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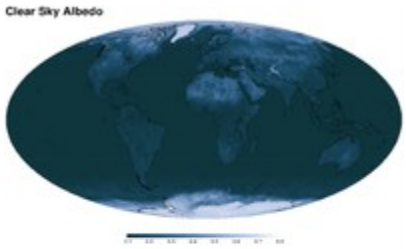
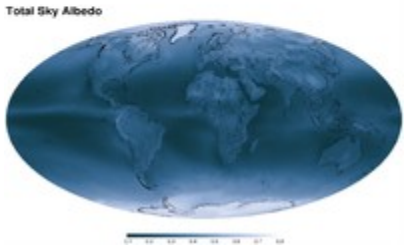
More on Encedalus and Albedo





by Miles Mathis

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I published a longish paper on the moon Encedalus, brightness, and albedo a couple of days ago, showing that all Solar System bodies are far brighter than they should be. It took me a couple of days to realize that Enceladus' bond albedo number of 99+% is actually misdirection itself. After running my own numbers, I could see that Enceladus' "reflectivity" is well above 100%. And the mainstream even admits this, although it misdirects you away from that admission. Bond albedo includes viewing angle, so it can be brought down considerably by that angle. If we want just the brightness at opposition, we use geometric albedo, not bond albedo. Turns out Enceladus has a geometric albedo way over unity, with a value of 1.4. That means it is actually reflecting more light than is falling on it, by the current rules of scattering. My theory explains that easily, since I have shown the source of light creation locally: Enceladus is a creator of brightness via the magnetic reaction with the charge field. But since the mainstream doesn't have that mechanism, they have to misdirect. If you look closely on the "geometric albedo" pages, you find that albedos over 1 are currently explained with a little thing called "opposition surge." Opposition surge is just a name they give to the extra brightness, though they admit they have no good explanation for it. They even admit that all objects in the Solar System mysteriously show this surge at opposition. I encourage you to study the current mechanisms proposed to explain opposition surge. The first is "shadow hiding." At opposition, any shadows on the surface fall to a minimum, we are told. That is so pathetic as an explanation for .4 over unity I won't even comment on it. The second is coherent backscatter:

In the case of coherent backscatter, the reflected light is enhanced at narrow angles if the size of the scatterers in the surface of the body is comparable to the wavelength of light and the distance between scattering particles is greater than a wavelength. The increase in brightness is due to the reflected light combining coherently with the

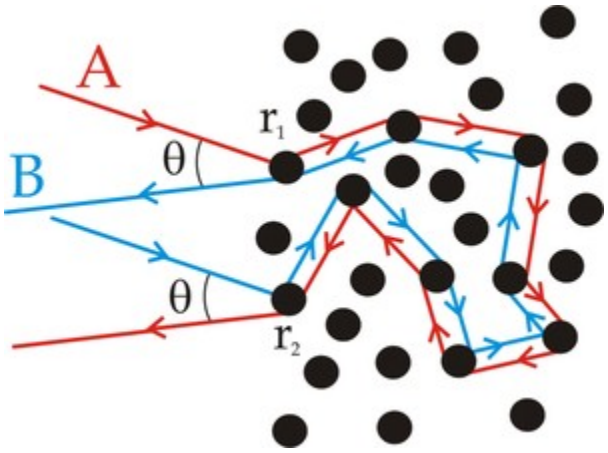
emitted light.

Coherence with *emitted light* as an explanation for a 40% boost? You have to be kidding me. They imply that Enceladus is capable of .4 above unity because at opposition reflected light "surges" to 140% of incoming light. The theory is clearly just a hole filler—something they can post at places like Wikipedia. To see how absurd this is, we can go to the first sentence on the "coherent backscatter" page:

In physics, coherent backscattering is observed when coherent radiation (such as a laser beam) propagates through a medium.

Since when is sunlight coherent? It was shown in 2004 than sunlight has some *limited* coherence properties, but that isn't enough here. We are trying to explain .4 over unity with this theory, so tiny degrees of coherence aren't to the point.

But even if sunlight were 100% coherent, this theory is a non-starter. Just look at the illustration and explanation:



Propagation of two rays in a random medium. Since one can be obtained from the other by time inversion, they interfere coherently when the angle θ goes to zero.

Wow. The naivete of these diagrams continually astonishes me. Notice that they don't even bother to give their photons bodies. The photons move as detached vectors. Photons are nothing but paths in modern physical theory. Colored arrows. Physics with no physicality.

These physicists are sort of on the right path, even so—they just need a few tweaks. It wouldn't take much to turn this diagram into a meaningful explanation. Notice that all you have to do to turn this diagram into my charge field recycling is 1) let the photons have spin, 2) let them have chirality (up or down spin), 3) let them come from inside as well as from the outside. If you do that, then you can show spin interactions when they meet, and assign those spin interactions to the magnetic field.

But as it is, they don't have enough mechanics to explain the data. They are lacking a couple of degrees of freedom in the field, and they have to make up for that lack with tortured logic, bald contradictions, and undefined vectors. They have to reverse things while you aren't looking and then deny it when you catch them at it. And mainly they have to speak in a manner that is so imprecise that you can't make heads or tails of what they are really saying. We can see that here: the rays "interfere coherently"?

What does that mean? It means nothing. It is pure gibberish. If they interfered, the emitted radiation would tamp down the incoming radiation, and we would have less brightness, not more. That is what "interfere" means. What we need is not interference, but some sort of superposition or boost. A and B don't need to interfere, they need to stack. But since they are going in opposite directions, how do they do that? They are trying to add A and B, you see. To stir your brain, they bring in time inversion. But nothing is going backward in time here. We have no wormhole at the boundary of a body (I probably shouldn't have suggested that—it will be their new theory next week).

And even if their vectors worked here—which they don't—in order to claim that you can add B to A, you have to show that the body is emitting radiation that is not caused by A. A is incoming radiation. What is B? It is emission. Emission from what mechanism? Blackbody radiation, I assume. But according to current theory, blackbody radiation is a function of incoming radiation. The body can only be emitting energy it previously absorbed by some method. The radiation this body is absorbing is from the field, and A *already represents the field*. A is already defined as incoming radiation. For this reason, B has to be a subset of A. Therefore, you cannot add B to A. They have split B and A, but B is just earlier A. Just look at the full path of B. Is B coming from inside the body? No. It too is coming *from external radiation on the same surface*. If so, then B is part of A. This theory is trying to boost reflection by having the reflection augmented by earlier reflection. They are trying to add the past to the present. But you can't do that. You can't generate over 100% energy reflection by this method without breaking the conservation of energy law. Over a given period, the body simply cannot emit more energy than it is taking in. This diagram is another one of their magic tricks. Hocus-pocus with split vectors.

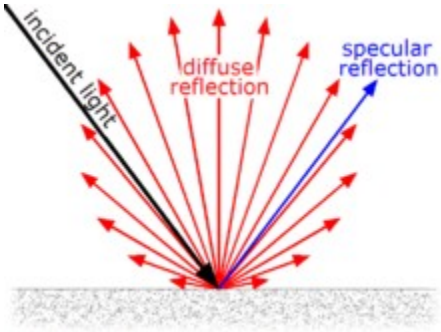
I will be told that we aren't just looking at reflection. The paths above represent absorption and re-emission. But that is misdirection. It doesn't matter if the photon reflects from the first dot or rattles around indefinitely. The point is that since there are a definite number of photons coming in, there can't be more photons than that coming out. If you sum over any extended period of time, you cannot get more photons out than you put in. And yet with Enceladus that is what we are seeing. With Enceladus we are seeing way over unity. By current the theory, Enceladus is acting like an over-unity device.

But it gets even worse. So far we have only a 40% production of Enceladus over unity. But if we tear apart the equations even more, we see a second big fudge. The fudge is in the first sentence of the "geometric albedo" page.

The geometric albedo of an astronomical body is the ratio of its actual brightness at zero phase angle (i.e., as seen from the light source) to that of an idealized flat, fully reflecting, diffusively scattering (Lambertian) disk with the same cross-section.

They are using the lingo again, as you see. In these short pages at Wikipedia, the basic brightness of a body is variously called "opposition," "fullness," "zero-phase angle," and about five other things. This is one of their frontline tricks: have about ten words for everything, and switch back and forth so that no one can follow them. It helps if the words are long math-isms, hyphenated, and include the names of long-dead foreign scientists that no one can spell or pronounce. This isn't just bad writing: it is done on purpose. On almost every page they are trying to divert you from bold cheats in the math and diagrams, and this is the way they do it. They speak such convoluted gibberish most people just give up and assume the physicists must know what they are talking about. They don't. No one who knows what he is talking about talks like this. You will learn that sooner or later, when your mind clears of the fog they have blown there.

But back to the last quote. Read that closely and you see they are comparing a curved surface to a flat one of the same cross-section. That just means the disk has the same radius as the sphere. The problem there is that while the disk will be reflecting the light equally from all positions, the sphere won't. Only the center of the sphere will really act like a point on the disk, since all other points on the sphere will tend to reflect most strongly at some angle *away* from the viewer. In other words, if we have diffuse scattering, that just means all angles are possible. It *does not* mean all angles are equally strong or equally likely. Even the mainstream admits that in their own diagrams:



As you see, the red lines are not all of equal length, even with diffuse reflection. They are longer in the middle! The object is more likely to reflect forward than to reflect at other angles. And this is especially true if the incident light is coming straight down, as in our current problem. If the light is coming straight down, a diffuse reflector can reflect at any angle, but it is most likely to reflect up. Of course this is also the case with specular reflection, which would reflect straight up at opposition.

Now, since all points on the sphere will also tend to reflect straight up—or to reflect most at the specular angle—points further toward any edge will not reflect as much as the forward point. That is precisely why the Moon is dimmer at gibbous than at full. If we are at 2/3rds gibbous, that doesn't mean the Moon will be 2/3rds as bright. It will be less than 2/3rds as bright, because we aren't receiving any of the brightest rays. The brightest reflections will be going off in space to our side, back toward the Sun.

That is what causes opposition surge, in the first instance. It isn't caused by coherent backscatter or shadow hiding, it is caused by the fact that their equations are wrong. According to their equations, opposition surge looks like a mystery. But if you correct the equations, opposition surge is just a normal outcome of spherical reflection. However, that does not explain the extra brightness. Opposition surge can be explained by the sphere; the extra brightness can't. We need to correct the equations several more times to explain that.

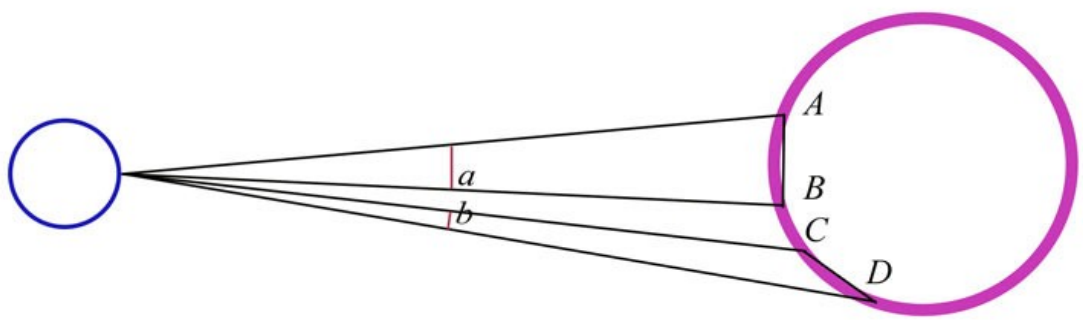
This means we should not expect a sphere to ever reflect like a disk of equal radius. It should reflect very much less, with either specular or diffuse reflection. Which means they long ago hid the amount of reflectivity of these celestial bodies in these false albedo calculations. In other words, *they knew* moons and planets were shining far too brightly to be accounted for by the laws of reflection, so they *purposely* created these fake albedo calculations to hide that.

I will be told that the surface area of the sphere makes up for the angles, but it doesn't. Yes, the near side of a sphere has twice the surface area of an equivalent disk, but the fall-off in reflection is even greater than that. I can prove that without a lot of difficult math. The mainstream needs the fall-off to be half, you see, so that it matches their math. If the sphere has twice the near-surface area, and if the reflection falls off by half, then the two numbers offset [2(½) = 1], the reflection of the sphere matches

the disk and their albedos are saved. If the reflection falls off by more than half, their math is destroyed. To solve, what they do is sum reflectivity from 0 to 90°, finding a total of ½. Then, since there is more surface area at greater angles, the two factors offset and we have both a sum to 1 and equal reflectivity across the sphere, matching data and their calculations. But there is a big problem they keep hidden. They assume more surface area at greater angles, which is true *if you don't take point-of-view into consideration*. This complicates the problem considerably, because although there is indeed more surface area at greater angles on the sphere, that surface area is not equally available for reflection to a given angle. What I mean is, if we go toward the edges of the sphere—like going toward the edge of the Moon—there is more surface area over there than what we are seeing in the middle of the Moon. But the further we go toward the edge, the less of that surface we actually see.

You will say, "No, you see the whole surface, it just looks smaller." So, to be generous, let us say that is true. It only *looks* smaller. But the question is, operationally, does it enter the equations the same way it would if it looked as big as the center? No. Why? Because if it looks smaller, it inhabits a smaller angular diameter, relative to the body that is looking at it *or that is shining on it.* Why does that matter? Because light travels from one body to another on lines that follow that angular diameter. Photons travel along that line of sight, and there is an equal density of photons in equal angles. So if an area *looks smaller* toward the edge of the Moon, then the angular diameter is smaller over there, and **fewer photons will be hitting it**.

fig. 1



AB = CD, a ≠ b

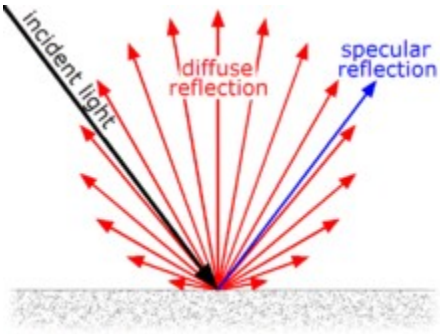
That one fact absolutely ruins all the mainstream math. As you see from the diagram, it is not only the reflectivity that falls off as we go out to the edge, it is the incident light. If you then sum from 0 to 90°, you still get an equal brightness across the sphere, but you get a reduced brightness. Since only one point on the sphere will have no angle, only that one point will have no reduced brightness from this effect. Since that one point is nearly infinitely small, we ignore it. The brightness of the sphere cannot match the brightness of the disk.

This analysis is not affected if we make all the lines parallel. Even if we put the blue circle at infinity and make all the light lines parallel, a ≠ b. And the Sun is never anywhere near infinity in Solar System problems anyway, so we don't need to talk about limits. The final point is that from the Sun, CD never looks as large as AB. It doesn't matter if you are talking about Mercury or an object in the Oort Cloud.

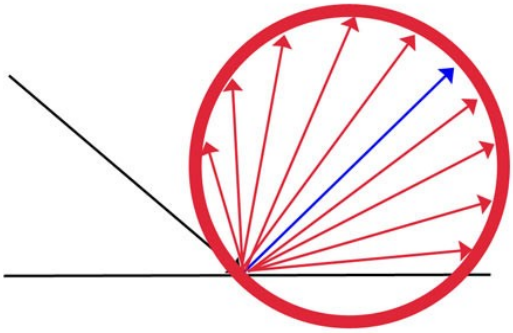
We can even do the math, since it is simple. Since both factors are caused by the curve of the sphere, both reflectivity and incident light will decrease in the same way, by the same equation. So if reflectivity sums to ½, so will incident light. This means we have a total fall off of $(½)^2 = ¼$. The

sphere reflects ¼ the light a disk does from an equivalent area, on average, but has twice the surface area. Therefore the sphere should have a maximum geometric albedo of .5. Which means the albedo of Enceladus is now is almost triple unity. Do you think they can explain Enceladus reflecting almost three times more light than is falling on it, with "shadow hiding" and split vectors?

But it is even worse than that. Even the reflectivity fall-off is purposely pushed, and we can see that straight from the mainstream diagram:



See a problem with that diagram? Notice the red vectors make a circle. That is true, but the circle would be there only if the incident light were coming straight down. They have the incident light coming in about 40° from vertical, so the circle should be pushed over as well. The longest red vector should be where the blue vector is, with the circle arrayed around that, like this:



A diffuse reflector *diffuses* the reflection, it doesn't divert the maximum back to vertical. Why and how could it do that? The problem with that in this case is that if we make the incoming angle 45°—as I have drawn it—the probability it will be reflected back to the emitting body along that black vector *approaches zero*. Because it is outside the circle, it is outside the diffusion probability math. By this math, the probability isn't .707 or .5 or even .25, it is zero.

They faked the diagram on purpose, to fool you into thinking that incident light at 45° might have around half the reflection. The length of the red vector nearest *their* incident light ray is about sin45 = .707 the length of their longest red vector, so that would tell a good diagram reader that the probability there is about .7. But an even better diagram reader should know that their diagram is pushed.

I will be told that the classical equations show .7 for light reflected at 45°, and so do experiments. Yes, but that is for specific problems that don't apply here. We can tell just from my last diagram that an observer at vertical (straight up) would see an image about .7 as bright as an observer observing from

the blue position. And if we calculated total reflectivity of the surface for *all* positions, we would get well above .7. We can tell that by the amount of red circle below the surface line. Those diffuse reflections aren't allowed, so they imply absorption, not reflection. But neither of those situations apply in the current problem, because that isn't what we are calculating. We want to know how much incident radiation will leave my little blue circle in figure 1, travel to point C, and return back down that same line to the blue circle. I have just shown you that at 45°, *none* of it will. The only way it could is if the reflection were happening in an atmosphere, which could redirect again. But we are assuming reflection in space, with no help from an atmosphere.

This means the numbers fall again. If reflectivity has fallen to zero by 45°, then the sum falls by about another 1/3rd. Since we lose that third on the sphere, we lose it to both reflectivity and incident light. This means our .25 falls to .11.

$[(2/3)(1/2)]^2 = .11$

And we can't double the surface area anymore, either, since we just lost part of the surface area. We can only multiply by 4/3, giving us a total of .148. And that means the albedo of Enceladus is now 9.46 times over unity. That strange moon is now emitting over 9 times as much light as is hitting it. Think they can explain that with "shadow hiding" or split vectors?

This means that even the Moon is a near-perfect reflector, according to mainstream equations. They currently give the Moon an albedo of .136, which, according to my corrected equations, means it is reflecting 92% of the radiation a perfectly reflecting sphere would. If the Moon were perfectly white, it would have an albedo of .148. But since we know the Moon isn't anywhere near white, we can now see a big problem. We don't need Enceladus to tip us off; if we correct the equations, the Moon becomes a tip-off. We can see that the Moon must be creating brightness on its own, by interacting with the charge field.

This has big consequences in other ways, because it means the current math and theory, done right, can't even explain why we see the edges of moons and planets. The outer part of the Moon should be dark, according to my corrections. Instead it is fantastically bright. They can get that brightness only by fudging the equations and diagrams in about a dozen ways.

Notice that my charge field has ways to explain this as well, ones that don't require torturing logic or fudging equations. If I am correct and we have a magnetic field interaction here at the boundary of the body, with photons cancelling spins and releasing energy, we also have a mechanism for photon redirection. I called that even before I wrote this follow-up paper. In my first paper I said that the brightness was an outcome of photons being scattered by these magnetic collisions. Since photons cannot be slowed or destroyed, they can only be spin-stripped and re-directed. When they collide edge-to-edge, both things occur, and photons can go any direction. So we would have a sort of photon atmosphere at the boundary in this problem, one that was capable of explaining angles not explained by straight reflections. Neither reflection nor scattering can explain the brightness we see, or the angles either, so we have to go beyond it. We have a complete re-randomizing of vectors at the boundary, during and after normal scattering. Meaning, at the same time that we have the diagrams above, and normal reflection, we also have bigger magnetic effects that are due to these photon-antiphoton collisions. This effect has a similar effect to an atmosphere, since it has the ability to redirect and re-randomize the vectors, explaining a second diffusion of the light. The ambient charge field acts as this diffuser, in the same way an atmosphere would, except on a smaller scale. An atmosphere diffuses photons with molecules and ions, but this effect diffuses photons with anti-photons, at a tight charge

boundary.

I will be asked why we don't see this collision of photons and antiphotons in normal circumstances. Why is this situation special? It is special precisely because it is a tight boundary. By "tight," I mean that it is a boundary between two opposing charge fields, where one charge field is being channeling by dense matter. It is analogous to my refraction paper, where I show why light is affected by going through a small hole. It has to travel close to matter, and this forces it to interact strongly with the charge field being channeled by the matter. Same thing here. In "normal" circumstances, photons don't collide much because they are so small. Photons don't collide with antiphotons, either, since they aren't attracted to one another. The only time they do collide to an extent important enough for us to witness is when matter is channeling them, forcing them into spaces that are fairly tight even for them. This can happen in the nucleus, as we have seen recently, and it can happen here, when one charge field is being channeled through a large body. The *external* spaces aren't as confined as the nucleus, but remember that because this is a body composed of atoms—and we are at a boundary—we will have many nuclei releasing charge directly into space. Or directly into the face of the incoming ambient charge. These charge interactions may be happening right on the boundary of the nucleus.

We also have charge meeting charge head on, on a large extended boundary, which otherwise isn't seen by us. We don't see that here on Earth, we only see it when we look at celestial bodies.

We also have great speed adding to the equation, as I showed in my previous paper. These comets and moons are going only 4,000 to 8,000 times slower than light, and although that may seem at first to be negligible, it isn't. It isn't that these bodies are going 4,000 times slower than light that is important, it is that they are going 100,000 times faster than nuclei we are used to watching locally. When a local nucleus (in your desk, say) emits his charge into his ambient field, his ambient field is going the same speed he is. They are both in the Earth's field, *not* at any great boundary, so they are moving along together. The two charge fields meeting have no relative velocity to one another. But planets and moons are rushing through the ambient field of the Sun at very large speeds, greatly magnifying the magnetic field effect.

So we at last have a logical and mechanical explanation of the brightness of celestial bodies. The mainstream can drop their centuries' old misdirection with all this albedo finessing. They can start publishing real diagrams and real math. But this leads me into another prickle patch. I am reminded once again of Hawking's claim from thirty years ago that physics would be finished in a decade. The more I learn, the more ridiculous that claim looks. In every problem I have looked at over the last decade, I have found not perfect knowledge but propaganda. I have found fudged equations and faked diagrams and tall piles of bluster and braggadocio. In between brags, Hawking and all his high-profile buddies are camped out in black holes and on the edge of the universe, hiding from these fundamental physical problems. They had hidden this brightness problem very cunningly, and I had not been aware of it until this week. Our own Moon's brightness unexplained, hanging, buried for centuries. Hidden by faked math and faked diagrams and pages and pages of manufactured terms and mechanisms. Albedos manufactured and pushed to hide brightnesses nine times over unity. And this while calling fusion and zero-point energy people cranks and crackpots.

The margins of physics certainly do harbor a few cranks and crackpots, but in my long experience the greatest cranks and crackpots by far exist at the highest levels of academic physics, sitting in the big chairs, making the big money, and winning the top prizes. These physicists have no competition when it comes to being flagrantly unscientific. But they are worse than cracked. Crackpots just don't know any better, but these ranking physicists must know what they are doing. Surely they know enough

math and physics to realize they are cheating. No one with an ounce of integrity could study this stuff for more than a few hours without realizing it is all a shellgame. Which means these guys must be conscious conmen. Knowing the equations are nothing but misdirection, they memorize and teach the equations anyway. No, teach is too weak a word. They don't teach anymore, they indoctrinate. They force these false equations down students' throats and then try to shame anyone who gags on them.

In academia, there is no longer physics, there is only the suppression of physics. It appears it was always that way, back to Newton and before, but the levels of suppression have risen steeply in the past century, to the point now that all of physics has become an institutionalized *hiding* of physics. Every book you read, every page on the internet you read, is a cover-up of the truth. It is a clever, intended, and perverse game of misdirection, pushing the reader from the first sentence to a pre-established, rubberstamped version of reality that everyone on the inside knows to be false.

Why? Why would physics have become like this? For the same reason everything else has. No one cares about the truth. They care about money, fame, prizes, advancing their careers, feeding their children, but they care nothing for physics or for Nature or for the truth. Reality means nothing to these people, and they have admitted that at least since the time of the Copenhagen Interpretation. Physics is just another thing for them to manipulate to their own petty designs. They have no integrity and don't know what integrity is. A person with integrity would be ashamed to publish fake diagrams and math on purpose, but it doesn't shame these people. They are too self-important to feel shame. They have climbed out above morality—they think—and morality is just a tool of control for them. They use morality to gain power *over you*. They aren't shamable, but they think you may be. So if you try to argue a point with them, they don't argue the other side—as would be the honest way to argue. Instead, they try to shame you into agreement. I have had "scientists" write me and say, "People are laughing at you." Is that a scientific argument, or is that a transparent and pathetic attempt to shame me into silence and agreement? I guess they can see that I am a moral person, with the potential to feel guilt and shame, so they give it a try. It has worked so well for them over the years, why not lead with it? It is much easier than actually addressing the content of my arguments. I have caught them faking over and over and over, so what can they really say? Your only hope when caught red-handed is to try to talk your way out of it, and the best way to do that in the modern world is with psycho-babble, spin, attacking your accuser, and other mindgames. That is what we have seen from my opposition. That is what we see from mainstream physics on a daily basis. We no longer see physics, we see ever-increasing levels of psycho-babble. Or physi-babble. Logic, rationality, rigor and integrity have gone right out the window, and all we see from physics now is propaganda and protectionism. The journals and books are filled with absolute nonsense, and anyone who speaks out against it is piled on as a danger to funding.

If you are interested in truth, your only hope is to abandon the salesmen of mainstream physics and strike out on your own, as I have. The entire history of physics has to be cleansed of fake math and fake diagrams—of all the push and spin of dishonest physicists. Before 1900, we may estimate that as about half of all physics. After 1900, we may estimate that as about 90% of all physics. After 1950, we may estimate that as about 99% of all physics. So there is a lot of work to do. I suggest you join me.