-like superposition commonly associated with electromagnetic light waves is incorrect. To name a few:
The strands experiment where the two beams from each slit are separated by a long barrier and the interference pattern still forms, indicating a collision separation at the slits.
The 90 polarizers in a row illustration indicates impingements and an oblique shape (the dipole).
Professor Ezekiel at MIT Where the two beams from an interferometer collide precisely directly head on resulting in no light output, also indicates solid like collisions.

The impingement theory explanation involving light wave-to-wave interactions has been put forth. Huygens' monopole wavelet has been upgraded to accommodate an electric dipole model. Two types of electric dipole interactions, shaped like dumbbells, have been hypothesized. These interactions exhibit an illusory "on/off switch" characteristic, which can mislead observers into perceiving a false dual nature.

The aligned type collisions only occur at the barrier (slit). After that, the waves appear to pass directly through one another again. The photons have changed from a particle-like behavior to a wave. However, they were never a particle. They simply collided for a brief moment, displaying a brief solid-like behavior. A detector placed in the slit disrupts coherence and prevents the

collisions. A detector cannot be placed at the slit without dissrupting the dipole dummbell allignments.

Two types of dumbbell interactions are suggested integrated into the pilot-wave theory, helping to address issues such as inelastic scattering and the unknown mechanisms referenced by Pauli, de Broglie, and Bohm. The theory also suggests a missing field, and a helix wave form explains why the aether field cannot be detected.

The concept of wave-to-wave impingements can easily be connected to quantum mechanics.

13.2. "Impingement" a Classical Explanation

In every current conversation and interpretation of interference, superposition is considered as a given, like an incontestable act of God, and any other concept such as impingements, is simply out of the question. If one Googles this, you will find millions of hours and examples, and tens of thousands of books, all based on waves passing directly through one another, and they all end up with unreal spooky results. So, what we currently have is something that we can see with our eyes, but is not actually real, and theoretical physicists solely using mathematics are still trying to figure it out. Unfortunately, they never will due to the error in superposition.

Dipole impingements are the only way to solve this conundrum! The theories of the past were based upon water wave superposition and from ideas over 100 years old. The dumbbell shape, and the two types of impingements, give photons the appearance of a '***on/off switch'*** that we errantly have identified as duality. It is just a simple puzzle where all the pieces have to found and be put in the right places.

The 1927 Copenhagen interpretation of quantum mechanics has a flaw. A great decision was made many years ago, and it is something everyone has built upon. However, several men opposed it at that time. Based on the knowledge we have acquired with modern equipment and acquired knowledge; another meeting should be held to reevaluate the decision of wave-particle duality.

YouTube video: "A Massive Problem All of Physics Missed" By: Curt Jaimungal.
A three day tour with a Harvard scientist. Main Episode interview with ***Harvard scientist Jacob Barandes: At 9:20 of the video Jacob says; "we need to go back and do some debugging"***:
https://www.youtube.com/watch?v=9v-d7CDvcok

This paper lays a foundation to unravel the bird nest that resulted from electromagnetic wave superposition. All of quantum mechanics has been errently derived from the concept of water wave like superposition! This is a serious error in the foundation of quantum mechanics. Somehow mathematicians have been able to work around it and arrive at correct answers. After personally reviewing all these experiments in detail, I find it hard to believe this has gone on for so long, It still is based on water wave superposition, and Huygen's wavelet developed hundreds of years ago.

Mainstream Physics is Stuck Using “Training Wheels”. By: Ruth Kastner.
https://www.youtube.com/watch?v=uCchEFoNA6I

They are trying to prove a dead theory! Physics is failing and will continue unless fundamental concepts are changed. Impingement theory is the new paradigm. Consciousness has nothing to do with it!

The dilemma of duality has been resolved. There is no superposition of light occuring with the double slit. However, there is always an exception: combining and splitting, different-sized waves, or deformed arrow-like piercing waves.

If a tree falls in the forest and there is no observer to detect it, does it make a sound?
This analogy seems to be somehow related to Schrödinger’s cat. Einstein and Niels Bohr discussed something similar to this and related it to quantum mechanics.

This is not the first time the principle of superposition has been attacked. Both Einstein and Schrodinger attacked Dirac’s principle of superposition. Superposition, so firmly rooted in the foundation of physics, makes the impingement theory a difficult concept to accept, but there is no other choice!

Just as Dalton’s atomic theory from the early 19th century had to be revised with the discovery of subatomic particles, the principles of superposition and duality also require modification to incorporate the concept of the impingement of waves.

This paper covers the principle! The subject has been beaten to death from every direction till there is nothing left. The phenomenon is from two types of impingements of dipole dumbbells and redirection when the light waves intersect a solid edge. That’s all that’s left! There is no other way! Presently, all the interpretations thus far have resulted in unreal conclusions.

If light waves cannot impinge, it isn't real. We might ask ourselfs; is the phenomenon real or unreal? There might be some characteristics missing with electrons, which are like particles (suggestion ,encapsolated waves) already. Moving from water to light and then to electrons, each requires its own foundational characteristics to understand the experiment results. There are some suggestions, such as a missing field, but that will have to be resolved by the physics community.

Wave-to-wave collisions also appear in spectroscopy. The atomic spectra wavelengths of highly excited atoms collide and arithmetically sum Ref [2].

One can cognitively resolve the error in superposition, and the collision attributes from past experimental evidence, radio theory, and the performing of astute experiments yourself, and with a little help from above!

Psychology: Why can’t people fathom it! Throughout antiquity, the human mind has been conditioned by our environment, so that only solids are capable of collisions. When our cognitive reasoning stumbles it becomes mysterious. And using our (it must have matter, or solid particle

like) physical mind we develop unreal answers. So, we conclude that everything has to be solid to affect something.

The subject has become truly complicated. If one does not fully read the details presented here several times over, you will not come to grips with the collision dipole dumbbell concept of the impingement theory, and the only alternative is unreality. Help will be required to finish and polish the impingment theory.

In a nutshell, no one could explain this much better than Tim Maudlin in this video.
Tim Maudlin says, "We should specify a physical ontology. You don't have a theory you have a predictive recipe. We need clear statements of what the world is."
The Problem with Quantum Theory: Tim Maudlin
https://www.youtube.com/watch?v=hC3ckLqsL5M

The Impingement theory presented in this paper is a new foundation to build upon.
This serious fundamental physics error has sent physics down the wrong path. The electromagnetic wave physics built upon water wave superposition must be re-evaluated for physics to move forward.

Why did we approach this subject in this way? We were looking for a force for a phenomenon we were studying. When the theory described here is combined with a pulsing, rotating torsional electromagnetic helix wave, and the impingement concept, puts the force back into gravity. It explains with common sense the mechanism for magnetism, chemistry, and a host of other physics. The impingment theory allows gravity to be unified with the quantum theory. It also provides the appearance of curved space-time.

https://en.wikipedia.org/wiki/Tests_of_general_relativity
Hypothesis: The gravity helix waves distort or warp the aether field and the light path is curved by this warp. Math terms can be added to Newton's gravity theory to account for the bending of light.

Michael Faraday: Man of Science, Man of God (with Prof. Andy McIntosh)
https://www.youtube.com/watch?v=v8Gx3p_7hvE

Impingement and the dipole shape provide the properties of the causality of magnetism, gravity, inertia, length contraction, curved space, and the constant velocity of light. It is not that hard to figure out! See the file: 'Theory' found at Ref [2].

Should we continue to exclaim "it's not real, it's some unusual phenomenon, or spooky" or should we use Occam's razor?

"When you have eliminated the impossible whatever remains, HOWEVER IMPROBABLE, must be the truth."
Authur Conan Doyle, Sherlock Holmes.

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