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3 Short Walking Breaks Can Reverse Harm From 3 Hours of Sitting

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What's "Easy" About This? (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
Right. Get up out of your chair once an hour, leave the office, and take a 5 minute walk. Come back and get back into work. Total time required: 10-15 minutes.

I don't know too many bosses who would be cool with that.

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Re: (Score:2, **Insightful**)

by BasilBrush (643681) Friend of a Friend

What's this "leave the office" and adding 5-10 minutes bit? As soon as you stand up, your 5 minutes starts, and it only ends when you sit down again. Walking down the corridor counts. Walking down and up the stairs if your office isn't on the ground floor counts extra.
Total time required = 5 minutes.

Besides, even shorter periods will help. I believe Apples Watch gamification of fitness targets one minute of standing/walking for each hour of sitting. Which would certainly be an improvement for a lot of offic

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Re: (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
You're either in a big office or you walk very slowly.

Do you know how far it is possible to walk in 5 minutes? Even if you're not particularly hurrying?

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Re:What's "Easy" About This? (Score:1)

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-11 8:10 (#47880581)
khayman80 said our long conversation can continue here. So I am continuing. But I only have a few minutes to spend today, so I'm dashing this off briefly.

In reply to this comment

Good grief. How predictably ridiculous. All boundaries where nothing inside changes have power in = power out. Seriously. All of them. That's why I tried to convince you that this general principle is true [slashdot.org], but obviously we'll have to agree

to disagree.

I have already explained how your "boundary" **assumed** that all the power was output from the **outside** of the enclosing sphere. However, that's not the case. If area is A, the Stefan-Boltzmann equation states that total radiant power output is (e * s) * A * T^4. BUT, you neglected to account for the fact that the hollow sphere has TWO surfaces it is radiating from. You left out half the m^2 in A, so your figure for W/m^2 was off by very nearly 100%. Q.E.D.

Jane agreed that the general principle is true [slashdot.org] that power in = power out through a boundary where nothing inside the boundary is changing. But now that this general principle contradicts Slayer dogma, Jane considers it a misapplication.

I agreed that "given your assumptions", that was the correct answer. I stated that in plain English. But your **assumptions** (see above) were incorrect. I just didn't mention that at the time. I was waiting for you to finish so I could show how you were "hanging yourself", as the saying goes. Hoist by your own petard.

I'm not to bother replying to the rest of your nonsense. Here is a simple proof that you are wrong, and nothing else need be said:

The formula for radiant power is (e * s) * area * T^4. Period. This is according to the Stefan-Boltzmann law, and no other variables are required at steady-state. The initial temperature of the heat source was 150F, or 338.71K.

So we agreed that the input power to the heat source is sufficient for the equation (e * s) * (heat source area) * 338.71^4.

The power input doesn't change. Yet your final calculated temperature was 241F or something like that (about 389.26K).

All you need to do is draw your precious "boundary" around the heat source. The S-B equation now says power out is:

(e * s) * (heat source area) * 389.26^4.

e, s, and the area haven't changed. But you changed the temperature. It is easy to see that 389.26^4 is much greater than 338.71^4. Your power output is now greater than your power input, which is a violation of conservation of energy. It's right there, man.

If you need specific figures: the total power output (and therefore power input) at the heat source, in initial conditions, was (we agreed on this) 82.12 W/m^2 * 510.065 m^2 = 41886.54 Watts. Power in = power out.

But the Stefan-Boltzmann law says at your calculated final temperature, power out is: 73039.94 Watts.

According to your OWN "boundary rule", you have just created 31153.4 Watts greater output than input. Conservation of energy is violated. Q.E.D.

You are busted.

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What's "Easy" About This? (Score:2)

by khayman80 (824400) on 2014-09-11 16:36 (#47885531) Homepage Journal

> ... The formula for radiant power is (e * s) * area * T^4. Period. This is according to the Stefan-Boltzmann law, and no other variables are required at steady-state. The initial temperature of the heat source was 150F, or 338.71K. So we agreed that the input power to the heat source is sufficient for the equation (e * s) * (heat source area) * 338.71^4. The power input doesn't change. ... the total power output (and therefore power input) at the heat source, in initial conditions, was (we agreed on this) 82.12 W/m^2 * 510.065 m^2 = 41886.54 Watts. Power in = power out. ... ***[Jane Q. Public, 2014-09-11]***

No. We've never agreed that the unchanging power input (my "constant electrical heating power") is "82 W/m^2". I've repeatedly failed to explain that the constant electrical heating power would only be "82 W/m^2" if the chamber walls were 0K blackbodies.

In this experiment there is a *"... constant flow of energy into the plate from the electric heater... flowing in at a constant rate... the electric heater pumps in energy at a constant rate. ..."*

Note that the constant rate of Dr. Spencer's electric heater would equal zero if the chamber walls were also at 150F. So any calculation of this crucial constant rate would also need to be zero in the case of chamber walls at 150F.

Since Jane's "82 W/m^2" value isn't the constant electrical heating power needed to keep the source at 150F inside 0F chamber walls, it **isn't** held constant. Here's where Jane actually calculated the constant electrical power heating the source inside 0F chamber walls:

> ... Calculate initial (denoted by "i") heat transfer from heat source to chamber wall. We are doing this only to check our work later. ... = 55.5913 [W/m^2]... ***[Jane Q. Public, 2014-09-10]***

So Jane's source needs 55.6 W/m^2 of constant electrical heating power to stay at 150F inside 0F chamber walls. **This** value is held constant. After the enclosing shell is added and temperatures stabilize, conservation of energy demands that net heat transfer out equals Jane's 55.6 W/m^2. Does it?

> ... you should at least have tried drawing your boundary around your own goddamned heat source, both for initial conditions and

> your final result, to check your work. But you didn't. What you got was a universe-busting violation of conservation of energy. ... ***[Jane Q. Public, 2014-09-11]***

No, I drew that boundary for both initial and final conditions to guarantee conservation of energy. In fact, I repeatedly suggested that you check your work by drawing a boundary between the source and the enclosing shell at your proposed steady-state temperatures, then calculating power in = power out using the original constant electrical power you calculated before the source was enclosed.

Let's do that:

Jane's constant electrical power of 55.6 W/m^2 flows into that boundary. At steady-state, power in = power out. But power out through that boundary is the net heat transfer from the source to the shell, and Jane calculates that as 27.8 W/m^2.

Since power in > power out, energy isn't conserved between the source and the enclosing shell at Jane's proposed "steady-state" temperatures.

> ... the **total** heat transfer now from heat source to the chamber wall is equal to: (heat transfer from heat source to the inside of the enclosing plate) **PLUS** (heat transfer from the outside of the enclosing plate to the wall). ... ***[Jane Q. Public, 2014-09-10]***

Once again, conservation of energy means that power in = power out through any boundary where nothing inside that boundary is changing with time. Any heat transfer which doesn't cross the boundary can't be included because it can't change the total amount of energy inside the boundary.

> ... The "enclosing shell" (if by that you mean the passive plate that was inserted) is acted upon only by radiation. You should have drawn your shell around THAT, and that alone. ... ***[Jane Q. Public, 2014-09-11]***

Let's draw a boundary around the enclosing shell to check Jane's work:

Jane's constant electrical power of 55.6 W/m^2 flows into that boundary. At steady-state, power in = power out. But power out through that boundary is the net heat transfer from the shell to the chamber walls, and Jane calculates that as 27.8 W/m^2.

Since power in > power out, energy isn't conserved between the source and the enclosing shell at Jane's proposed "steady-state" temperatures.

> ... the **total** heat transfer now from heat source to the chamber wall is equal to: (heat transfer from heat source to the inside of the enclosing plate) **PLUS** (heat transfer from the outside of the enclosing plate to the wall). ... Add them together for the total heat transfer: 27.7832 + 27.7813 = 55.5645 total heat transfer. ... ***[Jane Q. Public, 2014-09-10]***

No. Since heat transfer from heat source to the **inside** of the enclosing plate never crosses a boundary drawn **outside** the enclosing plate, it can't affect energy conservation for that boundary. At Jane's temperatures, total heat transfer out through that boundary is actually just 27.8 W/m^2, while Jane's constant 55.6 W/m^2 electrical heating power still flows in.

Because power in = power out through any boundary where nothing inside that boundary is changing with time, Jane's "steady state" solution violates conservation of energy.

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Re:What's "Easy" About This? (Score:1)

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-11 17:17 (#47885789)

No. We've never agreed that the unchanging power input (my "constant electrical heating power") is "82 W/m^2". I've repeatedly failed to explain that the constant electrical heating power would only be "82 W/m^2" if the chamber walls were 0K blackbodies.

In this experiment there is a "... constant flow of energy into the plate from the electric heater... flowing in at a constant rate... the electric heater pumps in energy at a constant rate. ..."

You're only confirming what I already stated.

Further, your own quotation there is proving you wrong. Power input to the heat source is constant. It is sufficient to heat the source to 150 deg. F (338.71K). Given the known temperature, and the emissivity, we compute the power out with (epsilon)(sigma)(338.71^4) = 82.12 W/m^2. Using that radiant emittance and the fixed, agreed upon area we get 41886.54 Watts total radiated power output.

By the DEFINITION of the problem (and even your own "boundary" principle) this is what it is. We have the equation for it we calculate it. Dirt simple.

That is what the Stefan-Boltzman relation stipulates. **There is NO provision anywhere in that equation for whether another body nearby is a black body or a gray body or a white body or anything else.** That's the way the damned thing works. I didn't invent it. Stefan came up with the concept, and Boltzmann quantified it some time later. This is the STANDARD equation for radiant power from temperature. There is nothing non-standard, equivocal, or even really debatable about it. **It is a standard physics equation, and it does not require your**

agreement.

If you're saying the STANDARD Stefan-Boltzman relation between radiant power output, temperature, and emissivity doesn't apply here, then you're disputing the Stefan-Boltzmann law. If that is so, then please show is the "khayman80 law" you have invented to replace it.

You keep talking about "consensus" and "accepted science". Well, this is the **long-accepted science** of radiant heat transfer. If you want to refute THAT, go right ahead and try. I'll be here watching and laughing all the way.

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Re:What's "Easy" About This? (Score:1)

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-11 17:26 (#47885843)

Any heat transfer which doesn't cross the boundary can't be included because it can't change the total amount of energy inside the boundary.

PRECISELY! Here you are confirming, once again, my explanation of how you got it wrong.

You **assumed** the total radiant power output of the heat source was also being put out by the **outside** of the hollow sphere, through the "boundary" you drew around it. BUT... as I very clearly explained, that is not so. The hollow sphere has TWO surfaces, of nearly equal area. So the power output at the outside surface is actually only approximately HALF of what you thought it was. Because your calculations (I still have them) assume 511.346 m^2 when the actual radiating surface area is 511.346 m^2 + 511.186 m^2 = 1022.53 m^2.

Your calculation was off by 100%. (Or close enough to 100% that it isn't worth talking about the difference.)

You own statements (again, I still have them) prove this.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-11 18:03 (#47886053)
Homepage Journal

> ... Power input to the heat source is constant. It is sufficient to heat the source to 150 deg. F (338.71K). Given the known temperature, and the emissivity, we compute the power out with (epsilon)(sigma)(338.71^4) = 82.12 W/m^2. Using that radiant emittance and the fixed, agreed upon area we get 41886.54 Watts total radiated power output. ... ***[Jane Q. Public, 2014-09-11]***

Once again, the constant electric power is sufficient to heat the source to 150F **when it's surrounded by chamber walls at 0F**. That's the initial condition in the experiment that we agreed on. Your "82 W/m^2" value isn't the constant electrical power sufficient to heat a 150F source inside 0F chamber walls.

Again, if you want to see why your calculation doesn't yield the power input to the heat source, just ask what power input would be necessary if the chamber walls were also at 150F. In that case Dr. Spencer's electric heater wouldn't be necessary, so that power input would be zero.

Since your "82 W/m^2" calculation can't do that, it's not the electric heater power that's held constant. On the other hand, your 55.6 W/m^2 calculation **would** be zero if the chamber walls were at 150F. So it represents the constant electrical power in your analysis. Hold it constant as Dr. Spencer said, and you'll obtain the correct solution if you correctly apply the principle of conservation of energy.

> > Any heat transfer which doesn't cross the boundary can't be included because it can't change the total amount of energy inside the boundary.
>
> PRECISELY! Here you are confirming, once again, my explanation of how you got it wrong. ... ***[Jane Q. Public, 2014-09-11]***

No, I explained why you can't add heat transfer from heat source to the inside of the enclosing plate to the heat transfer from the outside of the enclosing plate to the wall to get 55.6 W/m^2 from the shell to the chamber walls. Again, that's because any heat transfer which doesn't cross the boundary can't be included because it can't change the total amount of energy inside the boundary.

> > Any heat transfer which doesn't cross the boundary can't be included because it can't change the total amount of energy

> > inside the boundary.
>
> PRECISELY! Here you are confirming, once again, my explanation of how you got it wrong. You **assumed** the total radiant power output of the heat source was also being put out by the **outside** of the hollow sphere, through the "boundary" you drew around it. BUT... as I very clearly explained, that is not so. The hollow sphere has TWO surfaces, of nearly equal area. So the power output at the outside surface is actually only approximately HALF of what you thought it was. Because your calculations (I still have them) assume 511.346 m^2 when the actual radiating surface area is 511.346 m^2 + 511.186 m^2 = 1022.53 m^2. ***[Jane Q. Public, 2014-09-11]***

No. I've assumed that the electrical power heating the source to 150F inside 0F chamber walls is constant. (Note that this constant rate would be zero if the walls were at 150F.) That's the assumption we disagree on. I **never** assumed the total radiant power output of the heat source was also being put out by the **outside** of the hollow sphere. Maybe the fact that we disagree about what's held constant (the electrical heating power to keep the source at 150F inside 0F chamber walls) is leading to yet another miscommunication?

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-12 12:16 (#47892485)

No, I explained [slashdot.org] why you can't add heat transfer from heat source to the inside of the enclosing plate to the heat transfer from the outside of the enclosing plate to the wall to get 55.6 W/m^2 from the shell to the chamber walls. Again, that's because any heat transfer which doesn't cross the boundary can't be included because it can't change the total amount of energy inside the boundary.

And I've explained twice or maybe 3 times now how how your "thermodynamic" thinking led you astray. AFTER having given you a very clear warning out of a textbook, once I saw that you were headed in the wrong direction.

A body at thermodynamic temperature X outputs its total radiant power from ALL its surfaces. Not just one of them. By assuming total radiant power outward, across your boundary, you miscalculated the power out by 100% (give or take a couple of thousandths).

You are disputing the established, "consensus" science of heat transfer by making assumptions that don't apply. I used those words before, too. Misapplication of a true principle can still give you the wrong answer. Your calculated temperature for the enclosing sphere was off by approximately 33 degrees K.

You then back-calculated this erroneous figure in order to give another erroneous value to your heat source. And once again, the proof is dirt simple because your input power at steady-state is fixed, and a value that we already **know**: 41886.54 W.

Using the **standard** Stefan-Boltzmann relation between radiant temperature of a gray body, its emissivity, and radiant power out, we can very easily (even on paper, without a calculator) that using **your own** "energy boundary" concept, your answer "creates" approximately 3 kW more power out than you're putting in. This is an indisputable fact that follows directly from the Stefan-Boltzmann law.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-12 13:16 (#47892947) Homepage Journal

> ... input power at steady-state is fixed, and a value that we already **know**: 41886.54 W. ... ***[Jane Q. Public, 2014-09-12]***

Again, we disagree about what's held fixed. That value you keep calculating isn't the constant electrical power heating the source.

In this experiment there is a *"... constant flow of energy into the plate from the electric heater...*

flowing in at a constant rate... the electric heater pumps in energy at a constant rate. ..."

In my interpretation, Dr. Spencer's challenge is basically: "Assuming an electric heater pumps energy at a constant rate to the source, does the source temperature change after a passive plate is added?"

You've repeatedly noted that there are no other factors involved in calculating your 82 W/m^2 (41886.54 W) value. So if it's held fixed, the source temperature is also held fixed.

So it seems like in your interpretation, Dr. Spencer's challenge is basically: "Assuming the source temperature is held fixed, does the source temperature change after a passive plate is added?"

Is that right?

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-13 10:44 (#47897605)
From your other (now archived) comment:

Jane assumed the source's final enclosed steady state temperature was exactly the same as before it was enclosed. Surprise, Jane found that the source didn't warm! As a result, he got nonsensical answers and had to invent a new energy conservation law where power adds to the energy inside a boundary even if it never crosses that boundary.

I **"assumed"** nothing. I calculated it. One stipulation of Spencer's challenge was that the power input to the heat source remains constant. He did NOT, however, make that stipulation for the refrigerated chamber walls. Not that it matters in this case. Because the power input **to the heat source** does remain constant (as a requirement of this problem), and therefore, by the Stefan-Botzmann relation

between thermodynamic temperature and radiation, the temperature of the heat source does not change. This is not an assumption, it is called "physics".

Again, we disagree about what's held fixed. That value you keep calculating isn't the constant electrical power heating the source.

In this experiment there is a "... constant flow of energy into the plate from the electric heater... flowing in at a constant rate... the electric heater pumps in energy at a constant rate. ..."

YOU can disagree all you like, but the words are there in plain English: "constant flow of energy into the plate **from** the electric heater."

Now you're trying to say more energy is coming in from the other end? Pardon me, but that won't work either, by your own "boundary" principle: power in = power out. If you're putting energy in from both ends, then where is it coming out?

There is only one "heat source" in this problem, and it is at the center. And according to (epsilon)(sigma)(T1^4 - T2^4), **ALL** heat transfer is outward **from** the source **to** the walls! It's called physics!

So it seems like in your interpretation, Dr. Spencer's challenge is basically: "Assuming the source temperature is held fixed, does the source temperature change after a passive plate is added?"

If the power **input** to the heated sphere is fixed, then the power **output** in the form of radiant temperature is fixed: (epsilon) (sigma)T^4. It's physics!

It doesn't matter how you try to squirm and twist this. You have been owned. End of story.

Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-13 10:48 (#47897631) Homepage Journal

No. Holding constant the electrical power heating the source is **very** different than holding constant the source temperature. Like Jane, let's assume the source temperature is constant (rather than the electrical heating power) and use Jane's equation and notation:

> ... we have 4 surfaces, which I will call 1, 2, 3, 4 moving outward, so 1 is the surface of the heat source, 2 the inside of the hollow sphere, 3 the outside of the hollow sphere, and 4 the chamber wall. T3 for example would be radiative Temperature of surface 3. ... ***[Jane Q. Public, 2014-09-10]***

Draw a boundary between the source (T1=150F) and the chamber walls (T4=0F) before the hollow sphere is added. Power in = power out. Variable "electricity_initial" flows in at whatever rate is needed to keep T1=150F. Net heat transfer flows out from source to chamber walls. Power in = power out:

electricity_initial = p(14) = (e)(s) * (T1^4 - T4^4) = (e)(s) * (8908858139.78) = 55.5913 W/m^2

Now add the hollow sphere and draw a boundary between the source (T1=150F) and the inside of the hollow sphere (T2). A different "electricity_final" flows in, and heat transfer p(12) flows out.

electricity_final = p(12) = (e)(s) * (T1^4 - T2^4)

Now draw a boundary between the outside of the hollow sphere (T3=T2) and the chamber walls (T4=0F): "electricity_final" flows in, and heat transfer p(34) flows out. Since power in = power out:

electricity_final = p(34) = (e)(s) * (T2^4 - T4^4)

Combine these two equations:

T1^4 - T2^4 = T2^4 - T4^4

Solve for:

T2 = T3 = 305.47K = 90.176 deg. F.

electricity_final = 27.8 W/m^2.

So if the source temperature is held constant at 150F, adding the hollow sphere reduces the necessary electrical heating power to keep the source at 150F by a factor of two, from 55.6 to 27.8 W/m^2.

Can we agree on that?

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-13 14:39 (#47898563)
You're misapplying your physics principles again. You're trying to introduce outside influences that the SIMPLE, UNREFUTABLE Stefan-Boltzmann relation says is ALWAYS true:

For **a given gray body**, its thermodynamic temperature is related ONLY to emissivity, radiant power output, and the S-B relation (emissivity)* (S-B constant) * T^4.

PERIOD. That's physics. And I repeat: given your OWN "draw a border around it" thermodynamic reasoning, the power input (whether it is electrical, chemical, or something else) must equal that output. That's physics.

You're trying to bring in energy from elsewhere, but it isn't relevant to this calculation AT ALL; it is erroneous thinking.

Power input is **specified** to be constant.

Calculating the total power in initial conditions is, as I stated before, "dirt simple". Specified emissivity is known: 0.11. Temperature is known: 338.71K. Solving for the above we get 82.12 W/m^2.

We already have ALL the information needed to calculate this, given the Stefan-Boltzmann relation (above), relating these numbers. Nothing else is required, and in fact trying to introduce other factors is ERROR. That is what the **accepted science** says.

Since we CAN easily calculate that in initial conditions, and we know the area (YOU specified it), we can calculate the total power output (which is the ONLY power output) by multiplying Watts per area by the area. Our result is 82.12 W / m^2 * 510.065 m^2 = **41886.54 Watts**.

This is simple physical fact, according to standard principles of physics. I repeat that you can twist and squirm all you want, but unless you can come up with a "khayman80 law" to replace the Stefan-Boltzmann law, this IS the answer, it is known, and it is unequivocal.

Further, even if you use the "long" equation from Wikipedia to calculate heat transfer, rather than my somewhat simplified estimate method, the primary terms in the denominator are **still** T1^4 **minus** T2^4, indicating that net heat flow is all OUTWARD from the heat source.

Introduce all the complications, and prevarications and half-assed reasoning you want. I have already shown you the correct answer according to established physics.

Give it up lest you make yourself look more of a fool than you already are. Because as I **promised** you, all of this is being recorded and will be made public, with your name displayed prominently. I promised that I would do that regardless of how it turned out. You have no reason to complain just because you lost.

Further, I'm going to INVITE people who teach heat transfer to examine my write-up, and

evaluate it. I already know what they will say about your half-assed thermodynamic reasoning.

To be honest, I still don't see why YOU don't see, where I showed that you were clearly wrong. But again, I suspect that your CO2-based greenhouse gas religion will not let you accept the clearly established facts.

I have said all I need to say here. Nothing you say will change it, and no, I do not agree with your fallacious "reasoning". I'll stick with the engineering textbooks, thanks very much.
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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-13 14:51 (#47898605) Homepage Journal

> ... For **a given gray body**, its thermodynamic temperature is related ONLY to emissivity, radiant power output, and the S-B relation (emissivity)* (S-B constant) * T^4. PERIOD. That's physics. ... ***[Jane Q. Public, 2014-09-13]***

And that's why what you're calculating isn't Dr. Spencer's electrical heating power, because it should be "zero" if the chamber walls are also at 150F.

> ... I repeat: given your OWN "draw a border around it" thermodynamic reasoning, the power input (whether it is electrical, chemical, or something else) must equal that output. That's physics. You're trying to bring in energy from elsewhere, but it isn't relevant to this calculation AT ALL; it is erroneous thinking. Power input is **specified** to be

> constant. Calculating the total power in initial conditions is, as I stated before, "dirt simple". Specified emissivity is known: 0.11. Temperature is known: 338.71K. Solving for the above we get 82.12 W/m^2. We already have ALL the information needed to calculate this, given the Stefan-Boltzmann relation (above), relating these numbers. Nothing else is required, and in fact trying to introduce other factors is ERROR. That is what the **accepted science** says. ... ***[Jane Q. Public, 2014-09-13]***

If you draw a boundary around the heated source, you **have to** account for the 0F chamber walls because they're radiating power in through the boundary. Otherwise you're not actually calculating Dr. Spencer's electrical heating power, or you misunderstand conservation of energy.

> So it seems like in your interpretation, Dr. Spencer's challenge is basically: "Assuming the source temperature is held fixed, does the source temperature change after a passive plate is added?"

> If the power **input** to the heated sphere is fixed, then the power **output** in the form of radiant temperature is fixed: (epsilon) (sigma)T^4. It's physics! It doesn't matter how you try to squirm and twist this. You have been owned. End of story. ***[Jane Q. Public, 2014-09-13]***

Jane, didn't it seem odd that you interpreted Dr. Spencer's challenge to mean "Assuming the source temperature is held fixed, does the source temperature change after a passive plate is added?"

How is that different than asking "Assume x = 150 forever. Will x change?"

Isn't that a silly question? Shouldn't you at least consider the possibility that you've misinterpreted "power input to the heat source"?

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-13 14:52 (#47898609)
I'm going to correct/clarify myself again:

It's not that I don't agree. You might come up with the right answer for some sub-calculation. I don't know, I don't care, and I'm not even going to bother to check, much less agree. The issue is that I have already solved the problem, and arrived at the correct answer (within reasonable limits).

So I don't HAVE to agree or disagree with you. I've already done it, according to the correct textbook-approved physics. AND (unlike you) I checked my work and it checks out. And unlike your answer it doesn't violate conservation of energy.

Nothing you can say is going to change that.
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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-13 14:58 (#47898633)

Jane, didn't it seem odd that you interpreted Dr.

Spencer's challenge to mean "Assuming the source temperature is held fixed, does the source temperature change after a passive plate is added?"

How is that different than asking "Assume x = 150 forever. Will x change?"

Isn't that a silly question? Shouldn't you at least consider the possibility that you've misinterpreted "power input to the heat source"?

It doesn't seem odd at all, because established science shows that his assertion that the temperature changes is **wrong**.

Considering that he is wrong, why should I find it odd that he said a wrong thing.

SIMPLE CALCULATION, which I have already shown several times: power "sufficient" to heat the heat source under initial conditions to 150F: 41886.54 Watts.

Power input at the source remains constant. Spencer's stipulation. Therefore by the S-B relation, once everything comes up to radiative steady-state the input power and output power of the heat source are constant. There is no inconsistency here.

Further, because ALL the other surfaces are cooler than the heat source, ALL the net heat transfer is outward, because T(a)^4 - T(b)^4 is a positive number.

This is established science, and it doesn't depend on the incorrect opinions of either Spencer or yourself.

Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-13 15:07

(#47898663) Homepage Journal

> ... It's not that I don't agree. You might come up with the right answer for some sub-calculation. I don't know, I don't care, and I'm not even going to bother to check, much less agree. The issue is that I have already solved the problem, and arrived at the correct answer (within reasonable limits). So I don't HAVE to agree or disagree with you. I've already done it, according to the correct textbook-approved physics. AND (unlike you) I checked my work and it checks out. And unlike your answer it doesn't violate conservation of energy. ... ***[Jane Q. Public, 2014-09-13]***

I just showed that Jane/Lonny Eachus solved the "correct answer" to a different question. Instead of holding the electrical heating power constant like Dr. Spencer did, Jane/Lonny held the source temperature constant. In that case, the electrical heating power required to keep the source at 150F drops by a factor of two after the enclosing shell is added. This shows that holding the electrical heating power constant like Dr. Spencer did is different than holding the source temperature constant like Jane/Lonny did.

> ... SIMPLE CALCULATION, which I have already shown several times: power "sufficient" to heat the heat source under initial conditions to 150F: 41886.54 Watts. Power input at the source remains constant. ... ***[Jane Q. Public, 2014-09-13]***

No, in your example the electrical heating power drops by a factor of two after the enclosing shell is added. And once again, your calculation of the power sufficient to heat the heat source would be exactly the same if the chamber walls were also at 150F. But the right answer there is zero, because an electric heater wouldn't be necessary. Is this really so hard to

understand, or are you deliberately spreading misinformation?

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- **Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)**

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-13 15:07 (#47898665)
I **do** think it's cute, however, how you tried to use Spencer's statement as proof of itself.

Have I reminded you lately that your grasp of logic seems a bit off?
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- **Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)**

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-13 15:13 (#47898683)

If you draw a boundary around the heated source, you have to account for the 0F chamber walls because they're radiating power in through the boundary. Otherwise you're not actually calculating Dr. Spencer's electrical heating power, or you misunderstand conservation of energy.

NO!!!

I have told you 5 or 6 or maybe more times now, this is a VIOLATION of the very straightforward Stefan-Boltzmann law.

How it applies in this situation is quite straightforward, and not at all as complex as you are making it out to be.

Radiant power output of a gray body is

calculated using ONLY the variables: emissivity and temperature. THAT IS ALL. There is no other variable dealing with incident radiation, or anything else. When the system is at radiant steady-state, power out (and therefore power in) are easily calculated, and I have calculated them.

Further, Spencer's "electrical" input power was **to the heat source**, not to the whole system.

YOUR OWN PRINCIPLE: power in = power out. Now you're trying to contradict yourself and say it meant something else.

It's just bullshit. You're squirming like a fish on a hook. You just don't seem to realize you have already been flayed, filleted, and fried in batter.

You're owned, man.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-13 15:23 (#47898707) Homepage Journal

> NO!!! I have told you 5 or 6 or maybe more times now, this is a VIOLATION of the very straightforward Stefan-Boltzmann law. How it applies in this situation is quite straightforward, and not at all as complex as you are making it out to be. Radiant power output of a gray body is calculated using ONLY the variables: emissivity and temperature. THAT IS ALL. There is no other variable dealing with incident radiation, or anything else. When the system is at radiant steady-state, power out (and therefore power in) are easily calculated, and I have calculated

> them. Further, Spencer's "electrical" input power was to the heat source, not to the whole system. YOUR OWN PRINCIPLE: power in = power out. Now you're trying to contradict yourself and say it meant something else. It's just bullshit. You're squirming like a fish on a hook. You just don't seem to realize you have already been flayed, filleted, and fried in batter. You're owned, man. ***[Jane Q. Public, 2014-09-13]***

No. Draw a boundary between the source (T1=150F) and the chamber walls (T4=0F) before the hollow sphere is added. Power in = power out. Variable "electricity_initial" flows in at whatever rate is needed to keep T1=150F. Net heat transfer flows out from source to chamber walls. Power in = power out:

electricity_initial = p(14) = (e)(s) * (T1^4 - T4^4)

So are you disputing that power in = power out through a boundary where nothing inside that boundary is changing with time? Or are you disputing that the radiation from the chamber walls passes through a boundary drawn just inside them?

And again, if you keep ignoring that "power in" half of the equation that all Sky Dragon Slayers miss, you'll have to keep wondering why your "electrical heating input" calculation wouldn't change even if the chamber walls were also at 150F. Even Jane should be able to comprehend that a 150F source inside 150F chamber walls wouldn't need electrical heating power.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-13 15:24 (#47898715)
PROOF that you're bullshitting everybody:

I just showed that Jane/Lonny Eachus solved the "correct answer" to a different question. Instead of holding the electrical heating power constant like Dr. Spencer did, Jane/Lonny held the source temperature constant.

NO!!! I did not. I held the power constant, just as Spencer stipulated.

For a gray body, which you stipulated, radiant power out = (emissivity) * (S-B constant) * T^4. This is the Stefan-Boltzmann relation between radiant temperature of a gray body and its power output.

T is known: 150F or 338.71 K.

Solving for radiant power out we get 82.12 Watts/m^2. Times khayman80's stipulated area (510.065 m^2) = 41886.54 Watts.

It is this POWER that remains constant according to Spencer. Khayman80 himself asserted that "power in = power out". Therefore **POWER IN = POWER OUT = 41886.54 Watts.**

But because of the equation I showed above, which is **a physical law**, after the hollow sphere is inserted (which is COLDER than the heat source), nothing at the power source has changed. Emissivity is still the same. Power input is still 41886.54 Watts = radiant power output of 41886.54 Watts. Which (by the equation above) yields the same temperature.

I didn't **assume** the same temperature, I calculated it using known physical law.

ANYTHING ELSE is a direct violation of the Stefan-Boltzmann law.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-13 15:27 (#47898729)
I am disputing nothing of the sort. As I have explained many times now, you are not drawing your lines properly.

You keep making the same bullshit assertions, after I have proved them false. Why do you do this?

You're just going to look that much more foolish later.
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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-13 15:45 (#47898793) Homepage Journal

> I am disputing nothing of the sort. As I have explained many times now, you are not drawing your lines properly. You keep making the same bullshit assertions, after I have proved them false. Why do you do this? You're just going to look that much more foolish later.
> ***[Jane Q. Public, 2014-09-13]***

You're either disputing conservation of energy, or you're not calculating the actual electrical heating power. If you're calculating the actual electrical heating power, your calculation **has to** account for radiation from the chamber walls because it passes **in** through that boundary. That's why the electrical heating power would be zero if the chamber walls were also at 150F!

Can we agree that the required electrical heating power would be zero if the chamber walls were also at 150F?

> ... I held the power constant, just as Spencer stipulated. ... ***[Jane Q. Public, 2014-09-13]***

It's so adorable that Jane keeps insisting that Jane kept the power constant, even after I showed that Jane's calculation was only able to hold the source temperature constant after the enclosing shell was added by halving the actual electrical heating power.

It's also adorable that Jane keeps ignoring the fact that his "electrical heating input" calculation wouldn't change even if the chamber walls were also at 150F. Even Jane should be able to comprehend that a 150F source inside 150F chamber walls wouldn't need electrical heating power.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-15 8:27 (#47909263)

You're either disputing conservation of energy, or you're not calculating the actual electrical heating power. If you're calculating the actual electrical heating power, your calculation has to account for radiation from the chamber walls because it passes in through that boundary. That's why the electrical heating power would be zero if the chamber walls were also at 150F!

Nonsense. This is textbook heat transfer physics. We have a fixed emissivity. Therefore, **according to the Stefan-Botlzmann radiation law**, the ONLY remaining variable which determines radiative power out is temperature. NOTHING else. That's what the law says: (emissivity) * (S-B constant) * T^4. That's all. Nothing more. This makes it stupidly easy to calculate the radiative power out, and therefore the necessary power in.

YOU are disputing the Stefan-Boltzmann law. But it is a known physical law, and this is a textbook demonstration of it. You lose.

It's so adorable that Jane keeps insisting that Jane kept the power constant, even after I showed that Jane's calculation was only able to hold the source temperature constant after the enclosing shell was added by halving the actual electrical heating power.

You showed no such thing. Your calculations contradict themselves, and your methodology contradicts itself.

EVEN IF we accepted your idea that the "electrical" power required to be input to the heat source is dependent on the temperature **difference** between the heat source and chamber wall (a violation of the S-B law), you still contradict yourself because your answer of a hotter heat source would still then require MORE power, because the difference is greater. But that is not allowed by the stated conditions of the experiment, and you keep glossing over that simple check of your own work which proves it wrong.

So no matter how you cut it, your answer is wrong, by your own rules.

It's also adorable that Jane keeps ignoring the fact that his "electrical heating input" calculation wouldn't change even if the chamber walls were also at 150F. Even Jane should be able to comprehend that a 150F source inside 150F chamber walls wouldn't need electrical heating power.

This is a simple requirement of the Stefan-Boltzmann law. The radiative power output of a given body does not depend on other nearby bodies. It's inherent in the law itself. And this is precisely where you are getting it wrong.

I find it highly amusing that you derive your own calculations from the Stefan-Boltzmann law, then deny that it is valid. Every time you try to squirm out of this you just contradict yourself again.

I am further amused that you find it "adorable" that you've been proven wrong. Be a man for a change and admit it. Or show us your own replacement for the Stefan-Boltmann law. You don't get to have it both ways.

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- **Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:1)**

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-15 8:42 (#47909379)
In fact let's just face this directly, with no mincing of words:

It's also adorable that Jane keeps ignoring the fact that his "electrical heating input" calculation wouldn't change even if the chamber walls were also at 150F. Even Jane should be able to comprehend that a 150F source inside 150F chamber walls wouldn't need electrical heating power.

We are not AT thermal equilibrium, so that is a ridiculous straw-man argument.

One question only: do you agree with the Stefan-Boltzmann relation: power out P = (emissivity) * (S-B constant) * T^4 ??

No more bullshit. "Yes" if you agree that equation is valid, or "No" if you deny that it is valid. Just that and no more.

I'm not asking your permission. I'm just trying to find out whether you're actually crazy or just bullshitting.

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- **Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)**

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-15 9:13 (#47909703)
And one more thing I would like to make very clear:

The REASON there would not be as great a power DIFFERENCE if the chamber walls were also at 150F, is that the walls would themselves be radiating more power out, so there would be less heat transfer (in that case 0).

It is NOT, as you assert, because the heat source would be using less power. That's false, by the S-B equation. Its power output remains the same because (Spencer's stipulation) the power input remains the same.

The reason my solution does not violate conservation of energy, is that the power consumption of the chamber wall is allowed to vary. THAT is where the change takes place, not at the heat source. Again, this is a stipulation of Spencer's challenge.

Once again: power out of heat source remains constant, because P = (emissivity) * (S-B constant) * T^4. There is nothing in these conditions that changes this at all. Therefore, BECAUSE the power out and power in at the heat source remain constant, so does the temperature. It's all in that one little equation.
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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-15 15:56 (#47913475) Homepage Journal

> You're either disputing conservation of energy, or you're not calculating the actual electrical heating power. If you're calculating the actual

> > electrical heating power, your calculation has to account for radiation from the chamber walls because it passes in through that boundary. That's why the electrical heating power would be zero if the chamber walls were also at 150F!
>
> Nonsense. This is textbook heat transfer physics. We have a fixed emissivity. Therefore, **according to the Stefan-Botlzmann radiation law**, the ONLY remaining variable which determines radiative power out is temperature. NOTHING else. That's what the law says: (emissivity) * (S-B constant) * T^4. That's all. Nothing more. This makes it stupidly easy to calculate the radiative power out, and therefore the necessary power in. ***[Jane Q. Public, 2014-09-15]***

It's "stupidly easy" to calculate radiative power out and power in **through what boundary**? The boundary you're describing has to include the source's radiative power passing **out** through it, without including radiative power from the chamber walls passing **in**. I think that's impossible, but feel free to explain exactly where such a boundary would be drawn.

> One question only: do you agree with the Stefan-Boltzmann relation: power out P = (emissivity) * (S-B constant) * T^4 ?? No more bullshit. "Yes" if you agree that equation is valid, or "No" if you deny that it is valid. Just that and no more. I'm not asking your permission. I'm just trying to find out whether you're actually crazy or just bullshitting. ***[Jane Q. Public, 2014-09-15]***

Once again, I agree that "power out" through a boundary drawn around the heat source is given by the Stefan-Boltzmann law. But I've obviously failed to communicate that the power from the chamber walls **has to** pass **in** through that boundary, so you're only using half the equation to calculate the electrical heating power.

> The REASON there would not be as great a power DIFFERENCE if the chamber walls were also at 150F, is that the walls would themselves be radiating more power out, so there would be less heat transfer (in that case 0). It is NOT, as you assert, because the heat source would be using less power. That's false, by the S-B equation. Its power output remains the same because (Spencer's stipulation) the power input remains the same. The reason my solution does not violate conservation of energy, is that the power consumption of the chamber wall is allowed to vary. THAT is where the change takes place, not at the heat source. Again, this is a stipulation of Spencer's challenge. Once again: power out of heat source remains constant, because P = (emissivity) * (S-B constant) * T^4. There is nothing in these conditions that changes this at all. Therefore, BECAUSE the power out and power in at the heat source remain constant, so does the temperature. It's all in that one little equation. ***[Jane Q. Public, 2014-09-15]***

Once again, no. Draw a boundary around the heat source:
power in = electrical heating power + radiative power in from the chamber walls
power out = radiative power out from the heat source

Since power in = power out:

electrical heating power + radiative power in from the chamber walls = radiative power out from the heat source

"Power in" **has to** include the radiative power passing in through the boundary. Otherwise energy isn't conserved, because power in = power out through any boundary where nothing inside that boundary is changing with time.

> ... EVEN IF we accepted your idea that the "electrical" power required to be input to the heat source is dependent on the temperature difference between the heat source and chamber wall (a violation of the S-B law), you still contradict yourself because your answer of a hotter heat source would still then require MORE power, because the difference is greater. But that is not allowed by the stated conditions of the experiment, and you keep glossing over that simple check of your own work which proves it wrong. So no matter how you cut it, your answer is wrong, by your own rules. ... ***[Jane Q. Public, 2014-09-15]***

Once again, no. I've already shown that the electrical power in my solution remains constant.

Once again, that's because I'm correctly applying the principle of conservation of energy to determine the electrical heating power.

It seems like we can't agree that "power in" includes the radiative power passing in through a boundary around the heat source. Is that because you disagree that power in = power out through any boundary where nothing inside that boundary is changing with time? Or is it because you disagree that the radiative power from the chamber walls passes in through a boundary around the heat source?

> The REASON there would not be

> as great a power DIFFERENCE if the chamber walls were also at 150F, is that the walls would themselves be radiating more power out, so there would be less heat transfer (in that case 0). It is NOT, as you assert, because the heat source would be using less power. ... ***[Jane Q. Public, 2014-09-15]***

That's absurd. A 150F plate surrounded by 150F chamber walls wouldn't need an electrical heater at all. Period. The electrical heating power would be exactly zero. Maybe you're mistaking "electrical heating power" with "radiative power out"? Or maybe you're missing half the equation necessary to calculate the required electrical heating power, and it's leading you to bizarre conclusions?

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-15 17:13 (#47913945)

It's "stupidly easy" to calculate radiative power out and power in through what boundary? The boundary you're describing has to include the source's radiative power passing out through it, without including radiative power from the chamber walls passing in. I think that's impossible, but feel free to explain exactly where such a boundary would be drawn.

Are you REALLY the moron you make yourself out to be? NET radiation from a cooler surface that passes the boundary is reflected, transmitted, or scattered and passes right back out through the boundary. This is a corollary of the Stefan-Boltzmann radiation law, which states that NET heat transfer is always from hotter to cooler.

You can draw the boundary right around the heat source. Electric power comes in, radiative power goes out. There is no contradiction, and no inconsistency.

Once again, I agree that "power out" through a boundary drawn around the heat source is given by the Stefan-Boltzmann law. But I've obviously failed to communicate that the power from the chamber walls has to pass in through that boundary, so you're only using half the equation to calculate the electrical heating power.

And again: by that same law, it just passes right back out again because the same NET amount of radiative power that crosses the boundary and intercepts the smaller sphere is either reflected, transmitted, or scattered. (Since we are discussing diffuse gray bodies here, we can consider it all reflected or scattered because there is no transmissivity.) The radiation that crosses the boundary that does not strike the smaller sphere due to view factor also just passes right back out. You are ignoring (e*s) * (Ta^4 - Tb^4). Anything other than what I described does not add up.

Once again, no. Draw a boundary around the heat source: power in = electrical heating power + radiative power in from the chamber walls

Just NO. Net heat transfer is ALL from hotter to colder, by (e*s) * (Ta^4 - Tb^4).

Let me put it another way: we can easily show how you have gotten your thermodynamics backward by referring to a question you asked earlier. You asked me if I believed the power usage of the heat source would be the same if the walls were also at 150F.

The answer is YES, and here is why:

You are proposing to bring **the whole system** up to a level of higher thermodynamic energy, rather than just the heat source. And you are somehow proposing that it doesn't take more energy to do that. But **of course it does.**

The power required to bring the heat source up

to 150F remains the same, because the Stefan-Boltzmann law says it has to be. But NOW, you are ALSO bringing the walls up to that higher temperature, and THAT would require even more power (because of the slightly larger surface area).

This clearly illustrates your ass-backward thermodynamic thinking. The radiative power output of the heat source **does not change** due to the temperature of the walls. At all. The only thing that changes as the wall temperature changes is the heat transfer, which would lessen as you brought up the temperature of the walls. But that isn't because the heat source is using less power, it is because you are putting more power into raising the wall temperature. You are creating a more thermodynamically energetic environment, and that requires power.

Just like your other arguments: you invent power in out of thin air, and claim you can do that because it's "moving" in the opposite direction in which heat transfer is actually taking place.

You are giving physicists a bad name, and I repeat that I am going to show this to all the world to see.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-15 17:45 (#47914127) Homepage Journal

> You asked me if I believed the power usage of the heat source would be the same if the walls were also at 150F. The answer is YES, and here is why: You are proposing to bring the whole system up to a level of higher thermodynamic energy, rather

> than just the heat source. And you are somehow proposing that it doesn't take more energy to do that. But of course it does. The power required to bring the heat source up to 150F remains the same, because the Stefan-Boltzmann law says it has to be. But NOW, you are ALSO bringing the walls up to that higher temperature, and THAT would require even more power (because of the slightly larger surface area). ***[Jane Q. Public, 2014-09-15]***

Again, that's completely ridiculous. I've explained why the power used to set the chamber wall temperature is irrelevant. Any power used is simply being moved from some point outside the boundary to another point which is **also** outside the boundary. Because that power never crosses the boundary, it's irrelevant.

For example, you could simply place the vacuum chamber somewhere with an ambient temperature of 150F. That would require zero power, but once again it doesn't matter even if the vacuum chamber were on Pluto. Because that power never crosses the boundary.

Either way, as long as the chamber walls are held at 150F, the heat source would need absolutely **no** electrical heating power to remain at 150F. Zero. Period.

> You asked me if I believed the power usage of the heat source would be the same if the walls were also at 150F. The answer is YES... ***[Jane Q. Public, 2014-09-15]***

Here's our disagreement. Conservation of energy demands that a heat source at 150F requires no electrical heating power inside 150F vacuum chamber walls.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-15 19:54 (#47914669)

Again, that's completely ridiculous. I've explained why the power used to set the chamber wall temperature is irrelevant. Any power used is simply being moved from some point outside the boundary to another point which is also outside the boundary. Because that power never crosses the boundary, it's irrelevant.

Nonsense. It would take power to bring the chamber walls up to 150F (338.71K). How else do you expect them to get to that temperature? Where are you getting that power from? This is so utterly obvious that I honestly don't believe you don't get it.

For example, you could simply place the vacuum chamber somewhere with an ambient temperature of 150F. That would require zero power, but once again it doesn't matter even if the vacuum chamber were on Pluto. Because that power never crosses the boundary.

You **could**, but we haven't. Regardless, it still remains the same. Power **output** at that temperature remains constant because P = (emissivity) * (S-B constant) * T^4 says it has to.

The only thing you are doing is ADDING energy to the system by putting it in an ambient environment of 150F. That's not irrelevant at all, because if you're at thermal equilibrium, there is no heat transfer. Since this is all about heat transfer, how could it be irrelevant?

I have finally concluded that you are just a very good troll. I honestly -- and I mean that: honestly -- don't believe you could be this stupid and possess a degree in physics.

The ONLY time the power output changes is if you change the temperature. You can do that

by making the walls HOTTER than the "heat source", thereby causing a net heat transfer TO it from the walls, OR you can input more electrical power to the heat source, thereby making it hotter, but that would be a violation of the conditions Spencer stipulated.

Here's our disagreement. Conservation of energy demands that a heat source at 150F requires no electrical heating power inside 150F vacuum chamber walls.

That's not our disagreement at all. Not even frigging close. Of course it wouldn't need a **separate** heat source if its environment were **maintained at** 150 degrees. I just got done saying that. But it **still does** have power input. It' just that it comes from the environment in this case rather than an electrical element.

Because **its radiant output power remains constant** according to the Stefan-Boltzmann law. All you have done is raise the environment's output power to match, and raised the **input** to that environment enough to achieve that temperature. Big deal. That takes energy of its own, and proves exactly nothing. You haven't proved that it needs no power, you just changed the source of that power. And used up even more power in the process, because the environment is larger than the central sphere.

You're just wrong about how this works. And not just a little bit wrong, but completely out there in lala-land wrong.

And you have made it perfectly obvious that I am wasting my time talking to you. You are either crazy, or stupid, or a very talented troll. Based on my experience, I vote for that last one, but I think that necessarily implies a little bit of the first, too.

So we're done. I'm going to write this up as it stands here. I don't need anything else, and you've made it very clear that anything else would be further waste of my time. You refuse to change your tune, so fine. I'll just write it up that way. Don't worry: I am going to include your exact words.

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- **Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)**

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-15 19:58 (#47914693)
But wait. I take that back. Before I declare that I am done and go away, I just want to ask you: do you still maintain that after the enclosing passive sphere is inserted, the central heat source raises in temperature to approximately 241 degrees F? You haven't said anything about that in a while, so I'm just checking.
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- **Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)**

by khayman80 (824400) on 2014-09-15 20:01 (#47914709) Homepage Journal

> ... Of course it wouldn't need a **separate** heat source if its environment were **maintained at** 150 degrees. ... ***[Jane Q. Public, 2014-09-15]***

In other words, the electrical heating power is determined by drawing a boundary around the heat source:
power in = electrical heating power + radiative power in from the chamber walls
power out = radiative power out from the heat source

Since power in = power out:

electrical heating power + radiative power in from the chamber walls = radiative power out from the heat source

Right?

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-15 20:08 (#47914733) Homepage Journal

> ... do you still maintain that after the enclosing passive sphere is inserted, the central heat source raises in temperature to approximately 241 degrees F? You haven't said anything about that in a while, so I'm just checking.
> ***[Jane Q. Public, 2014-09-15]***

Once again, if the electrical heating power is held constant, the heat source has to warm. Once agin, Jane's heat source keeps the source temperature constant by halving its electrical heating power. Jane/Lonny Eachus might ask himself why his required electrical heating power goes down by a factor of two after the enclosing shell is added.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-15 20:25 (#47914803)

In other words, the electrical heating power is determined by drawing a boundary around the heat source: power in = electrical heating power + radiative power in from the chamber walls power out = radiative power out from the heat source

Since power in = power out:

electrical heating power + radiative power in from the chamber walls = radiative power out from the heat source

Right?

No. Not right. Since the chamber walls are COOLER than the heat source, radiative power from the chamber walls is not absorbed by the heat source. Because the only power transfer taking place here is heat transfer, which is a function of (emissivity) * (S-B constant) * (Ta^4 - Tb^4).

You DO know what a minus sign is, yes?

Since emissivity doesn't change the input required to heat source to achieve 150F is **constant**, regardless of where it comes from. But as long as the walls of the chamber are cooler than the source, NONE of the power comes from the chamber walls, because of that minus sign in the equation above. Nothing has changed in that respect, and that's what the Stefan-Boltzmann law requires.

The only time that changes is if the walls are at an equal temperature, in which case heat transfer is 0 and you can begin to use "ambient" temperature as input. You are still supplying the same input power, you are just supplying it a different way.

If the chamber walls were hotter than the central source, then heat transfer would be in the other direction (because the sign of the solution to the equation above changes), and only THEN are you getting net heat transfer TO the central sphere.

And BOTH of those situations are a violation of Spencer's conditions.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-15 20:26 (#47914807)

Once again, if the electrical heating power is held constant, the heat source has to warm. Once agin, Jane's heat source keeps the source temperature constant by halving its electrical heating power. Jane/Lonny Eachus might ask himself why his required electrical heating power goes down by a factor of two after the enclosing shell is added.

That is neither correct, or an answer to my question.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-15 20:28 (#47914825)
And no, I don't have to ask myself that, because it doesn't happen.

I have already found the solution to a reasonable degree of precision. Your solution, as stated (approximately 241 degrees F for the central heat source) does not check out, even using your own equations.
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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-15 20:30
(#47914831) Homepage Journal

> ... Since emissivity doesn't change the input required to heat source to achieve 150F is constant, regardless of where it comes from. But as long as the walls of the

> chamber are cooler than the source, NONE of the power comes from the chamber walls... ***[Jane Q. Public, 2014-09-15]***

But if the chamber walls are also at 150F, they're not cooler than the source and the input required to heat the source to 150F is zero.

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- **Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)**

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-15 20:30 (#47914835)
And, last comment here: you have confirmed that you have not abandoned your incorrect (and actually quite ludicrous) version of heat transfer, which violates the Stefan-Boltzmann radiation law on its very face.

That was all I needed. I am now done. Have a nice day. You can have the last word all you like; it won't make you any more correct.
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- **Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)**

by khayman80 (824400) on 2014-09-16 17:03 (#47922765) Homepage Journal

> ... you have confirmed that you have not abandoned your incorrect (and actually quite ludicrous) version of heat transfer, which violates the Stefan-Boltzmann radiation law on its very face. ... ***[Jane Q. Public, 2014-09-15]***

... or maybe we disagree about which variable

to hold constant.

Instead of holding electrical heating power constant, Jane held the source's radiative power output constant. That held source temperature constant and forced electrical heating power to change. Solving this problem using both sets of boundary conditions shows that Jane's solution forces electrical heating power to drop by a factor of two after the shell is added.

These two sets of boundary conditions are very different, just like Neumann boundary conditions are different from Dirichlet boundary conditions. Upon hearing that a disagreement might be caused by holding different variables constant, a real skeptic might consider working the problem again while holding that other variable constant. But Jane can't even admit there's a difference between holding electrical heating power constant and holding the source's radiative power output constant. Jane even insists he held electrical heating power constant, despite the evidence.

So Jane won't solve this problem with the electrical heating power constant. That's unfortunate, because it's critical:

"... critical to the whole experiment is that, like the sun heating the surface of the Earth, there is energy being continuously pumped into the system from outside. ..."

1. Holding electrical heating power constant while adding an enclosing shell is like doubling CO2 while holding solar heating power constant, then calculating how much Earth's surface warms.

2. Holding source temperature constant while adding an enclosing shell is like doubling CO2 while holding Earth's surface temperature constant, then calculating how much solar heating power would have to drop to keep Earth's surface temperature constant.

Even if Jane doesn't want to solve that first problem, he should recognize that it's different from the second problem Jane actually solved.

To see this difference, solve a problem with Neumann boundary conditions:

"In thermodynamics, where a surface has a prescribed heat flux, such as a perfect insulator (where flux is zero) or an electrical component dissipating a known power."

... then solve the same problem with Dirichlet boundary conditions:

"In thermodynamics, where a surface is held at a fixed temperature.

Dr. Spencer's thought experiment placed Neumann boundary conditions on the source and Dirichlet boundary conditions on the chamber walls. Instead, Jane placed Dirichlet boundary conditions on the chamber walls **and** the source.

> In other words, the electrical heating power is determined by drawing a boundary around the heat source:
> power in = electrical heating power + radiative power in from the chamber walls
> power out = radiative power out from the heat source
>
> Since power in = power out:
>
> electrical heating power + radiative power in from the chamber walls = radiative power out from the heat source
>
> Right?

No. Not right. Since emissivity doesn't change the input required to heat source to achieve 150F is constant, regardless of where it

> comes from. But as long as the walls of the chamber are cooler than the source, NONE of the power comes from the chamber walls, because of that minus sign in the equation above. Nothing has changed in that respect, and that's what the Stefan-Boltzmann law requires. The only time that changes is if the walls are at an equal temperature, in which case heat transfer is 0 and you can begin to use "ambient" temperature as input. You are still supplying the same input power, you are just supplying it a different way. If the chamber walls were hotter than the central source, then heat transfer would be in the other direction (because the sign of the solution to the equation above changes), and only THEN are you getting net heat transfer TO the central sphere. ... ***[Jane Q. Public, 2014-09-15]***

Note that conservation of energy through a boundary around the source leads directly to an equation describing the electrical power required to keep the source at temperature T1 inside chamber walls at temperature T4. This equation is valid for T1 > T4, T1 = T4, and T1 < T4. Jane might wonder why he can't derive a single equation which works for all these cases.

Again, warming the chamber walls is like partially closing the drain on a bathtub where water is flowing in at a constant rate. This raises the bathtub water level simply by reducing the water flow out. In exactly the same way, a source heated with constant electrical power warms when the chamber walls are warmed because that reduces the net power out.

> ... because T(p) < T(s), no matter now much of the radiation from P strikes S, no net amount is absorbed; it is all reflected, transmitted, or scattered according to S-B. ... ***[Jane Q. Public,***

> ***2014-09-04]***
>
> Are you REALLY the moron you make yourself out to be? NET radiation from a cooler surface that passes the boundary is reflected, transmitted, or scattered and passes right back out through the boundary. This is a corollary of the Stefan-Boltzmann radiation law, which states that NET heat transfer is always from hotter to cooler. ... by that same law, it just passes right back out again because the same NET amount of radiative power that crosses the boundary and intercepts the smaller sphere is either reflected, transmitted, or scattered. ... ***[Jane Q. Public, 2014-09-15]***
>
> ... Since the chamber walls are COOLER than the heat source, radiative power from the chamber walls is not absorbed by the heat source. ... ***[Jane Q. Public, 2014-09-15]***

Hopefully these are just more badly-worded sentences because they all require absorptivity = 0. But these gray bodies have emissivity = absorptivity = 0.11. Furthermore, the gray body equation has to reduce to the black body equation for emissivity = absorptivity = 1. In that case there are no reflections, just absorption.

Once again, a heated blackbody source is heated by constant electrical power flowing in. Blackbody cold walls at 0F (T4 = 255.4K) also radiate power in. The source at 150F (T1 = 338.7K) radiates power out. At steady-state, power in = power out:

electricity + (s)*T4^4 = (s)*T1^4 (Eq. 1J.2)

Since Jane's proposed equation is missing the "(s)*T4^4" term, it doesn't reduce to this simpler Eq. 1J.2 for blackbodies where (e) = 1. So it's wrong.

It's also ironic that Jane claims to account for

reflections, because:

> ... Calculate initial (denoted by "i") heat transfer from heat source to chamber wall. We are doing this only to check our work later. Using the canonical heat transfer equation for gray bodies... p(i) = (e)(s) * (T1^4 - T4^4) ... ***[Jane Q. Public, 2014-09-10]***
>
> ... You are ignoring (e*s) * (Ta^4 - Tb^4). Anything other than what I described does not add up. ... (e*s) * (Ta^4 - Tb^4) ... ***[Jane Q. Public, 2014-09-15]***

That equation is true for blackbodies with emissivity = 1, which is why it's consistent with my equation 1.

But for gray bodies it's just an approximation because it ignores reflections. After obviously failing to explain that we need to account for reflections, I decided to agree to disagree. For two gray bodies interacting with small view factors (e.g. Earth's tiny view factor of the Sun) reflections can be safely neglected. But the chamber wall completely encloses the source, so its view factor is 1. That's why MIT's equation is more accurate here: it accounts for reflections.

Again, here's MIT's equation using Jane's new variable names:

p(i) = (s)*(T1^4 - T4^4)/(1/(e) + 1/(e) - 1) (Eq. 2J.2)

Luckily this disagreement isn't important because it just shifts the emissivity values. We can translate because plugging emissivity = 0.058 into Jane's equation yields the same net heat transfer as MIT's equation with emissivity = 0.11. Furthermore, my black and gray body calculations yielded identical enclosed steady-state temperatures, so those don't depend on emissivity.

But after using Jane's equation in pointless attempts to illustrate more fundamental problems in Jane's analysis, I wanted to stress

once again that MIT's equation is more appropriate for enclosing chamber walls because it accounts for reflections.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-19 0:17 (#47943375)

Instead of holding electrical heating power constant, Jane held the source's radiative power output constant. That held source temperature constant and forced electrical heating power to change.

No, that is not correct. You made assumptions that are, to be blunt, bullshit nonsense.

Since the emissivity for every object in our system is the same, power output is proportional to the T^4. Period. End of story.

Draw your boundary around the heat source. Power in = power out (your own principle). Therefore the power in is 41886.54 Watts, which is the power initially being radiated out.

SPENCER stipulated that this power is held constant. It wasn't my idea. It's a condition of the experiment.

By the Stefan-Boltzmann law, since the power in remains constant, then UNLESS power is taken up from some other source, the temperature will remain constant. This follows directly from the S-B radiation law, which you seem to be disputing.

Another requirement of the S-B law, and also of thermodynamics: since **EVERY other object in the system is at a lower temperature** than the heat source, NET heat transfer is in ONLY one direction: from hotter to colder.

Therefore, no energy is flowing "backward" to boost the output of the heat source.

Yet another fact that follows directly from the S-B law, is that nearby **cooler** bodies have zero effect on the output of the heat source. They don't "suck" power from it, nor (see above) do they "lend" power to it.

The only logical conclusion -- the only physically possible conclusion, unless you dispute the Stefan-Boltzmann radiation law, is that the heat source does not change temperature. Power out = power in, and is constant. Everything else is cooler, so it remains a constant. There is no further energy or power flowing "backward" the heat source.

The Stefan-Boltzmann law clearly shows that no NET radiation from cooler objects is absorbed; it is either transmitted, reflected, or scattered. Since these are diffuse gray bodies, they do not transmit. That leaves reflection and scattering. For our purposes, the net effect is that it is all reflected.

You are imagining some kind of power input to the heat source that doesn't exist. Further, if the heat source became even hotter, as you assert, it would require even MORE power, because as you say, power in = power out. That was YOUR assertion. Draw your boundary around the heat source itself. There is no net radiation absorbed from outside, and the supplied power remains constant.

It this whole "proof" of yours, I have shown where you have contradicted yourself at least 3 different ways.

Jane might wonder why he can't derive a single equation which works for all these cases.

I don't know where you get this idea, because **I did.** I used the S-B equation to find my solution. I used the textbook equations for heat transfer. Yes, I ignored area because the areas were so similar. But it was still a reasonably accurate approximation. I checked my work, and it wasn't off by more than a fraction of a

percent.

But Jane can't even admit there's a difference between holding electrical heating power constant and holding the source's radiative power output constant.

Because there isn't any. Your own "boundary" principle says so. This isn't a matter of differential equations at this point. Do you think we're all idiots? Power in = power out. Your Newmann and Dirichlet boundary conditions are just more straw men. We don't need them to find the answer to this. Plain old algebra works just fine, because everything is at steady-state. So knock off the bullshit, because I see right through it, and so will the others I show this to.

Again, warming the chamber walls is like partially closing the drain on a bathtub where water is flowing in at a constant rate

Which is not only false (the S-B relation again, which says it only relies on its radiant **temperature**, not the temperature of cooler bodies nearby), but another straw man, because the chamber walls aren't warmed. They are held at a constant 255.37K.

Hopefully these are just more badly-worded sentences because they all require absorptivity = 0.

No, they don't. Gray body radiant power vs. temperature is expressed by S-B equation, and we already know that gray body absorptivity = emissivity. I was using the proper equation, and you were using it too (if improperly). Are you trying to tell me that the equation YOU have been using is invalid?

Yet again, you have contradicted yourself. You're a great bullshitter but I've caught you out and you've **already** been proved wrong. All this trying to twist out from under the obvious any way you can only confirms that you were bullshitting all along. Be a man and admit the truth, because people ARE going to see this. Why do you want to look more foolish than you do already?

But for gray bodies it's just an approximation because it ignores reflections. After obviously failing to explain that we need to account for reflections, I decided to agree to disagree. For two gray bodies interacting with small view factors (e.g. Earth's tiny view factor of the Sun) reflections can be safely neglected. But the chamber wall completely encloses the source, so its view factor is 1. That's why MIT's equation is more accurate here: it accounts for reflections.

Complete bullshit again. We were assuming diffuse gray bodies. Further:

But the chamber wall completely encloses the source, so its view factor is 1.

No. If the surfaces are numbered 1, 2, 3, 4 as I did in my solution, F12 = F34 = 1. In the other direction (as you already know, and so do I) it is R1/R2, where R1 is the smaller diameter. F21 = F43 = 0.9989.

But **in this context** it is already "dirt simple", as I pointed out before. These are diffuse gray bodies. (1 - emissivity) is assumed to be the "reflection", which in this context also includes scattering but no transmission. This is already accounted for in the equations, such as the heat transfer equation you borrowed from Wikipedia.

If you like, you can use the preferred method (according to Wikipedia) for calculating the respective radiant output of the surfaces: the Radiosity Method. That method explicitly accounts for reflection (1 - emissivity). And I already know that it confirms **my** solution. So go ahead. I simply didn't show it in my brief write-up because I intended it to be a **brief** write-up. I do intend to show it in the fuller version.

Since Jane's proposed equation is missing the "(s)*T4^4" term, it doesn't reduce to this simpler Eq. 1J.2 for blackbodies where (e) = 1. So it's wrong.

More nonsense. The S-B **relation** says that the radiative power out of a body is P = (epsilon)* (sigma)*T^4. It is not wrong. It is a simple

equation that is well-known to physicists. You claim to be a physicist, so why don't you know it?

The equation **you** are trying to use there is a partial equation for **heat transfer**, not radiant power output. They're not the same things. The proper equation for power out given radiant temperature is right there in the above paragraph. It can be found in any heat transfer textbook and many physics books.

Didn't you notice that MIT's equation is essentially the SAME equation as Wikipedia's heat transfer equation, except for areas? I sure did. Why didn't you notice that?

I repeat: I checked my solution using Wikipedia's equation, including the areas AND the view factors AND the reflections. It checked out just fine, thank you very much. Why don't you try it yourself and see?

But after using Jane's equation in pointless attempts to illustrate more fundamental problems in Jane's analysis, I wanted to stress once again that MIT's equation is more appropriate for enclosing chamber walls because it accounts for reflections.

It doesn't matter. It still checks out. Although I'd say that Wikipedia's equation is more correct because it includes area and view factor, which MIT's equation does not.

Other than your mention of the equations in the latter part of your comment, it is easy to show that EVERYTHING ELSE is just plain nonsense. You are trying to dispute the Stefan-Boltzmann radiation law and its corollaries. Excuse me, but that didn't work in the beginning, and it still isn't working. You've added nothing worthwhile to the conversation since.

You've been owned, man. BE enough of a man to admit it. Because everybody's going to know it anyway.

Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-19 0:47 (#47943463) Homepage Journal

> Since the emissivity for every object in our system is the same, power output is proportional to the T^4. Period. End of story. Draw your boundary around the heat source. Power in = power out (your own principle). Therefore the power in is 41886.54 Watts, which is the power initially being radiated out. SPENCER stipulated that this power is held constant. It wasn't my idea. It's a condition of the experiment. ***[Jane Q. Public, 2014-09-19]***

No. Once again, in this experiment there is a *"... constant flow of energy into the plate from the electric heater... flowing in at a constant rate... the electric heater pumps in energy at a constant rate. ..."*

Jane's even stumbled across this point:

> ... Of course it wouldn't need a **separate** heat source if its environment were **maintained at** 150 degrees. ... ***[Jane Q. Public, 2014-09-15]***

Of course! That's why the variable Jane's holding constant isn't the electrical power supplied to the separate heat source. If Jane can realize that there's no need for a **separate** heat source if its environment were **maintained at** 150 degrees, why can't Jane see that his equation for required electrical power doesn't reflect this obvious fact?

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-19 9:50 (#47947019)

No. Once again, in this experiment [archive.today] there is a "... constant flow of energy into the plate from the electric heater... flowing in at a constant rate... the electric heater pumps in energy at a constant rate. ..."

I have said nothing that contradicts this. Not only do I freely admit this, my calculations relied on that fact. I kept the power (and hence energy over time) input into the plate from the electric heater **completely constant**. Which we may freely do, since it was a stipulation of Spencer's experiment.

Jane's even stumbled across this point:

No, I didn't "stumble" over that point, YOU are stumbling over it. Everything changes at thermal equilibrium. The "heated" body is no longer warmer than its surroundings and can begin taking on energy from its surroundings. And it is not a "gradual" change: the Stefan-Boltmann law says a warmer body DOES NOT absorb net radiant energy from its surroundings. That only begins to happen at thermal equilibrium. BUT thermal equilibrium does not apply to this experiment, anywhere, at any time. This is just another straw-man argument. Which you are very good at, by the way. Not good enough to sucker me in, though.

Of course! That's why the variable Jane's holding constant isn't the electrical power supplied to the separate heat source. If Jane can realize that there's no need for a separate heat source if its environment were maintained at 150 degrees, why can't Jane see that his equation for required electrical power doesn't reflect this obvious fact?

Of course I realize that, and have all along. The error lies in your implication that this is a gradual change.

It isn't a gradual change. It's a result of Ta^4 - Tb^4 = 0. A transition from non-zero to 0.

That's the only reason. The transition between non-zero and zero is a profound change which affects everything, and there is nothing gradual about it. **But it doesn't apply in this context.** The surfaces are never at thermal equilibrium. And your assertion is only "obvious" if you're not a heat transfer engineer or a physicist, you pretender. Heat transfer is not a science of the obvious. Intuition (and, as pointed out before, "thermodynamic thinking") can easily lead you astray. The sign of the result is everything here.

If body (a) is warmer than body (b), Ta^4 - Tb^4 > 0, and net heat transfer is ONLY from (a) to (b).

If body (b) is brought up to the same temperature as (a), Ta^4 - Tb^4 = 0, and no net heat transfer takes place. Although radiant **power** output of (a) at that temperature doesn't change, as a corollary of that same law.

If body (a) is at a lower temperature than body (b), Ta^4 - Tb^4 < 0, which means there is net transfer of heat from (b) to (a).

The third condition is the ONLY one in which there is any input to (a) from its surroundings. But that condition never occurs in Spencer's experiment because the heat source is always hotter than its surroundings.

Knock off the BS. Time to admit you were wrong. I repeat: anything else is a violation of the Stefan-Boltzmann radiation law.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-19 11:13 (#47947973) Homepage Journal

> ... If body (b) is brought up to the same temperature as (a), Ta^4 - Tb^4 = 0, and no net heat transfer takes place. Although radiant **power** output of (a) at that temperature doesn't change, as a corollary of that same law. ... ***[Jane Q. Public, 2014-09-19]***

If Ta = Tb, no electrical heating power is required. But radiant **power** output of (a) doesn't change. So radiant power output can't be equal to electrical heating power. Using conservation of energy, can you write down an equation which yields the required electrical heating power given Ta and Tb?

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-20 12:37 (#47955177)

If Ta = Tb, no electrical heating power is required. But radiant power output of (a) doesn't change. So radiant power output can't be equal to electrical heating power. Using conservation of energy, can you write down an equation which yields the required electrical heating power given Ta and Tb?

If Ta=Tb, you're doing a different experiment. I've already stated that **at that point**, it requires no **electrical** heating power. But it's a straw-man for at least 2 reasons:

[1] it still requires the same amount of power, but once Ta=Tb, it can draw that power from the environment. Before that it can't, because Ta^4 - Tb^4 is a positive number so **no net radiant energy** is absorbed by (a) from (b). That means all the way up to the exact point thermal equilibrium is achieved, all radiant power is a result of electrical power, therefore the power input and power output are constant.

It is not a "gradual" process.

And [2] because in Spencer's experiment, Ta=Tb doesn't happen.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-20 12:57 (#47955263) Homepage Journal

> ... Before that it can't, because Ta^4 - Tb^4 is a positive number so **no net radiant energy** is absorbed by (a) from (b). That means all the way up to the exact point thermal equilibrium is achieved, all radiant power is a result of electrical power, therefore the power input and power output are constant. It is not a "gradual" process. ... ***[Jane Q. Public, 2014-09-20]***

So Jane claims:

electrical power per square meter = (s)*(e)*Ta^4

The actual answer is:

electrical power per square meter = (s)*(e)*(Ta^4 - Tb^4)

Since Jane refuses to include a term accounting for radiation from the chamber walls, Jane's equation is saying that no radiation **at all** is absorbed by the warmer source. Why?

> ... Since the chamber walls are COOLER than the heat source, radiative power from the chamber walls is not absorbed by the heat source. ... ***[Jane Q. Public, 2014-09-15]***

Of course it is! Again, this is just Sky Dragon Slayer nonsense. Absorption doesn't work like Slayers imagine. It's controlled by the surface's absorptivity, which doesn't change if the source is slightly warmer or cooler than its surroundings. All that's required for the source to absorb radiation (from warmer **or** colder objects) is having absorptivity > 0. Since the source has absorptivity = 0.11, some radiative power from the chamber walls **is** absorbed by the heat source.

Jane's been regurgitating Slayer nonsense for years:

> ... Warmer objects cannot, and do not absorb lower-energy radiation from cooler objects. ... ***[Jane Q. Public, 2012-11-20]***

Then how do uncooled IR detectors see cooler objects? How did we detect the 2.7K cosmic microwave background radiation with warmer detectors?

> ... explain how radiation that is of a LOWER "black-body temperature" will be absorbed by a body of a HIGHER black-body temperature. ... ***[Jane Q. Public, 2013-05-30]***
>
> ... An object that is radiating at a certain black-body temperature WILL NOT absorb a less-energetic photon from an outside source. This is am extremely well-known corollary of the Second Law. ... ***[Jane Q. Public, 2013-05-30]***

No, that's a Slayer fantasy. On the atomic scale, absorption of radiation doesn't depend on temperature because individual atoms **don't have** temperatures. Only very large groups of atoms have temperatures. Individual photons also don't have temperatures. Very large groups of photons from a 10C warm object have slightly different average wavelength curves than a -10C cold object, but they're very similar. This means that even if temperature somehow applied at the atomic scale of

absorbing individual photons, an atom couldn't tell if a photon came from the 10C warm object or the -10C cold object.

> ... You took a badly-worded sentence or two and jumped on them as though Latour made a mistake. But his only mistake was wording a couple of sentences badly. He does in fact NOT suggest that warmer objects absorb no radiation, and he has written as much many times. ... You have refuted NOTHING but a couple of unfortunately-worded sentences, which Latour himself publicly corrected shortly after that post appeared. ... ***[Jane Q. Public, 2014-07-27]***

Ironically, Jane's **still** insisting that warmer objects absorb **no** radiation from colder objects. Otherwise Jane wouldn't repeatedly object to including a term for radiation from the chamber walls in his calculation of required electrical power. Since Jane doesn't even include that term, Jane's assuming that warmer objects absorb **no** radiation from colder objects.

> ... shortly after Latour published that blog post, it became clear that the language he used **implied** that no radiation *at all* was absorbed by the warmer body. So a reader could not reasonably be blamed for inferring that. But Latour quickly apologized for the **unfortunate wording** and corrected himself to make it very clear he was referring to **net**, not absolute, heat transfer. ... ***[Jane Q. Public, 2014-07-27]***

Ironically, Jane's **still** insisting that no radiation **at all** is absorbed by the warmer body. Otherwise Jane's calculation of the required electrical power would include a term for radiation from the chamber walls. Since Jane adamantly insists that this term can't be included, Jane's calculation assumes that no

radiation **at all** is absorbed by the source. None. Zero.

It's truly surreal to watch Jane repeatedly double-down on nonsense which Jane claims is too ridiculous even for Sky Dragon Slayers (as if that were possible!).

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-20 23:18 (#47957469)
We've been over this before. I've already proved you wrong, mathematically, logically, and thermodynamically.

The fact that your "global warming" religion will not let you accept the reality of the Stefan-Boltzmann radiation law is not my problem. But you have sure as hell tried hard to make it everyone else's problem.

Ironically, Jane's still insisting that no radiation at all is absorbed by the warmer body.

No NET radiative energy. I did not claim "none at all", and I have repeatedly pointed this out to you. Just no NET transfer from cooler to warmer. This is a fundamental requirement of thermodynamics. It amazes me that you continue to deny this, no matter how you try to couch it in different terms.

You're either incompetent or a liar. As I said before: I don't know for sure which, but I strongly suspect the latter.

It's a done deal. You have been proved wrong. You have been owned. Your ranting means nothing.

I only replied on the off-chance that you really were ignorant and could be educated. But it seems that you are determined to promote your

ignorance (or more likely: ignorant act and propaganda) to everyone else. So be it.

No more replies. You haven't earned any; you don't deserve any.

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- **Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)**

by khayman80 (824400) on 2014-09-20 23:27 (#47957481) Homepage Journal

> ... **No NET radiative energy**. I did not claim "none at all", and I have repeatedly pointed this out to you. Just no NET transfer from cooler to warmer. ... ***[Jane Q. Public, 2014-09-20]***

Jane's equation claims "none at all":

electrical power per square meter = (s)*(e)*Ta^4

Since Jane's equation for required electrical power doesn't even include a term for radiation from the chamber walls, Jane's equation wrongly says that no radiation **at all** is absorbed by the source. None. Zero.

It would only be valid to omit the term describing radiation from the chamber walls if the source absorbs **none** of that radiation **at all**. This would only be true if the source's absorptivity = 0. But then its emissivity = 0, so it also couldn't **emit** any radiation, so it couldn't be a heat source. Slayer "physics" are incoherent nonsense.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-21 1:06 (#47957743)

Jane's equation claims "none at all":

electrical power per square meter =
(s)*(e)*Ta^4

NOW what kind of bullshit are you trying to pull?

Do you understand what NET means, or do you not? I assure you that a lot of people do. You claimed before that you did.

Why are you doing this? Are you really trying to make yourself look more ridiculous than before?

Since Jane's equation for required electrical power doesn't even include a term for radiation from the chamber walls, Jane's equation wrongly says that no radiation at all is absorbed by the source. None. Zero.

Repeat: this ASSUMPTION of yours that the chamber walls must be accounted for in the power requirement of the heat source is a direct violation of the Stefan-Boltzmann law. There are no 2 ways around it. Established physics (the Stefan-Boltzmann law) says that the radiative power out (and therefore power in) of a gray body is dependent ONLY on emissivity and thermodynamic temperature. It is completely unrelated to any nearby cooler bodies.

I'm going to ask you again: WHY do you continue to spout this violation-of-physics bullshit? What do you think you're accomplishing other than wasting my time?

I have concluded that is all you are trying to do.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-21 1:18 (#47957775)
If you are sincere (you certainly haven't been acting like you are), then you must be postulating some kind of "tractor beam" effect that allows the chamber wall to "suck" power out of the heat source from a distance.

I assure you that at least at out current level of technology, we have not managed to build such a sucking device. The heat source radiates out what it radiates out, and nothing around it is "sucking" any power from it.

Although you seem to be doing your very best at "sucking" my time away over stupid bullshit.
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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-21 1:35 (#47957813) Homepage Journal

> ... Repeat: this ASSUMPTION of yours that the chamber walls must be accounted for in the power requirement of the heat source is a direct violation of the Stefan-Boltzmann law. There are no 2 ways around it. Established physics (the Stefan-Boltzmann law) says that the radiative power out (and therefore power in) of a gray body is dependent ONLY on emissivity and thermodynamic temperature. It is completely unrelated to any nearby cooler bodies. ... ***[Jane Q. Public, 2014-09-21]***

Again, radiative power out is dependent only on emissivity and thermodynamic temperature. We don't disagree about that, despite your repetitive claims to the contrary. But "power in" through a boundary around the heat source looks like this:
power in = electrical heating power + radiative power in from the chamber walls
power out = radiative power out from the heat source

Since power in = power out:

electrical heating power + radiative power in from the chamber walls = radiative power out from the heat source

Jane refuses to account for the chamber wall radiative "power in" which would only be true if the source didn't absorb **any** of that radiation. Zero.

> If you are sincere (you certainly haven't been acting like you are), then you must be postulating some kind of "tractor beam" effect that allows the chamber wall to "suck" power out of the heat source from a distance. I assure you that at least at out current level of technology, we have not managed to build such a sucking device. The heat source radiates out what it radiates out, and nothing around it is "sucking" any power from it. Although you seem to be doing your very best at "sucking" my time away over stupid bullshit. ***[Jane Q. Public, 2014-09-21]***

That's ridiculous, Jane. I'm just noting that the chamber walls are hotter than 0K, so they emit radiation **into** a boundary around the heat source. Therefore Jane's wrong to ignore that radiation when applying the principle of conservation of energy:

> ... Since the chamber walls are COOLER than the heat source, radiative power from the chamber walls is not absorbed by the heat source. ... ***[Jane Q. Public,***

2014-09-15]

It would only be valid to omit the term describing radiation from the chamber walls if the source absorbs **none** of that radiation **at all**. This would only be true if the source's absorptivity = 0. But then its emissivity = 0, so it also couldn't **emit** any radiation, so it couldn't be a heat source.

So the only "heat source" where we could validly ignore the radiation from the chamber walls would be a perfectly reflective "bobble" from Vernor Vinge's Marooned in Realtime. I assure you that at our current level of technology, we haven't managed to build such a device. And even if we could, it wouldn't be a heat source.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-21 14:01 (#47960759)

power in = electrical heating power + radiative power in from the chamber walls

NONSENSE. The power output is not dependent on the chamber walls, therefore the power input is not dependent on the chamber walls. You're contradicting yourself, trying to have it both ways.

Radiation from the cooler walls has no effect on the heat source whatsoever. This is a basic requirement of thermodynamics!

That's ridiculous, Jane. I'm just noting that the chamber walls are hotter than 0K, so they emit radiation into a boundary around the heat source. Therefore Jane's wrong to ignore that radiation when applying the principle of conservation of energy:

What's ridiculous is your constant repetition of this bullshit idea. Yes, the cooler walls radiate inward but they have no effect whatsoever on the heat source. ALL of that radiation is reflected or scattered by the heat source. (It is not transmitted because we're dealing with diffuse gray bodies of significant mass.)

If you're being honest, then it's really too bad that you still don't understand the clear implications of the Stefan-Boltzmann radiation law. But at the same time, it makes me wonder how you got your degree.

I'm done. If all you're going to do is keep repeating these **incorrect** assertions, after why they are incorrect has been clearly explained to you many times, this is indeed just a waste of my time. I set out to have a scientific discussion, not to argue about your **religion**.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-21 14:06 (#47960791) Homepage Journal

> ... What's ridiculous is your constant repetition of this bullshit idea. Yes, the cooler walls radiate inward but they have no effect whatsoever on the heat source. ALL of that radiation is reflected or scattered by the heat source. (It is not transmitted because we're dealing with diffuse gray bodies of significant mass.) ... ***[Jane Q. Public, 2014-09-21]***

It's truly surreal to watch Jane repeatedly double-down on nonsense which Jane claims is too ridiculous even for Sky Dragon Slayers (as if that were possible!).

> ... You took a badly-worded

> sentence or two and jumped on them as though Latour made a mistake. But his only mistake was wording a couple of sentences badly. He does in fact NOT suggest that warmer objects absorb no radiation, and he has written as much many times. ... You have refuted NOTHING but a couple of unfortunately-worded sentences, which Latour himself publicly corrected shortly after that post appeared. ... ***[Jane Q. Public, 2014-07-27]***

Ironically, Jane's **still** insisting that warmer objects absorb **no** radiation from colder objects. Otherwise Jane wouldn't repeatedly object to including a term for radiation from the chamber walls in his calculation of required electrical power. Since Jane doesn't even include that term, Jane's assuming that warmer objects absorb **no** radiation from colder objects.

> ... shortly after Latour published that blog post, it became clear that the language he used **implied** that no radiation *at all* was absorbed by the warmer body. So a reader could not reasonably be blamed for inferring that. But Latour quickly apologized for the **unfortunate wording** and corrected himself to make it very clear he was referring to **net**, not absolute, heat transfer. ... ***[Jane Q. Public, 2014-07-27]***

Ironically, Jane's **still** insisting that no radiation **at all** is absorbed by the warmer body. Otherwise Jane's calculation of the required electrical power would include a term for radiation from the chamber walls. Since Jane adamantly insists that this term can't be included, Jane's calculation assumes that no radiation **at all** is absorbed by the source. None. Zero.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-22 19:52 (#47970839)

Ironically, Jane's still insisting that warmer objects absorb no radiation from colder objects. Otherwise Jane wouldn't repeatedly [slashdot.org] object [slashdot.org] to including a term for radiation from the chamber walls in his calculation of required electrical power.

NO!!! This is just plain bullshit. I do NOT object to a term for electrical power. I simply asserted a physical truth: in our isolated system, the electrical power to the heat source, called for by Spencer, has zero dependency on the chamber walls.

It is this nonsense dependency on the chamber walls that I have disputed, nothing else. That is a violation of the Stefan-Boltzmann law.

So just to be clear: I don't object to a term for "electrical power" and never have. My only objection is your insistence that the power input to the heat source is somehow related to radiation from the chamber walls. If these are treated as gray bodies: just no. That's a violation of Stefan-Boltzmann.

You are VERY good at trying to make it appear I have been saying things I actually haven't. But it isn't going to fly. It's just bullshit.

Ironically, Jane's still insisting that warmer objects absorb no radiation from colder objects. Otherwise Jane wouldn't repeatedly object to including a term for radiation from the chamber walls in his calculation of required electrical power. Since Jane doesn't even include that term, Jane's assuming that warmer objects absorb no radiation from colder objects.

NO!!! Repeat, for about the 100th time now:

no NET radiative power input from cooler objects. That is ALL I have claimed, and it's a direct result of the Stefan-Botlzmann radiation law. **Why do you keep disputing textbook physics laws?**

Stop lying. Because that's all you're doing now.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-22 20:28 (#47971031) Homepage Journal

> Ironically, Jane's **still** insisting that warmer objects absorb **no** radiation from colder objects. Otherwise Jane wouldn't repeatedly object to including a term for radiation from the chamber walls in his calculation of required electrical power. Since Jane doesn't even include that term, Jane's assuming that warmer objects absorb **no** radiation from colder objects.
>
> > NO!!! This is just plain bullshit. I do NOT object to a term for electrical power. ... I don't object to a term for "electrical power" and never have. ... ***[Jane Q. Public, 2014-09-22]***

I never said Jane objected to a term for "electrical power". I said Jane repeatedly objects to including a term for radiation from the chamber walls in his calculation of required

electrical power. And Jane continues to do this:

> ... I simply asserted a physical truth: in our isolated system, the electrical power to the heat source, called for by Spencer, has zero dependency on the chamber walls. It is this nonsense dependency on the chamber walls that I have disputed, nothing else. That is a violation of the Stefan-Boltzmann law. ... My only objection is your insistence that the power input to the heat source is somehow related to radiation from the chamber walls. If these are treated as gray bodies: just no. That's a violation of Stefan-Boltzmann. ***[Jane Q. Public, 2014-09-22]***

Ranting about imaginary violations of the Stefan-Boltzmann law won't help Jane understand physics. It **might** help Jane to draw a boundary around the heat source and think carefully about exactly why Jane keeps ignoring the heat radiated in from the chamber wells. Accounting for that radiation doesn't "violate the Stefan-Boltzmann law" but ignoring it violates conservation of energy.

> ... The power output is not dependent on the chamber walls, therefore the power input is not dependent on the chamber walls. ... ***[Jane Q. Public, 2014-09-21]***

Why does Jane think the second part follows from the first? It doesn't. For example, black body "power in" depends on the chamber walls even though "power out" through that boundary doesn't depend on the chamber walls. Maybe Jane could explain why he wrote "therefore" when his reasoning fails to describe even a simple black body problem? (Keep in mind that the gray body equation has to reduce to the black body equation when emissivities = 1.)

> Since Jane doesn't even include that

> > term, Jane's assuming that warmer objects absorb **no** radiation from colder objects.
>
> NO!!! Repeat, for about the 100th time now: no NET radiative power input from cooler objects. That is ALL I have claimed, and it's a direct result of the Stefan-Botlzmann radiation law. **Why do you keep disputing textbook physics laws?** Stop lying. Because that's all you're doing now. ***[Jane Q. Public, 2014-09-22]***

Jane/Lonny Eachus can capitalize "NET" all he wants, but it doesn't change the fact that Jane's equation assumes warmer objects absorb **no** radiation from colder objects. Here's an equation which only says there's no NET radiative power input from cooler objects:

electrical power per square meter =
(s)*(e)*(Ta^4 - Tb^4)

The above equation satisfies conservation of energy and says there's no NET radiative power input from cooler objects.

But Jane's equation is different:

electrical power per square meter =
(s)*(e)*Ta^4

Jane's equation doesn't just say there's no NET radiative power input from cooler objects. That happens automatically. Jane's equation violates conservation of energy by completely ignoring the term describing radiative "power in" from the chamber walls. So Jane's equation says warmer objects absorb **no** radiation from colder objects.

But Jane's equation is nonsense, because absorption is controlled by absorptivity. So we could only ignore the power radiated from the chamber walls if the source's absorptivity = 0. But then its emissivity = 0, so it also couldn't **emit** any radiation, so it couldn't be a heat source.

Jane/Lonny Eachus can capitalize "NET" all he wants, but it doesn't change this fact. Unless Jane/Lonny Eachus would like to correct his equation for required electrical heating power and derive an answer other than 82 W/m^2?

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-23 8:18 (#47974011)

I never said Jane objected to a term for "electrical power". I said Jane repeatedly [slashdot.org] objects [slashdot.org] to including a term for radiation from the chamber walls in his calculation of required electrical power. And Jane continues to do this:

Apparently you did not read what I wrote:

NO!!! This is just plain bullshit. I do NOT object to a term for electrical power. I simply asserted a physical truth: in our isolated system, the electrical power to the heat source, called for by Spencer, has zero dependency on the chamber walls.

What I object to is your insane insistence that the electrical power to the heat source requires a term for the chamber walls. This is sheer nonsense. Standard, textbook physics says the thermodynamic temperature of the heat source, since it is "the hottest thing in the room", as it were, is **independent** of radiation from the chamber walls. Since it cannot absorb net radiative power from the chamber walls, any electrical power calculation is similarly independent.

You are attempting to add a term to "account for" radiation from the cooler chamber walls, but no such accounting is necessary according to the Stefan-Boltzmann radiation law. No net radiative power from the chamber walls is

absorbed by the heat source. The chamber wall do not somehow magically cause it to output either less or more radiative power, therefore the input power is not dependent on the chamber walls. QED. I've explained this (truly) about 10 times now.

Ranting about imaginary violations of the Stefan-Boltzmann law won't help Jane understand physics. It might help Jane to draw a boundary around the heat source and think carefully about exactly why Jane keeps ignoring the heat radiated in from the chamber wells. Accounting for that radiation doesn't "violate the Stefan-Boltzmann law" but ignoring it violates conservation of energy.

There is nothing imaginary about it. I am the one who told YOU to draw your boundary around your heat source. According to the Stefan-Boltzmann radiation law, no NET RADIATIVE POWER is absorbed by the heat source from the chamber walls, and the chamber walls do not affect its radiative power out. I capitalized different words this time in a (probably vain) attempt to get you to understand what is being said here. **YOU are apparently imagining some kind of magical net energy flow from less thermodynamically energetic to more thermodynamically energetic, which is a violation of the second law of thermodynamics.** The chamber walls neither transfer any of their net radiative power to the heat source, nor do they cause the net radiative power of the heat source to be any less. They have NO EFFECT. Net energy flows only FROM the heat source to the walls, and the temperature of the walls effects heat **transfer** only, not radiative power of the heat source.

For about 100 times now, I do not claim "no radiation" is absorbed. Just no net radiative power.

Jane/Lonny Eachus can capitalize "NET" all he wants, but it doesn't change the fact that Jane's equation assumes warmer objects absorb no radiation from colder objects. Here's an equation which only says there's no NET radiative power input from cooler objects:

electrical power per square meter =
(s)*(e)*(Ta^4 - Tb^4)

The above equation satisfies conservation of energy and says there's no NET radiative power input from cooler objects.

Right. Exactly. That's the Stefan-Boltzmann radiation law, as I've stated many, many times now. Note that it is an equation for **heat transfer**.

But Jane's equation is different:

electrical power per square meter =
(s)*(e)*Ta^4

YES!!! This is a different equation! It's not an equation for *heat transfer*! It's the Stefan-Botlzmann RELATION between radiative power out and temperature for gray bodies. **It is used for calculating RADIATIVE POWER OUT versus TEMPERATURE and vice versa. *It is not for heat transfer and I'm not using it for heat transfer.*** YOU are the one who is getting them confused, not me. This *other* equation shows that radiative power is dependent ONLY on emissivity and temperature. It does not depend on other bodies. For the third time (today): it's a temperature vs. power equation, not a heat transfer equation.

Further, "electrical" is your own addition. The equation is for power. It doesn't specify "electrical".

That happens automatically. Jane's equation violates conservation of energy by completely ignoring the term describing radiative "power in" from the chamber walls. So Jane's equation says warmer objects absorb no radiation from colder objects.

"Jane's equation" is the textbook equation for calculating temperature from radiative power of a gray body, and vice versa. **It is not an equation for heat transfer and therefore doesn't have to account for the chamber walls.** At steady-state, it is independent of other bodies. Period. Look it the hell up.

But Jane's equation is nonsense, because absorption is controlled by absorptivity. So we could only ignore the power radiated from the chamber walls if the source's absorptivity = 0. But then its emissivity = 0, so it also couldn't emit any radiation, so it couldn't be a heat source.

RIGHT HERE is where you contradict yourself. You cite the S-B radiation law, above, saying no NET radiative power is absorbed by the warmer body. Apparently you don't understand the concept of NET, even though you have derided me for supposedly "ignoring" it.

I do not claim no radiation is absorbed. I claimed no NET RADIATIVE POWER is absorbed. Those are not the same things. The effect is as if all incident radiation from cooler bodies is reflected, scattered, or transmitted. But since these are diffuse gray bodies of significant mass, they don't transmit. So draw your precious boundary around the heat source. All incoming radiation from the chamber walls is reflected or scattered and **goes right back out**, so you have no net power IN through your boundary. This is at least the second time I have explained this in detail.

There is no magical flow of NET power into your heat source from the chamber walls. That would violate the second law of thermodynamics. Therefore I do not need to account for radiation from the chamber walls in calculating the temperature of the heat source. That is nothing but imaginary nonsense on your part. The Stefan-Boltzmann RELATION (not radiation law) for gray bodies has only 2 variables: emissivity and temperature.

And that is why, when calculating power needs, **I use the appropriate equation for temperature versus power, not the one for heat transfer.**

This is textbook stuff, and you just aren't getting it straight. Are you sure you're a physicist?

But Jane's equation is nonsense, because absorption is controlled by absorptivity. So we could only ignore the power radiated from the chamber walls if the source's absorptivity = 0. But then its emissivity = 0, so it also couldn't emit any radiation, so it couldn't be a heat source.

Look at your S-B equation above. What does it say? No net radiative power is absorbed by warmer bodies from cooler bodies. You said so yourself. But NOW, you're claiming that it is. You contradict yourself.

I will repeat: I did not and do not claim that no radiation is absorbed. Just no net radiative power. Any that does get absorbed is just re-transmitted, with a total power (and therefore heat transfer) effect of ZERO. That's why it is not necessary to account for cooler bodies in the **temperature versus power out** equation.

Jane/Lonny Eachus can capitalize "NET" all he wants, but it doesn't change this fact. Unless Jane/Lonny Eachus would like to correct his equation for required electrical heating power and derive an answer other than 82 W/m^2?

The second equation you cited above is the STANDARD equation for calculating radiative power out of a gray body. I showed you where it was in Wikipedia. It also just happens to be in my heat transfer textbooks. The answer is 82.12 W/m^2. It is the textbook answer. It isn't going to change. Why don't you look it up in a textbook and discover that for yourself?

The first equation you cite, and claim to be using, is an equation for **heat transfer** between two bodies. It is not the equation for radiant power output of a single body. It is the wrong equation for this calculation.

I repeat: if you truly don't understand this, due to your "greenhouse gas religion" or something, that's just too bad. I'm using textbook physics for situations like this. You are not. You are espousing magical net power transfer from cold to hot, rather than actual physics.

Radiative power out of the warmer body is dependent ONLY on emissivity and thermodynamic temperature. Anything else violates the second law of thermodynamics. It isn't controlled or mitigated by nearby cooler bodies. All else being equal, energy doesn't spontaneously travel from cooler to warmer. That's complete bullshit. Doesn't happen.

Knock off the fantasy physics and pick up a textbook.

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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-23 12:13 (#47976775) Homepage Journal

> But Jane's equation is different:
>
> electrical power per square meter = (s)*(e)*Ta^4

YES!!! This is a different equation! It's not an equation for *heat transfer*! It's the Stefan-Botlzmann RELATION between radiative power out and temperature for gray bodies. **It is used for calculating RADIATIVE POWER OUT versus TEMPERATURE and vice versa. *It is not for heat transfer and I'm not using it for heat transfer.*** YOU are the one who is getting them confused, not me. This *other* equation shows that radiative power is dependent ONLY on emissivity and temperature. It does not depend on other bodies. For the third time (today): it's a temperature vs. power equation, not a heat transfer

> equation. Further, "electrical" is your own addition. The equation is for power. It doesn't specify "electrical". ***[Jane Q. Public, 2014-09-22]***

My equation for electrical power is different than the equation for radiative power out, which is why it's bizarre that Jane keeps using the equation for radiative power out to determine electrical power. That's what I've been trying to tell Jane: we don't disagree about the equation for radiative power out. The equation for radiative power out is simply a **part** of the equation for conservation of energy: power in = power out through a boundary where nothing inside is changing. That's why we need to use a heat transfer equation to determine electrical heating power, not just an equation for radiative power out.

> ... it is not necessary to account for cooler bodies in the **temperature versus power out** equation. ... The second equation you cited above is the STANDARD equation for calculating radiative power out of a gray body. I showed you where it was in Wikipedia. It also just happens to be in my heat transfer textbooks. The answer is 82.12 W/m^2. It is the textbook answer. It isn't going to change. Why don't you look it up in a textbook and discover that for yourself? ... Radiative power out of the warmer body is dependent ONLY on emissivity and thermodynamic temperature. Anything else violates the second law of thermodynamics. It isn't controlled or mitigated by nearby cooler bodies. ... ***[Jane Q. Public, 2014-09-22]***

I've already agreed that it's not necessary to account for cooler bodies in the **temperature versus power out** equation. Again, we're not disputing the equation for radiative power out. We're disputing the equation describing conservation of energy around a boundary

drawn around the heat source:
power in = electrical heating power + radiative power in from the chamber walls
power out = radiative power out from the heat source

Since power in = power out:

electrical heating power + radiative power in from the chamber walls = radiative power out from the heat source

This doesn't violate the equation for radiative power out. It simply uses that equation to account for the power flowing out of the boundary, and uses that same equation for radiative power to describe radiative power flowing into the boundary.

> ... I will repeat: I did not and do not claim that no radiation is absorbed. Just no net radiative power. Any that does get absorbed is just re-transmitted... ***[Jane Q. Public, 2014-09-22]***

Jane's been calculating the required electrical heating power, which requires using a net heat transfer equation to describe power in = power out through a boundary around the source. Because Jane's equation doesn't even include a term for "radiative power in", Jane's equation **does** claim that no radiation is absorbed **at all**.

If Jane would reconsider conservation of energy and include a term for "radiative power in", **then** Jane could honestly say he was only claiming that no net radiative power is absorbed by the source. Until then, Jane's equation claims that no radiation is absorbed by the source **at all**.

> But Jane's equation is nonsense, because absorption is controlled by absorptivity. So we could only ignore the power radiated from the chamber walls if the source's absorptivity = 0. But

> then its emissivity = 0, so it also couldn't emit any radiation, so it couldn't be a heat source.
>
> Look at your S-B equation above. What does it say? No net radiative power is absorbed by warmer bodies from cooler bodies. You said so yourself. But NOW, you're claiming that it is. You contradict yourself. ... ***[Jane Q. Public, 2014-09-22]***

No, I said the source has to absorb some radiation as long as it has absorptivity > 0. I **never** said the source would absorb more radiation than it emitted. In fact I said the opposite "happens automatically".

> ... The chamber walls neither transfer any of their net radiative power to the heat source, nor do they cause the net radiative power of the heat source to be any less. They have NO EFFECT. Net energy flows only FROM the heat source to the walls, and the temperature of the walls effects heat **transfer** only, not radiative power of the heat source. ... ***[Jane Q. Public, 2014-09-22]***

If the temperature of the walls affects heat transfer, they also affect how much electrical heating power is required to keep the source at 150F. Note that I said "electrical heating power" and not "radiative power out" because these are two very different things. Calculating "radiative power out" just requires writing down the Stefan-Boltzmann law. Calculating "electrical heating power" requires drawing a boundary around the heat source at steady-state, and setting power in = power out.

> ... Do you think we're all idiots? Power in = power out. Your Newmann and Dirichlet boundary conditions are just more straw men. We don't need them to find the answer to this. Plain old

> algebra works just fine, because everything is at steady-state. So knock off the bullshit, because I see right through it, and so will the others I show this to. ... ***[Jane Q. Public, 2014-09-19]***

Of course boundary conditions are needed to find the answer, because they determine what "plain old algebra" is used, even at steady-state. We're all applying Dirichlet boundary conditions to the chamber walls, but Jane mistakenly applied them to the source as well, instead of the correct Neumann boundary conditions. Jane also continues to wrongly insist that Jane held electrical heating power constant **as well as** holding source temperature constant. So apparently in Janeland there's no difference between Neumann and Dirichlet boundary conditions. If that's true, why do physicists and engineers use different names for Neumann and Dirichlet boundary conditions?

> ... The areas in his equation were unnecessary ... Therefore the areas were irrelevant and about all he accomplished with his large equation was to further confuse the issue. ... ***[Jane Q. Public, 2014-09-10]***

After I originally solved a simple equation without areas, Jane objected that neglecting areas was a "fucking logical error!". That's why I had to solve the more accurate large equation with areas, even though I warned Jane that it wouldn't substantially change the answer.

The large equation with areas was also necessary because:

> ... 788.01 W != 721.44 W (!!!) Power is not conserved. ... the inner surface of the cavity has twice as much area, so the **total power radiated** is twice as much. Power is not conserved. ... ***[Jane Q. Public, 2014-09-07]***

Jane confused himself about areas so badly that he claimed "power is not conserved". So I

explained that Wikipedia's equation correctly takes into account areas and view factor.

Wikipedia's equation conserves energy because the view factor from chamber walls to enclosed source equals the **area ratio**. If the view factor didn't vary exactly like that, energy really **wouldn't** be conserved.

> But the chamber wall completely encloses the source, so its view factor is 1.
>
> No. If the surfaces are numbered 1, 2, 3, 4 as I did in my solution, F12 = F34 = 1. In the other direction (as you already know, and so do I) it is R1/R2, where R1 is the smaller diameter. F21 = F43 = 0.9989. ***[Jane Q. Public, 2014-09-19]***

As I said, the view factor from enclosed source to chamber walls is 1. If Jane wants to calculate the view factor in the other direction, the link I've repeatedly given Jane shows that for smaller radius R1, F21 = (R1/R2)^2 = 0.9978.

If the view factor varied as the **radius ratio** like Jane claims, energy really **wouldn't** be conserved. The view factor has to vary as the **area ratio**, which is the square of the radius ratio.

> ... I'd say that Wikipedia's equation is more correct because it includes area and view factor, which MIT's equation does not. ... ***[Jane Q. Public, 2014-09-19]***

If only I'd mentioned that repeatedly.

> ... The equation **you** are trying to use there is a partial equation for **heat transfer**, not radiant power output. They're not the same things. The proper equation for power out given radiant temperature is right there in the above paragraph. It can be found

> in any heat transfer textbook and many physics books. Didn't you notice that MIT's equation is essentially the SAME equation as Wikipedia's heat transfer equation, except for areas? I sure did. Why didn't you notice that? ... ***[Jane Q. Public, 2014-09-19]***

Of course I noticed that they're both net heat transfer equations, which is why I used them both in the same way to get nearly identical answers. I'm using MIT's and Wikipedia's equations because they yield radiative "power out minus power in". These net heat transfer equations **are** the proper equations for applying conservation of energy to a boundary around the source.

In contrast, Jane's clinging to an equation for "power out" and incoherently trying to justify ignoring "power in" through that boundary.

> ... I will make use of only ONE of your assumptions: that the enclosing plate (hollow sphere) is, due to thermal conductivity, **approximately** the same temperature on both sides. It's only 1mm thick after all, and the thermal conductivity of aluminum was a stipulation of yours so it will be the same to a couple of decimal places, give or take. So the answer won't be exact, but it will be reasonably accurate. Certainly close enough to demonstrate the concept. ... ***[Jane Q. Public, 2014-09-10]***

When I approximated the enclosing shell as a thermal superconductor, Jane insisted that there's no way to demonstrate anything with it without leading to a contradiction, and that it was nothing but misdirection and a fantasy ultimate straw-man argument.

When Jane approximates the enclosing shell as a thermal superconductor, it's reasonably accurate and certainly close enough to demonstrate the concept.

A cynic might suspect double standards.

> ... I have already explained how your "boundary" **assumed** that all the power was output from the **outside** of the enclosing sphere. ... you neglected to account for the fact that the hollow sphere has TWO surfaces it is radiating from. You left out half the m^2 in A, so your figure for W/m^2 was off by very nearly 100%. Q.E.D. ***[Jane Q. Public, 2014-09-11]***

Once again, Jane's completely wrong. When I held the source temperature constant, I reproduced Jane's result. So we're actually disagreeing about what to hold constant. If Jane's hilarious "Q.E.D." were correct, I wouldn't have been able to reproduce Jane's result simply by changing what variable I held constant.

> ... Add them together for the total heat transfer: 27.7832 + 27.7813 = 55.5645 total heat transfer. This checks against our initial calculation which was 55.5913. The difference is only 0.0268, or about 0.1%. Close enough for what we're doing. ... ***[Jane Q. Public, 2014-09-10]***

Ironically, Jane's off by ~100%. Again, Jane's total heat transfer dropped to 27.8 W/m^2 after the shell was added, so Jane's meaningless 55.6 W/m^2 value is ~100% higher than the actual value.

> ... Factor out (e*s) from both sides. (Despite khayman80's assertion that we cannot do this, yes we can. It is the same scalar and the same constant on both sides.) ... ***[Jane Q. Public, 2014-09-10]***

Once again, I never asserted that. In fact, I repeatedly showed Jane an equation derived by factoring out the sigmas and epsilons from both sides. Only Jane/Lonny Eachus could repeatedly quote that equation and even agree

with it, then accuse me of asserting the opposite.

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- **Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)**

by khayman80 (824400) on 2014-09-23 12:16 (#47976825) Homepage Journal
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- **Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)**

by Jane Q. Public (1010737) Friend of a Friend on 2014-09-23 23:08 (#47981011)

That's why we need to use a heat transfer equation to determine electrical heating power, not just an equation for radiative power out.

And you can achieve that quite nicely by drawing your "boundary" around the heat source.

I've already agreed that it's not necessary to account for cooler bodies in the temperature versus power out equation. Again, we're not disputing the equation for radiative power out. We're disputing the equation describing conservation of energy around a boundary drawn around the heat source: power in = electrical heating power + radiative power in from the chamber walls power out = radiative power out from the heat source

Nonsense. **By the Stefan-Boltzmann radiation law, the chamber walls add no net power in.** It just goes right back out through your boundary again. How many times must I

explain this to you?

Apparently I would be explaining forever, because I've explained it clearly many times now.

If Jane would reconsider conservation of energy and include a term for "radiative power in", then Jane could honestly say he was only claiming that no net radiative power is absorbed by the source. Until then, Jane's equation claims that no radiation is absorbed by the source at all.

I won't consider it because it's not physics. There is no net "radiative power in" from cooler to hotter. It's against the second law of thermodynamics, and it violates the S-B radiation law: (e * s) * (Ta^4 - Tb^4).

We've been over this. You're just trolling. You were proved wrong many days ago now. No more. Done.

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Re:Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by Jane Q. Public (1010737) Friend of a Friend
on 2014-09-23 23:14 (#47981027)
There is nothing more to say. You have been proved wrong. You can write books about your nonsense "physics", and it won't make your bullshit theory any more correct.

I have 3 heat transfer textbooks here, and they all say you're wrong. I'll stick with the well-known and established physics, thanks very much, and dismiss the nonsense from the cheap seats.

Funny, but for years you talked about "consensus" and "established science", but whenever the established physics disagrees with you, you will write pages and pages about why they're wrong and you're right.

There's a word for that. The word is "hypocrisy". There are other words for what you do, too, but I'll let other readers decide on those.

Well, it didn't work and it won't work. The textbooks all say you're wrong. Goodbye.
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Jane/Lonny Eachus goes Sky Dragon Slayer (Score:2)

by khayman80 (824400) on 2014-09-23 23:59 (#47981183) Homepage Journal

> .. **By the Stefan-Boltzmann radiation law, the chamber walls add no net power in.** It just goes right back out through your boundary again. How many times must I explain this to you? .. [Jane Q. Public, 2014-09-23]

If radiation enters the boundary and goes right back out, we need to account for it entering and exiting. That's why there are separate terms for "power in" and "power out". For instance:

> There is no net "radiative power in" from cooler to hotter. It's against the second law of thermodynamics, and it violates the S-B radiation law: (e * s) * (Ta^4 - Tb^4). [Jane Q. Public, 2014-09-23]

That's exactly the equation Jane **should** be using to calculate electrical heating power! It has separate terms for "power in" and "power out" so it can describe power entering and exiting a boundary. If Jane would use that equation, he'd honestly be only saying there is no net "radiative power in" from cooler to hotter.

Instead, Jane insists that electrical heating power = (e * s) * (Ta^4). Jane's ridiculous equation doesn't just say there is no net "radiative power in" from cooler to hotter. Jane's wrongly saying the source absorbs no radiative power **at all**.

> There is nothing more to say. You have been proved wrong. You can write books about your nonsense "physics", and it won't make your bullshit theory any more correct. .. The textbooks all say you're wrong. Goodbye. [Jane Q. Public, 2014-09-23]

So Jane refuses to retract his absurd claim that view factors vary as the radius ratio, which violates conservation of energy. A cynic might have expected as much, given how Jane flagrantly violates conservation of energy by incoherently ignoring radiative power passing in through a boundary around the heat source.

> .. I honestly -- and I mean that: honestly -- don't believe you could be this stupid and possess a degree in physics. .. [Jane Q. Public, 2014-09-15]

> .. I only replied on the off-chance that you really were ignorant and could be educated. .. [Jane Q. Public, 2014-09-20]

Jane's campaign of educating ignorant, stupid physicists about physics has only just begun. Jane still needs to educate Prof. Brown and Lonny Eachus still needs to educate Dr. Joel Shore.

Then, Jane/Lonny Eachus needs to educate the "ignorant" and "stupid" American Institute of Physics, the American Physical Society, the Australian Institute of Physics, and the European Physical Society.

> .. the CO2-warming model rely on the concept of "back radiation", which physicists (not climate scientists) have proved to be impossible. I'm happy to leave

> actual climate science to climate scientists. But when THEIR models rely on a fundamental misunderstanding of physics, I'll take the physicists' word for it, thank you very much. .. [Jane Q. Public, 2012-07-05]
>
> .. I consult "the experts". When it's a question of physics, for example, I look to references from physicists, not climatologists. After all, physicists are "the experts" when it comes to physics. [Jane Q. Public, 2013-11-15]

All those professional physics societies agree that our CO2 emissions are causing warming, which Slayers like Jane/Lonny Eachus deny. Jane's claimed that physicists are "the experts" when it comes to physics, and that Jane "takes the physicists' word for it." I'm skeptical.

> .. Be a man for a change and admit it. .. [Jane Q. Public, 2014-09-15]
>
> .. Be a man and admit the truth.. You've been owned, man. BE enough of a man to admit it. .. [Jane Q. Public, 2014-09-19]

Jane/Lonny Eachus wins a silver medal in psychological projection for telling me to "be a man for a change" but Slayer CEO John O'Sullivan still takes the gold.

> .. I set out to have a scientific discussion, not to argue about your **religion**. [Jane Q. Public, 2014-09-21]

As Jane expands his endless campaign to educate ignorant, stupid physicists about physics, Jane might set out to have a scientific discussion without writing things like this:

".. non-person.. disingenuous and intended to mislead .. he is either lying .. dishonest .. intellectually dishonest .. intellectually dishonest .. Khayman80's intellectual dishonesty .. Pathetic. .. you've come out the loser in every case.. you can't win a fucking

argument. You don't know how. You don't understand logic. You've proved this many times. Get stuffed, and go away. The ONLY thing you are to me is an annoyance. I have NO respect for you either as a scientist or a person. .. cowardice .. odious person .. you look like a fool .. utterly and disgustingly transparent .. Now get lost. Your totally unjustified arrogance is irritating as hell. .. You are simply proving you don't know what you're talking about. .. Jesus, get a clue. This is just more bullshit. .. spewing bullshit .. You're making yourself look like a fool. .. Hahahahahaha!!! Jesus, you're a fool. .. a free lesson in humility.. you either misunderstand, or you're lying. After 2 years of this shit, I strongly suspect it is the latter. .. Now I ***KNOW*** *you're just spouting bullshit. .. if we assume you're being honest (which I do not in fact assume) .. I wouldn't mind a bit if the whole world saw your foolishness as clearly as I do. .. stream of BS.. idiot .. Your assumptions are pure shit. .. I'm done babysitting you.."* **[Jane Q. Public]**

"Jesus, you're a dumbshit. .. your adolescent, antisocial behavior .. keep making a fool of yourself. .. you're being such a dumbass .. your analysis of it is a total clusterfuck. .. you're so damned arrogant you think I'm the one being stupid. .. you were too goddamned stupid .." **[Jane Q. Public]**

".. what a despicable human being you are .. after you are gone, I will quite happily reveal those things and your "legacy" won't be quite what you thought it was. .. get stuffed. I am far beyond tired of your incessant BULLSHIT. If you want to contemplate something before you die, I would suggest starting with meditating on why you have been such an incorrigibly rude, insufferable human being .. You'd at least expect a "physicist" to get that much right. .. Now I have given you your bone, doggie. GO AWAY. .. a clusterfuck pretending to be physics .. simply bad math .. you haven't even managed to ride your tricycle without falling off .. either you're not competent to analyze this, or (probably more likely), you are attempting yet again to misdirect from the real science .. weasel out of it .. you had to

obfuscate it and throw n all this other bullshit. Every goddamned time. .. you can go knowing that you abdicated on a chance to prove to the world that you can solve "civilization-paralyzing misinformation". And I will know that you went exactly as you (from what you have shown me, anyway) deserve: unknown and deservedly so. .. you refuse to lose like a man .. you're STILL full of shit, you pretender. .. you're STILL full of shit, you pretender. This is the most ludicrous thing I've heard coming from someone who claims to be a real scientist in years. .. It is A WASTE OF MY TIME to argue with you. You don't learn. I won't do it any more. And I'm going to give a copy of this to my grandchildren. .. bullshit .. weaseling .. all your misdirection .. I am willing to concede that you really are a Kool-Aid drinker, and can't accept that the dogma isn't what you thought it was. That's preferable to believing that you're simply a malicious lying sonofabitch. I am fucking well done here. .. Same shit different day. .. you won't do it because you know you're wrong. .. you're wrong by default .. Why don't you just shut up and do it? Why have you been so mightily struggling, like a fish on a hook, to avoid it? .. BS excuse .. Same shit different day. .. I consider that to be an admission of defeat. .. bullshit excuse .. I guess you do admit defeat. .. your analysis is ***completely full of shit****. .. absolute fantasy .. I'm really not sorry to say this after your past behavior, but showing you're wrong is just plain dirt simple. And not JUST wrong, but so ridiculously wrong that I can (and will, believe me!) use it as entertainment for certain of my friends. .. a pretty major concession that I don't think you deserve. .. Bullshit. .. you're still falling off your tricycle .. simple damned algebra .. You're just clownishly hand-waving again.. START OVER AND DO IT RIGHT .. you're full of bull, and you have been all along.* ***Either you are incapable of doing this properly, or you're just bullshitting everybody for reasons of your own.*** *.. Hahahahaha! .. just more bullshit .. no more bullshit .. of course you still won't, because you're not capable. .. if you don't want me to keep calling you (and showing you to others to be) nothing more than a clown. .. I want to show other people*

just how much a clown you actually are. .. shut up .. you want to try to mischaracterize everything I say.. you were just messing with me. .. fantasy .. It feels as though I'm explaining to a high-school student who has never seen a physics problem before. .. supposed to have been a physics major. .. Stop being obtuse. .. SIMPLE MULTIPLICATION .. No matter how you try to bullshit your way around this, it is still WRONG. .. provably bullshit .. I'm just plain tired of your bull. .. Jesus, I'm glad you weren't one of my physics profs. .. That's your goddamned problem, and you don't get to complain about it. I'm really looking forward to showing this latest exchange to my friends. .. There is no way to weasel out of this, man. You're trying to output more power than you're putting in. This isn't even 11th-grade physics. Let's try it at something more like your level: You have 200 beans equally distributed among 10 squares. If you now take those beans, and divide them equally among 25 squares of the same size, how many beans do you now have per square? Show your work. .. THERE'S NOTHING "CUTE" ABOUT IT! IT'S AN ACCURATE ASSESSMENT OF YOUR ERROR! This is not "approximation", it's fucking logical error! JESUS CHRIST, man, you can't talk your way around this. .. You can violate thermodynamics all you want, and it doesn't prove a damned thing. .. STOP THE BULLSHIT. .. If you continue to just bullshit your way around, as I have stated I will declare you in default and damned few reasonable people would disagree. .. NO. See my comment above. One more bullshit comment like this, and as I said, I will just call you a clown and few reasonable people will disagree. .. you are deliberately trying to make things difficult. .. It is dirt simple to show you are wrong. .. you're throwing a fit .. Are you drunk? .. Get the hell on with it.. I am very, very close to calling you full of shit and posting this where everyone can see it. .. YOU are the one who is trolling.. You simply wanted to waste more of my time. .. You're finally proving that you were full of bull all along. .. You're just plain wrong. .. you are quite clearly throwing a fit.. How could I possibly be "wrong"? .. I called bullshit.. prepare to be publicly declared a charlatan. ..

plenty of reason to call you both wrong and a liar. .. I am going to declare you a fraud and a failure. .. I'm still going to declare you a failure.. he's just a trolling, malicious, lying son of a bitch.. he has berated me, publicly derided and taunted me, and (in my strong opinion) libeled me.. I can show clearly, to someone with high school level math skills, that he was utterly, abjectly, and rather pathetically wrong, and the "Slayers", as he calls them, were right all along. .. "global warming alarmist" bullshit is just that: bullshit. .. mere incompetence and arrogant belief in your own abilities and contempt for others? Or was it because you were protecting your political ideology, or global warming religion, or maybe JPL grant money? I really don't know, and I really don't care, but now I can show the world very clearly, using your own words, that you were wrong the whole time. I would thank you for that but you don't deserve thanks. .. I am not going to judge here whether he was honestly mistaken or he was just a malicious bullshitter, but in all honesty it's hard to imagine someone who calls himself a physicist ***unintentionally*** *getting it so badly wrong so many ways. Unless his "global warming" religion would simply not allow him mentally to accept the right answer. .. I could go on, but this was my BRIEF analysis of khayman80's folly. As I sincerely promised him, I will be writing up a more complete discussion of his errors later on "the interwebz". Spencer and khayman80 were wrong. Latour was right, and I was correct to stick to my guns and say so, despite all of khayman80's public bullying and insults and braying like an ass. .. another aspect of khayman80's folly. .. khayman80, otherwise known as Bryan Killett, you're either a liar of a fool. As I said before, I don't know which, but I've proved that it MUST be one of the two. .. khayman80's nasty remarks .. schooling a physicist on why his physics is awful.. You can't even fucking add 2 + 2. .. you complete bozo. .. you're a complete loon. .. I'm not wrong, in any basic way. .. Face it. You've been spouting the wrong answer for 2 years, and using it to justify calling OTHER PEOPLE names, and bullying them online, and other nasty antisocial behavior. But even*

if I made a small mistake somewhere (I did NOT make a large one), you're still busted. .."
[Jane Q. Public]

".. you were "hanging yourself", as the saying goes. Hoist by your own petard. .. You are busted. .. I'll be here watching and laughing all the way. .. It doesn't matter how you try to squirm and twist this. You have been owned. End of story. .. I repeat that you can twist and squirm all you want, but unless you can come up with a "khayman80 law" to replace the Stefan-Boltzmann law, this IS the answer, it is known, and it is unequivocal. .. Introduce all the complications, and prevarications and half-assed reasoning you want. I have already shown you the correct answer according to established physics. Give it up lest you make yourself look more of a fool than you already are. Because as I promised you, all of this is being recorded and will be made public, with your name displayed prominently. I promised that I would do that regardless of how it turned out. You have no reason to complain just because you lost. Further, I'm going to INVITE people who teach heat transfer to examine my write-up, and evaluate it. I already know what they will say about your half-assed thermodynamic reasoning. To be honest, I still don't see why YOU don't see, where I showed that you were clearly wrong. But again, I suspect that your CO2-based greenhouse gas religion will not let you accept the clearly established facts. I have said all I need to say here. Nothing you say will change it, and no, I do not agree with your fallacious "reasoning". I'll stick with the engineering textbooks, thanks very much. .. Have I reminded you lately that your grasp of logic seems a bit off? .. It's just bullshit. You're squirming like a fish on a hook. You just don't seem to realize you have already been flayed, filleted, and fried in batter. You're owned, man. .. PROOF that you're bullshitting everybody.. You keep making the same bullshit assertions, after I have proved them false. Why do you do this? You're just going to look that much more foolish later. .. YOU are disputing the Stefan-Boltzmann law. But it is a known physical law, and this is a textbook demonstration of it. You lose. .. Your

calculations contradict themselves, and your methodology contradicts itself. .. no matter how you cut it, your answer is wrong, by your own rules. .. I find it highly amusing that you derive your own calculations from the Stefan-Boltzmann law, then deny that it is valid. Every time you try to squirm out of this you just contradict yourself again. I am further amused that you find it "adorable" that you've been proven wrong. Be a man for a change and admit it. .. No more bullshit. .. I'm just trying to find out whether you're actually crazy or just bullshitting. .. Are you REALLY the moron you make yourself out to be? .. You are giving physicists a bad name, and I repeat that I am going to show this to all the world to see. .. This is so utterly obvious that I honestly don't believe you don't get it. .. I have finally concluded that you are just a very good troll. I honestly -- and I mean that: honestly -- don't believe you could be this stupid and possess a degree in physics. .. You're just wrong about how this works. And not just a little bit wrong, but completely out there in lala-land wrong. And you have made it perfectly obvious that I am wasting my time talking to you. You are either crazy, or stupid, or a very talented troll. Based on my experience, I vote for that last one, but I think that necessarily implies a little bit of the first, too. So we're done. I'm going to write this up as it stands here. I don't need anything else, and you've made it very clear that anything else would be further waste of my time. You refuse to change your tune, so fine. I'll just write it up that way. Don't worry: I am going to include your exact words. .. You DO know what a minus sign is, yes? .. You made assumptions that are, to be blunt, bullshit nonsense. .. Do you think we're all idiots? .. knock off the bullshit, because I see right through it, and so will the others I show this to. .. Yet again, you have contradicted yourself. You're a great bullshitter but I've caught you out and you've ***already*** *been proved wrong. All this trying to twist out from under the obvious any way you can only confirms that you were bullshitting all along. Be a man and admit the truth, because people ARE going to see this. Why do you want to look more foolish than you do already? .. Complete bullshit again. .. It is a simple*

equation that is well-known to physicists. You claim to be a physicist, so why don't you know it? .. You've been owned, man. BE enough of a man to admit it. Because everybody's going to know it anyway. .. This is just another straw-man argument. Which you are very good at, by the way. Not good enough to sucker me in, though. .. your assertion is only "obvious" if you're not a heat transfer engineer or a physicist, you pretender. Heat transfer is not a science of the obvious. Intuition (and, as pointed out before, "thermodynamic thinking") can easily lead you astray. .. Knock off the BS. Time to admit you were wrong. .. I've already proved you wrong, mathematically, logically, and thermodynamically. The fact that your "global warming" religion will not let you accept the reality of the Stefan-Boltzmann radiation law is not my problem. But you have sure as hell tried hard to make it everyone else's problem. .. You're either incompetent or a liar. As I said before: I don't know for sure which, but I strongly suspect the latter. It's a done deal. You have been proved wrong. You have been owned. Your ranting means nothing. I only replied on the off-chance that you really were ignorant and could be educated. But it seems that you are determined to promote your ignorance (or more likely: ignorant act and propaganda) to everyone else. So be it. No more replies. You haven't earned any; you don't deserve any. .. NOW what kind of bullshit are you trying to pull? Do you understand what NET means, or do you not? I assure you that a lot of people do. You claimed before that you did. Why are you doing this? Are you really trying to make yourself look more ridiculous than before? .. I'm going to ask you again: WHY do you continue to spout this violation-of-physics bullshit? What do you think you're accomplishing other than wasting my time? I have concluded that is all you are trying to do. .. If you are sincere (you certainly haven't been acting like you are), then you must be postulating some kind of "tractor beam" effect that allows the chamber wall to "suck" power out of the heat source from a distance. I assure you that at least at out current level of technology, we have not managed to build such a sucking device. The

heat source radiates out what it radiates out, and nothing around it is "sucking" any power from it. Although you seem to be doing your very best at "sucking" my time away over stupid bullshit. .. NONSENSE. .. What's ridiculous is your constant repetition of this bullshit idea. .. If you're being honest, then it's really too bad that you still don't understand the clear implications of the Stefan-Boltzmann radiation law. But at the same time, it makes me wonder how you got your degree. I'm done. If all you're going to do is keep repeating these ***incorrect*** *assertions, after why they are incorrect has been clearly explained to you many times, this is indeed just a waste of my time. I set out to have a scientific discussion, not to argue about your* ***religion****. .. NO!!! This is just plain bullshit. .. You are VERY good at trying to make it appear I have been saying things I actually haven't. But it isn't going to fly. It's just bullshit. ..* ***Why do you keep disputing textbook physics laws?*** *Stop lying. Because that's all you're doing now. .. What I object to is your insane insistence that the electrical power to the heat source requires a term for the chamber walls. This is sheer nonsense. .. YOU are the one who is getting them confused, not me. .. Look it the hell up. .. Apparently you don't understand the concept of NET, even though you have derided me for supposedly "ignoring" it. .. This is textbook stuff, and you just aren't getting it straight. Are you sure you're a physicist? .. Why don't you look it up in a textbook and discover that for yourself? .. I repeat: if you truly don't understand this, due to your "greenhouse gas religion" or something, that's just too bad. I'm using textbook physics for situations like this. You are not. You are espousing magical net power transfer from cold to hot, rather than actual physics. .. That's complete bullshit. Doesn't happen. Knock off the fantasy physics and pick up a textbook. .. There is nothing more to say. You have been proved wrong. You can write books about your nonsense "physics", and it won't make your bullshit theory any more correct. I have 3 heat transfer textbooks here, and they all say you're wrong. I'll stick with the well-known and established physics, thanks very much, and dismiss the nonsense from the cheap seats.*

Funny, but for years you talked about "consensus" and "established science", but whenever the established physics disagrees with you, you will write pages and pages about why they're wrong and you're right. There's a word for that. The word is "hypocrisy". There are other words for what you do, too, but I'll let other readers decide on those. Well, it didn't work and it won't work. The textbooks all say you're wrong. Goodbye. .." **[Jane Q. Public]**

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