CONTINUUM CENTER

BP – Light and Photons

Einstein was asked 'What's the most important question?' To which he replied, 'Is the universe friendly?'

He also said that if he could spend his whole life over again, he would spend it studying light.

Quantum physics was born from the efforts to study light.

Max Planck, founder of quantum mechanics found that light did not stream in a flow, but in packets of energy called photons. Planck said *"Photons behave like intelligent human beings"* because they choose the quickest route to their goal, not the shortest.

www.askamathematician.com/2011/08/q-why-does-**light**-**choose**-the-**path**...

Excerpt: ***"This should come across as deeply spooky. A particle that somehow "scouts the future" and then picks the fastest path to get where it's going seems impossible.*** "

Einstein couldn't explain findings that he called "spooky action at a distance." When E H Walker added the information principle to Schrodinger's equation to resolve the EPR paradox, it also explains many other things…like how everything is interconnected across time and space and how particles "know" things. It's not spooky, it's an underlying know-how…that science is finally coming to recognize.

When we speak of intelligence we are talking about an underlying information principle active in the universe, like the ancient Greek philosopher scientists who spoke of the realm of ideas that exists prior to the material world. This view neither requires nor rejects an omniscient Deity.

We are focused on making the scientific case for self-organizing, creative, intelligence interconnecting the universe across time and space, and coming from beyond space-time.

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What follows is a compilation of research (and commentary) about how photons and consciousness demonstrate those properties.

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Brian Whitworth Excerpt: *"There is a theory which states that if anyone discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable.There is another theory which states that this has already happened."* (Adams, 1995)

ABSTRACT
"This chapter derives the properties of light from the properties of processing, including its ability to be both a wave and a particle, to respond to objects it doesn't physically touch, to take all paths to a Destination; to choose a route after it arrives, and to spin both ways at once as it moves. ***Here a photon is an entity program spreading as a processing wave of instances…"***

We need to understand things like wave functions and vector state collapse involve something very different from mechanistic, physical parts thinking. Quantum physics is about process, interaction and relationship. It is about collapsing waves of possibility into 3D singularities.

The study of photons, quantum physics, revealed a new set of operating assumptions and led the description of a new paradigm. It takes a long time for paradigms to shift. And there's breakdown before there's breakthrough.

We follow the facts as researched and/or reported by very reputable scientists. Many think in terms of only 3 dimensions and time…most physicists today will say there's likely more than that. We see only a tiny sliver of the light spectrum and call it "reality;" we need to move our minds past the limits of our 5 senses.

Wave functions are at the heart of quantum mechanics. These waves are very different from ocean waves, on a whole other order, and definitely speaking to the interconnectedness of the universe beyond time and space, and the inextricable role of the observer in collapsing infinite waves of possibility into actualities...hardly "mechanistic science as usual."

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Here is a summary of some current lines of thought on photons…edited by **Arthur Zajonc, Amherst physics professor, author,** ***Catching the Light***

http://books.google.com/books?hl=en&lr=&id=Z6hWmaHZFigC&oi=fnd&pg=PP1&dq=definition+of+a+photon&ots=JFYUTw0a-7&sig=_UgiTpjc7O9nn-zUfg93l5YiR_k#v=onepage&q=definition%20of%20a%20photon&f=false

Here's a little from New Physics, his edited compilation which includes many physicists and related scientists in conversations with each other and the Dalai Lama.

We are definitely in a paradigm shift to operating assumptions based on findings from quantum physics, which converge with new models/findings in fields including brain science and biochemistry, to name a few. The nature of photons and consciousness – when explored from a wider-than-materialist perspective – become intertwined.

David Ritz Finkelstein teaches and studies physics at the Georgia Institute of Technology and edits the international Journal of Theoretical Physics: *"The hardest part of each dramatic change that has occurred in physics since 1600's has been to become aware of the assumptions of the old theory that had to be given up…**The most confusing state of affairs is during the early days of a new theory, when you still cling to some of the old assumptions, and yet some rewards of the new theory are attracting you further.**"*

Piet Hut holds the unique distinction of being a professor of both astrophysics and interdisciplinary studies at the Institute for Advanced Studies in Princeton. Piet distinguished himself early for his landmark work on cosmological neutrinos, as well as for modeling the dynamics of the millions of stars that make up globular clusters. He and his colleagues designed and used the world's fastest special-purpose computer to do their modeling of colliding galaxies:

*"I used to think of the year 1924, the year Heisenberg discovered the quantum theory, as a kind of abyss, a Grand Canyon, separating the old physics from the new…But this is too symmetric. The two sides of an abyss are on the same level…**Really we should regard this as a change in level, an evolutionary step: Quantum Theory is on a higher plateau than the older physics**."*

Anton Zeilinger, **former director, Institute for Experimental Physics**, prof of physics at University of Innsbruck, now prof of experimental physics at U of Vienna : *"**Looking back at the physics of the last century, the idea was that it was the century of mechanics. The idea was that the world, including us, is just a big machine that evolves according to certain laws. I find this a very boring view**. Very sad view. Let me underline the difference between [quantum] and classical physics...When we talk about nonlocal action, we are saying, when this particle is measured, some information instantly travels over there and tells the other."*

Zajonc : *"**Quantum physics experiments prod us to challenge every one of our assumptions about the nature of reality, and go deeper , striving to see what stands behind the strangeness of quantum phenomena**. .. In the hope spoken of by Tu Weiming (director of the Harvard-Yenching Institute, taught at Princeton and University of California at Berkeley), the hope of seeing 'a totally different view of the world.'"*

They all speak about non-local causes which fits with how photons/light interconnect everything at a distance, and cause-and-effect is not limited to physical, material, local (i.e. in proximity or linear sequence) causes. Photons are the demonstration of things being interconnected through some "missing, hidden variable", beyond mechanistic understanding of causes or consciousness.

Material-mindset meets "unity" awareness and perception from senses that can transcend the material illusion – as many ancient cultures have advised, and some modern geniuses…

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"I sense light as the giver of all presences, and matter as spent light."
Louis Kahn one of America's foremost architects, former Yale professor

Photons have no mass and no charge, but create the charged mass of the universe.

1) CREATIVE: Photons create matter out of nothing

Photons create matter out of nothing but photons. That is something very different from any other particles that can "create" with other particles at hand. Photons are the ONLY ones with no mass or charge and which create something (charged mass) out of nothing (no charge or mass). They create the stuff of the universe therefore they are…creative. One could argue that light is the source of all creativity…hence the light bulb and lightening symbols for creativity, ideas, innovation and brilliance.

Science News*... from universities, journals, and other research organizations*

Out Of Pure Light, Physicists Create Particles of Matter

Sep. 18, 1997 —"***A team of 20 physicists from four institutions has literally made something from nothing, creating particles of matter from ordinary light for the first time.*** *The experiment was carried out at the Stanford Linear Accelerator Center (SLAC) by scientists and students from the University of Rochester, Princeton University, the University of Tennessee, and Stanford. The team reported the work in the Sept. 1 issue of Physical Review Letters.*

The possibility of doing something like this was suggested in 1934 by two American physicists, Dr. Gregory Breit and Dr. John A. Wheeler. But more than six decades would pass before any laboratory could *pump enough power into colliding beams of radiation to conjure up matter from nothingness. The Stanford accelerator finally provided enough energy to do it."*

Photons have no mass and no charge but they create the charged mass of the universe, photons create everything out of what we call nothing (no thing, no mass, no charge), photons are creative.

When photons take on mass they lose the energy they have in motion. They create mass/material and yes, they pop in and out of existence.

Yes, photons have been shown to create matter…in the process called pair production, a slightly over 1.1MEV gamma ray (photon) can create two particles; a positron and an electron, each having an

equivalent total energy of 0.55MEV. However since the energy is converted to mass the masses created will no longer be moving at the speed of light but at slower velocities.

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The material world is a denser, blocked or stopped form of light which materializes and de-materializes. There is scientific theory and scientific evidence. We don't have to be stuck in just "dense" mode however.

Light is both particulate and energy…it bridges material and non-material. "Reality" is not just one or the other, it's both/and…it's the principle of complementarity in qp and it is a formal definition of yin/yang. (A new operating assumption)

2) MATTER IS "TRAPPED" LIGHT

This thinking has been around for a while…gathering more evidence and proponents over time.

Bob Toben with physicists Jack Sarfatti and Fred Wolf: *"Matter is nothing but gravitationally trapped light, is an expression of E=MCsqu. The turbulent sea space of Wheeler's quantum geometrodynamics is simply the trapping and untrapping of photons and neutrinos in a continual process. On this primordial level it is impossible to differentiate among light, matter, and empty space."* (From the book Space, Time, and Beyond)

Piet Hut is professor of both astrophysics and interdisciplinary studies at the Institute for Advanced Studies in Princeton, and distinguished himself early for his landmark work on cosmological neutrinos:

*"**Much of the energy of a photon is locked up in the material**. In a photon all of the energy is in the motion and interaction. There is no energy locked up. A photon is manifest energy, a physical object has the energy hidden."*

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3) LIGHT COMES FROM BEYOND SPACE-TIME

Theoretical physicis **Peter Russell**: *"Both relativity and quantum physics, the two great paradigm shifts of modern physics, started from anomalies in the behavior of light. And both led to radical new understandings of the nature of light. Light, it seemed, occupied a very special place in the cosmos; it was in some ways more fundamental than space, time or matter. Like relativity, quantum theory also points to light being beyond space and time. "*

Physicists Sarfatti and Wolf, with Toben: *"It's simply an expression of E=Mc2. The turbulent sea of Wheeler's quantum geometrodynamics is simply the trapping and untrapping of photons…**Photons appear and disappear in and out of space time."*

"Researchers look beyond space and time to cope with quantum theory":

"The proposal comes from an international team of researchers from Switzerland, Belgium, Spain and Singapore, and is published today in Nature Physics. It is based on what the researchers call a 'hidden influence inequality'. This exposes how quantum predictions challenge our best understanding about the nature of space and time...The implications of quantum theory have been troubling physicists since the theory was invented in the early 20th Century. The problem is that quantum theory predicts bizarre behaviour for particles – such as two 'entangled' particles behaving as one even when far apart. This seems to violate our sense of cause and effect in space and time. Physicists call such behaviour 'nonlocal'...

***"Our result gives weight to the idea that quantum correlations somehow arise from outside spacetime, in the sense that no story in space and time can describe them," says Nicolas Gisin, Professor at the University of Geneva, Switzerland**, and member of the team. Provided by National University of Singapore"*

David Finkelstein: *"**There is no way you can tell from a photon how it was made**. You can tell what its spin is. You can tell its energy. You can tell its momentum. But you cannot tell its source; you cannot tell how it was made."*

Zajonc*: "**To me it makes good sense to speak of the photon as having a continued existence**. That way of thinking is consistent with every experiment. If you allow that the photon, or the electron, by nature has that continued existence, then its own intrinsic nature is very strange, and believing this has a big impact on the way you see the world."*

Photons come from beyond space time and defy our everyday experience of time and space.

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4) PHOTONS DEFY SPACE-TIME CONSTRAINTS/"LAWS"

New rational-logic-defying principles, which also defy limits of 3D +time. Scientists' and science writers' evidence for a new set of operating assumptions which focus on unlimited possibilities rather than statistical probabilities. Photons break the constraints of **left hemisphere** thinking.

John Gribbin, PhD, Cambridge physicist, author In Search of Schrodinger's Cat, science journalist for Nature Magazine: ***"Photons can move forward or backward in time, can be both wave and particle at the same time, and its influence affects what is happening somewhere else at the same time."***

NECs Lijun Wang says he created an experiment in which **a light beam raced through a gas-filled chamber so quickly, it exceeded the speed of light by a factor of 300.** What's more, the light pulse appears to have left the confines of the chamber before it even entered a seemingly impossible occurrence according to [conventional] theories of causality, which predict that causes must always precede their effects.

***"It sounds crazy, but this can actually occur,"* said Raymond Chiao, a physicist at the University of California at Berkeley**. Chiao is one of a group of researchers who have been working to break the speed-of-light limit http://voidwithme.blogspot.com/2007/10/speed-of-light-barrier-broken-arrive.html

Scientists left baffled after speed of light broken
PM Archive - Thursday, 20 July , 2000 00:00:00 Reporter: Michael Vincent:
"A stunning new scientific finding which has left researchers wondering whether they're looking at science fact or fiction. ***After a month's speculation that the validity of an experiment that claims to have broken the speed of light, Nature Magazine has finally published the details but leaving scientists somewhat baffled."***

Paul Davies*: " On the face of it, it looks like not only is the light going through this medium faster than it would through a vacuum but, even more bizarre, it appears to be going backwards in time. That is to say that the disturbance appears at the exit before it goes through the entrance. So the waves are actually running backwards at about 300 times the speed of light..."*

Isn't it obvious we need to expand our understanding of light and time and space…and **causality**?

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5) PHOTONS ARE QUANTUM WAVES OF POTENTIAL collapsed by the act of observation into singularities or particularities (particulate, particle nature).

Btw, ocean waves are "actuality", quantum waves are "potentiality". There is a big difference. And it's not either/or. It's both/and. Quantum can accommodate narrower Mechanistic thinking but the M paradigm can't handle Q until it comes to see the difference between M tools and Q map, and between scientific method and scientific operating assumptions that determine what to look for.

(Quantum laws are not limited to subatomic, micro level.)

The hidden nature of matter. The "hidden, missing variable" theory was dismissed by conventional thinking or we'd be looking at the universe, and ourselves, quite differently.

These are the things we would have been looking for:

Evan Harris Walker (the Physics of Consciousness): *"When we carry out a complete measurement loop the math will force the whole thing to have nice, steady real solutions only if one of the states happens and all the other states vanish. When the loop closes state vector collapse is forced to happen. It is this measurement comparison, this coming together of the two sides of reality…the link between measurement loops as the cause of state vector collapse and the observer as the cause of state vector collapse."*

*"…**by adding an information term [he later refers to consciousness] to the Schrodinger equation, we could get an expression that would force state vector collapse. What happens is that all the probabilities become either 0 or 1, which means that each state either does not occur or does occur**."*

One of our past speakers, **Robert Anton Wilson, physicist, psychologist and author,** gave a talk entitled The Universe Contains a Maybe, and made the point that everything is in that maybe yes maybe no state until you as the observer, with all your (largely unconscious) meanings and emotions affecting your outlook, collapse the possibilities into a 3D singularity.
Like **Schrodinger's Cat**.

What if time is a framework or structure to make what's possible, actual?

Conscious Acts of Creation William Tiller former dean of Materials Science and Engineering at Stanford…from his primary research and experimentation 2001:

*"Most of the general public hold the idea that the vacuum is not only the absence of physical matter but that it is also devoid of anything! However, this is not so. For QM and relativity theory to be internally self-consistent theories, the vacuum is Required to contain an amazingly large inherent energy content.…**This makes energy stored in physical matter a mere whisper compared to that stored in the vacuum. Uncovering the secrets of the vacuum is obviously a very important part of humankind's future.***

The implication is that the particle event in D-space in intimately and lawfully connected to the pilot wave event in R-space. R-space wave events can influence remote D-space particle events."

The insanely weird quantum wave function might be "real ...

arstechnica.com/.../the-insanely-weird-**quantum-wave-function**-might...

Nov 21, 2011 · *The insanely weird **quantum wave function** might be "real" after all ... These each prepare single **photons** and send them to detectors for joint detection:*

"Quantum mechanics has a concept called a "wave function." It's incredibly important because it holds all the measurable information about a particle (or group of particles) within it. In practice, the wave function describes a set of probabilities that change in time. When we make a measurement, we are really poking

at the wave function, causing these probabilities to collapse and take on a definite value. The value that the wave function predicts is determined by the relative probabilities of all the possible measurement results.

But physically, the wave function is problematic. It is often possible to figure out the physical meaning of a symbol in an equation by looking at the physical units you would use to measure it. A quick examination of the wave function shows that the units of the wave function don't make a great deal of sense. To avoid a mental hernia, physicists tell each other that the wave function is a useful calculation tool, but only has physical relevance in terms of statistics, rather than having some concrete existence. In other words, it's not really "real."

Until now, we have taken comfort from the idea that, real or not, the results from the wave function would be the same. So no worries, right? Quite possibly wrong. In a paper posted on the arXiv, a trio of researchers has shown that you can't have it both ways; a purely statistical wave function will not always give the same results as a wave function with real physical significance."

Photons are quantum waves (as well as particles) of potential collapsed by the act of observation into singularities or particularities (particulate, particle nature). The math works when you add "an information term" which Walker says is consciousness.

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6) OBSERVER EFFECT

We are not separate from what we put our attention on. Fact: Observing an atom changes its direction location and velocity. As observers (not just with eyes or microscopes) we collapse waves of possibility into singularities. Our inner states, the quality and focus of our attention, influence material circumstances and outcomes. Quantum physics says objective reality is a myth.

Tu Weiming, director, Harvard-Yenching Institute. He has taught at Princeton and University of California at Berkeley; fellow of the World Economic Forum regularly in Davos:

"The vital role of the observer strongly suggests a new vision of the human person in this whole enterprise. With the emergence of new physics and cosmology, many of the social and cultural values that the classical scientific revolution contributed as part of the enlightenment project of the modern West are now outmoded, or at least problematical…The idea of progress through history has left behind many old forms of knowledge as irrelevant or superseded… B) Human beings are not merely observers as experimenters but also co-creators."

Evan H Walker "*The complex character of the wave function in Schrodinger's equation means that what is there is a kind of potentiality."*

Walker advocates for consciousness to be what the observer effect is all about – which came from studying photons. All converge at the collapse of the wave function. Transcendent and 3 dimensional + time interplay. And the brain is the brilliant "machinery" that can handle the transduction of waves to matter. The connection between photons and **melanin in the brain** is amazing…but qwiki won't have much interesting to say about it. It's unfortunate.

John Wheeler: *"May the universe in some strange sense be "brought into being" by the participation of those who participate? "Participator is the incontrovertible new concept given by quantum mechanics. It strikes down the term "observer" of classical theory, who stands safely behind the think glass wall and watches what goes on without taking part. It can't be done, quantum physics says."* (He's done lots of research. Mentored Feynman at Princeton.)

Nobel laureate neuroscientist Roger Sperry: *"Consciousness is primary, it's a causal reality."*

Walker - *"In the examination of what Bell's theorem is all about, we have seen quantum mechanics forcing physicists to acknowledge consciousness as a reality affecting the material world. But why should the answers be so hard to accept? Consciousness should have long ago been the topic of reasoned scientific study, and yet it has been largely ignored.*

We must recognize that objective reality is a flawed concept, that state vector collapse does arise from some interaction with the observer, and that indeed consciousness is a negotiable instrument of reality. Our entire conception of reality must be rethought."

(Walker's got the primary research and the math. Published more than 100 research papers in science journals.)

We need to learn to master our internal environment instead of trying so hard to control the "out there". Unfortunately, the mechanistic model doesn't understand "in here" separate from chemicals being secreted and neurons firing. So there is an institutionalized effort to try to control those, too…and overlook what inner states of consciousness are about.

We present others' solid thoughts and synthesized they lead to logical conclusions – about non-logical considerations that defy ordinary thinking. Observation is primary. Self-observation and development/mastery of internal states, in order to discover our connection to all of life, is where we're headed. Currently the over-emphasis on predicting/controlling the environment, and the "other," is a misguided imbalanced.

Observer Effect

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7) INTERCONNECTED:

"Let me underline the difference between [quantum] and classical physics...When we talk about nonlocal action, we are saying, when this particle is measured, some information instantly travels over there and

tells the other." **Anton Zeilinger**, former director, Institute for Experimental Physics, prof of physics at University of Innsbruck, now prof of experimental physics at U of Vienna (from the above mentioned book).

Peter Russell theoretical physicist, psychologist, author: *"The materialist meta-paradigm assumes that space, time and matter are the primary reality. Both quantum theory and relativity suggest that light is even more fundamental. If so, then some of the difficulties science has with light may stem from our trying to treat light as if it were part of the material world.*

We may think of a photon being emitted from some point in space and traveling to another point where it is absorbed. But quantum theory says that we know nothing of what happens on the way. The photon cannot even be said to exist in between the two points. All we can say is that there is a point of emission and a corresponding point of absorption, and the transfer of a unit action between the two.

Physics, like Genesis, suggests that in the beginning there was light, or, rather, in the beginning there is light, for light underlies every process in the present moment. Any exchange of energy between any two atoms in the universe involves the exchange of photons. ***Every interaction in the material world is mediated by light. In this way, light penetrates and interconnects the entire cosmos.****"*

The Goldilocks Enigma (physicist Paul Davies)*: "The puzzle was refined by **David Bohm** in 1951; but it remained a thought experiment. The most comprehensive and conclusive of these [actual later] experiments were carried out by Alain Aspect and his colleagues in the early '80's.* ***They demonstrated beyond reasonable doubt that common sense is wrong and non-locality really does rule in the quantum world.***

Although couched in mathematical language, the argument is based on… The results of the Aspect experiment, which are equivalent, in logical terms, to discovering there are, actually more teenagers in the world than there are teenage girls and all men (teenagers and adults) put together. Bell's inequality is violated, which means non-locality is at work…"

Photons interconnect the universe across time and space. According to all the confirming theoretical and laboratory experiments, photons demonstrate an interconnected universe. They are everywhere and all processes are mediated by light, which spookily connects all particles in the universe.

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8) INTELLIGENT and self-organizing

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Max Planck said *"photons behave like intelligent human beings."*

Q: Why does light choose the " path of least time ...

http://en.wikipedia.org/wiki/Fermat%27s_principlehttp://www.askamathematician.com/2011/08/q-why-does-light-choose-the-path-of-least-time/http://arxiv.org/ftp/arxiv/papers/1011/1011.5705.pdf

Excerpt: ***"This should come across as deeply spooky. A particle that somehow "scouts the future" and then picks the fastest path to get where it's going seems impossible***. *And to be fair: it is. The crux of the problem is (as with damn near everything) wave/particle-ness. Particles can't magically know what the shortest path will be, but waves find it "accidentally" every time.…First, check out the path that the "principle of least time" carves out. What follows is math, which some people dig. If you skip over the block of calculations, you won't really miss anything."*

Brian Whitworth (see at top):
"This chapter derives the properties of light from the properties of processing, including its ability to be both a wave and a particle, to respond to objects it doesn't physically touch, to take all paths to a destination, to choose a route after it arrives, and to spin both ways at once as it moves. Here a photon is an entity program spreading as a processing wave of instances. It becomes a "particle" if any part of it overloads the grid network that runs it, causing the photon program to reboot and restart at a new node.

The "collapse of the wave function" is how quantum processing creates what we call a physical photon. This informational approach gives insights into issues like the law of least action, entanglement, superposition, counterfactuals, the holographic principle and the measurement problem. The conceptual cost is that physical reality is a quantum processing output, i.e. virtual."

Increasingly graduate students like Brian are asking new questions and thinking in new dimensions for answers. After all, despite what we are taught in school, there are very likely many more dimensions than just 3+time. And we need a new metaphor than the universe-as-machine one that's part and parcel of conventional science.

Brian knows that photons taking all paths to a destination, responding non-locally to objects, etc, is about quantum – not mechanistic - processes. He opens (at top) with the quote about even more bizarre possibilities for our universe…that have already happened.

We are trying to explain things like wave functions and vector state collapse as something very different from mechanistic, physical parts thinking. Quantum physics is about process, interaction and relationship. It is about collapsing waves of possibility into 3D singularities.

Photons carry information and electrical charge but are not charged particles.

Though the standard, conventional, text book/wiki description is: "So, in summary-light is a particle with wave-like behavior". But that is not accurate. Unfortunately it does pretty much sum up what's currently taught about photons.

We should be taught that photons are waves and particles *at the same time.* That something so fundamental can be two opposite ways at the same time provides a new and very important operating assumption: Paradox – logically impossible things can be true.

Astrophysicist **John Gribbin**: *"…how do the advanced waves know where to find the electron? Because the electron has told them where to look…if we really want to find an interpretation of quantum physics that gives us a feel for how the world really operates - what reality itself really is - we have to explain many more strange things...some new ideas that have yet to be tested."*

Fortunately more innovative experiments are being conducted.

- Dr. Pjotr GARAJAJEV & **Vladimir POPONIN -- DNA** BioComputer ...
  www.rexresearch.com/gajarev/gajarev.htm
  Russian researcher Dr.**Vladimir Poponin** put **DNA** in a tube and beamed a laser through it. When the **DNA** was removed, the laser light continued spiralling on its

- **DNA** Replication at a Distance–reported by Nobel scientist ...
  prof77.wordpress.com/2011/01/28/**dna**-replication-at-a-distance...
  Jan 28, 2011 · **DNA** Replication at a Distance–reported by Nobel scientist, likely building on research first published in 1992 by Russian scientists, Garaiev and **Poponin**

John Gribbin: "***Individual photons carry a preferred orientation with them***" *...but no one knows where these interaction carrying particles come from..."They come from nowhere, something for nothing"...no-mass creates mass...all in accordance with the uncertainty principle…and confirms that nuclear forces, as well as electrical can be thought of in terms of interactions...*" **relationship and exchange of information**

"Under the influence of radiation pressure, primordial matter (mostly hydrogen gas) got "organized"...
Read more: Frasier Cain, read more: http://www.universetoday.com/10220/where-does-visible-light-come-from/#ixzz2OHhpAEBS

Knows the fastest route ahead of time, has preferred direction, lines up with DNA, carries information, is about interaction, their behavior compared (by the founding architect of quantum mechanics, Max Planck) to intelligent human beings….photons sound like they pack some real, no-kidding-around, intelligence.

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Jacques Lusseyran, a blind man who led the student resistance to the Nazi occupation and survived a concentration camp discovered that the light within was a source not only of intuition and guidance but is "the source of life itself" and there was only one way to see the light, which was to love. When he was angry, resentful, self-pitying, the light went out. He said *"Blindness is a state of sadness, of not loving anymore, it is not the loss of one's eyes."*

We all have light within…but are too distracted by what our eyes see "outside us", and too overcome with fear-based anxieties and emotions. Our light is pretty dim…the good news is there's a lot of amplitude yet to optimize.