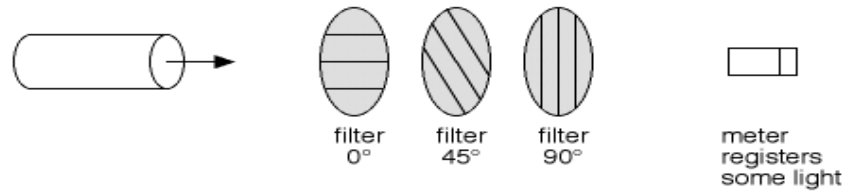# Polarizers in Sequence

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One my readers asked me to take a look at this Youtube video and explain it. Since it corroborates my earlier research and papers on superposition and beam splitters, I agreed to do so. In that second linked paper, I also analyze a Youtube video, and there I say that the posters of the video are magicians, trying to fool you with sleight of hand. We will see the same sort of thing here. But my opinions have advanced somewhat on that in the intervening years. I no longer think these are just private guys posting some information on quantum mechanics. I now believe these Youtube videos and most like them are posted as purposeful misdirection and propaganda, created to sell the most irrational quantum pseudo-mechanics but also created to stir your brain. They don't you want you thinking physics makes sense any more. They can't have you thinking physics makes sense, because if you thought physics made sense you might expect the rest of your life to make some sense—and they can't have that. Modern physics, like all else, is now a part of Project Chaos, and they want to push your brain to a point of functioning insanity. In that state, you will be able to work on their projects and buy their products, but won't be able to ask any sensible questions. I don't think you realize how close you are to that point already, and if you are like most people you are long past it.

If you think that is a stretch, notice how quickly these guys push you into nonrealism and nonlocality. By minute 1:42 they have already written **realism** and **locality** on their little board, and are ready to cross them out for you. That should make you very suspicious, since realism and locality are two of the pillars of physics and have been for centuries. Watching alleged physicists attack them with such gusto—and so little logic—is a huge red flag.

The question at hand concerns letting light pass through a series of polarizers, like the disks you can attach to your camera lens. The first polarizer coheres the light passing through, as we know. Our guys at Youtube admit that this coherence is created by *each photon* being polarized (minute :16). But of course they skip right over that. You shouldn't, since it proves my theory and disproves mainstream theory. According to mainstream theory, photons are massless particles with no radius and no real spin. They are point particles. So how can point particles be polarized? What kind of heterogeneity can be assigned to a point particle? The answer: none. For photons to be polarized, they have to have a real spin and therefore a real radius. A point can't spin because it has no extension in any direction, you know. Anyway, keep that in mind as we proceed.

The second polarizer placed in front of the first polarizer at 90 degrees then blocks the light, and we see only darkness. Our guys tell us it is because photons polarized on an x-axis have a much lower probability of passing through a second filter polarized on a y-axis. True, but that statement really has no content. It is simply a description, not an explanation. We want to know *why*, right? They blow right by it of course, since they are just creating mystification. They don't want to explain anything, and couldn't if they wanted to. They are just trying to confuse you so that they can sell you entanglement and other magic.

I will simplify the explanation here for a general scientific audience of non-specialists, but will nonetheless hit all the major points. Basically, this is a magnetic effect, or submagnetic effect. Anything that is explained by the linear direction of photons or of the charge field is a subelectrical effect, since it creates electric current. Anything that is explained by the spin of photons or of the charge field is a submagnetic effect, since it creates all magnetism. Since we are dealing with strange effects at 90 degrees, it is clear from the beginning that we will require real photon spins to solve this.

If the second polarizer is aligned like the first, we get no dimming. But if we turn that second polarizer 90 degrees, we have maximum dimming, so the pathway must have changed in some way. How? Well, it is not just the light that has been previously polarized, it is also the material in the polarizer. To create a polarizer you have to create a coherent material of some sort, usually by applying an EM field, either electric or magnetic. This aligns the atoms or ions in the material and also coheres the internal charge field. In other words, everything in the material is aligned, and all charge is moving in the same direction. Therefore, if you turn the material you turn the alignment of the matter and charge field in the material. If charge was moving up before, it is now moving left or right.

Now, the trick here is that by using the word "filter", these guys get you thinking the polarizer is working like a common filter. But it isn't. Nothing is being filtered, as in being blocked or absorbed. The mechanics is completely different, as you will see. So, once again, the correct solution can't be found because *the wrong question has been asked.* The mystery is, how can light be added back in by a third filter placed between the first and second? But the mystery evaporates once you realize light isn't being added or subtracted by *any* of the three filters. No filtering is actually going on, so the first step in solving the problem is dropping the word filter. It gets us thinking in the wrong direction from the start.

What is happening is not filtering, but spin-downs. If you spin-strip visible light, it is no longer visible. A large part of the energy of a photon is in its outer spin, and if that is tamped down or stripped, the energy drops a lot, dropping the photon down to infrared or below. Since we don't see light in that range, it is as good as darkness to us.

So, say our emitted light is incoherent to start with, spinning CW in *either* X or Y. If the charge field in the first polarizer is spinning CCW in Y, say, it will spin down all the photons spinning in Y, and they will go dark. Y can't effect X, by the rules of spin, so the photons spinning in X will pass. If we align a second filter to the first, again the X-photons will pass. But if we turn the filter 90 degrees, its charge field is now spinning in X, so it spin strips the X-photons, and they go dark.

You will say, "Then what happens at 45 degrees? Shouldn't the photons be stripped half as much, turning red but not going dark?" No, that isn't how it works. You either get a spin-strip or you don't. You don't get partials. So at 45 degrees, your probability of a strip goes to ½. Why? Because our initial set wasn't actually X or Y. It was X *and* Y and all values in between. Incoherent light can be spinning at any angle to the axis. It can also be spinning in Z, but since we are letting Z be the

direction of linear motion, we ignore it. Interaction on Z would require a photon hit dead center, and due to the real size of the photon, the odds of that are approaching zero. So we only have to track X and Y in the math.

As you already see, the actual solution is upside-down to the mainstream solution. The mainstream thought photons were passing when the polarizer *matched* the light in orientation. But, as you just saw, the photons pass because they are orthogonal to the charge field in the polarizer. At 90 degrees, the polarizer can't affect them. It is actually when the polarizer and the emitted photons are oriented in the same plane that we get an effect, since in that situation the spins can catch.

OK, so what happens when the third filter is placed between the other two at 45 degrees? We find brightening. The guys at Youtube tell us that this is mysterious because "the only things that filters do is remove light" (minute :53). This makes the experiment "quantumly bizarre" (minute :49). So you see why I am calling them magicians. I suspect they are also liars, though they might just be dupes. In either case, they are misdirecting you. The polarizers *aren't* removing light, so the mystery evaporates.

So, what is actually happening with the middle filter? Obviously, it is preventing the top filter from stripping the photons it was previously stripping. The only way it could do that is by re-orienting the spin axis of the photons. The photons passing the middle filter are now spinning at 45 degrees (in between X and Y), so the top filter at 90 can only work on some of them. Brightness *seems* to be added back in.

But why would the field at 45 degrees turn the photon axis to match it? Because the charge field inside the polarizer is highly coherent. All or almost all its charge photons are spinning right at 45, so there is no averaging or probability involved. All the nuclei will align to the same angle, and the baryons in them, and the electrons around them. So although the emitted light is still partially incoherent, the charge photons and other particles in the polarizer are highly coherent. A highly coherent field will always act to cohere an incoherent field, which is exactly why polarizers and lasers and other devices work. It does that by trying to spin match the incoherent field to itself.

But again, how? Well, I imagine that all photons passing through the material are interacting with it, not just the photons that get stripped. Only photons at certain angles get stripped, but all collide with something in the material, either photons or baryons or electrons. In those collisions, which are not instantaneous, spins axes are turned. We can do more work on the exact mechanics there, but it does not appear to me to be mysterious, illogical, or beyond the bounds of classical mechanics.

Do our guys at Youtube have a better answer than that? Well, by minute 2:50, they have already misdirected you into Schrodinger's Cat and indeterminism, though it isn't clear why. By minute 3:15 the word God has appeared on their white board. Very strange.

Later, they tie this to Bell's Theorem, which is likewise unnecessary. You can link to my paper on CHSH Bell Tests for more comments on that if you like. Bell was another paid magician.

At minute 4:00, they misdirect again, telling you that 85% of photons pass a filter aligned at 22.5 degrees. They tell you that you should expect 75% to pass, indicating they think you are a mathematical moron. Diminishing angles on circles don't work like that (spins are circles, remember), and I have to assume they know that, so I have to assume this is all a cruel hoax. As a hint to how the real math works, notice that the cosine of 22.5 is .924. We often use cosines to determine the effects of diminishing angles, don't we? So they might just as well have told you to expect 92% to pass, given

some equally simple math. Just because the actual number is somewhere in between 92% and 75% doesn't mean this problem is mysterious, does it? It just means we have to do more than one line of math to figure out the actual number.

Well, since we have two spins meeting in collision, we have to use the cosine on each. Here is how to do it very easily, even if you know very little math. We take the cosine of the first angle, which is .924. We subtract that from 1, leaving us .076. We take the cosine of the second spin angle, which is the same number.   So we just double the number, getting .152. We then subtract that from 1 again, to give us the total probability. What do we get? .848. Or, 84.8%. Really hard, wasn't it? Do you honestly think professional physicists aren't able to do math at this level?

Therefore, by minute 5:00 of this 17:34 minute video, I am not prepared to go on any longer. These fellows are either really stupid, or, more likely, they assume you are.

This problem is somewhat complex, as you have seen. It takes some sorting through, and I have only hit the major points here. A full solution would take a lot more work. However, we can already see that the solution does not require nonlocality, nonrealism, interderminism, Schrodinger's cat, God, entanglement, vitual particles, or difficult quantum math. It requires tracking spins in two fields, real collisions, real particles, real radii, and real spins. It also requires highschool trig.