

The Minkowski Light Cone

Here's what it is.

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I've written many science books over the years. The first one I wrote in 1966. There was a full page devoted entirely to that first book of mine in the June 18, 1967 New York Times newspaper: The page covering my book was page 29 of the Sunday Book Review section. I enjoyed writing that book and have enjoyed writing about science all through these many years.

What really interests me now though are the rules of **Phase Symmetry** that give us the phase rules for this frequency universe we find ourselves in.

I'll be 83 in a couple of months and close to the end of my writing career. But as old as I get there always seems to be something new and

important to write about. Now I have to write about the last piece of the **Phase Symmetry** puzzle that has been solved, which is the **real reason** that we have the **Minkowski light cone**.

The concept of photon energy particles, that stream off the stars that we might receive years later, was flatly rejected by Minkowski — Einstein's teacher — because he knew that this was a violation of the conservation of energy.

Minkowski saw energy was conserved therefore all energy had to be treated as binding energy that could be transferred only at a specific time, which his light cone provides.

After my son and I published **Phase Symmetry** in December of 2013, we worked out **why** Minkowski's 'light cone' works. Here are the essentials:

We know that a positron, that is exactly 180 degrees out of phase to an electron, can meet

with an electron causing a complete annihilation of both.

(The wave peaks of one fit exactly into the wave troughs of the other; thus both cancel each other and both vanish.)

Something similar seems to be happening with the out of phase frequencies that produce space-time in [Phase Symmetry](#):

In any event, between the electron in your eye and the electron on that star — space-time is made of frequencies produced by **both** electrons; yours and the stars:

But since your eye electron and that star electron have spins 180 degrees out of phase (spin up-spin down) then these 180 degree out of phase frequencies, producing both these opposite space-times, can exactly match and cancel just like the electron and positron frequencies, 180 degrees out of phase, exactly match and cancel.

Only when **both** sets of these **space-time producing frequencies** perfectly match — *canceling each other* — can you obtain light from that star.

The **Minkowski light cone** is essentially showing us the same thing.

Space-time is built from frequencies that are out of phase with the electron's spin frequency: This is important! And my son and I have already shown how this works, in the **Phase Symmetry** papers.

Well, essentially the same **exact matching** (as with the positron & electron) happens to build the **Minkowski light cone** as this **exact matching** produces **space-time** annihilation:

Both **space-times** vanish when **exactly matched** like the positron and electron.

(It's really the — out of phase frequencies produced by **both electrons** — that **exactly match** and annihilate **space-time**

between themselves.)

Energy can only be instantly transferred from that star to your eye when **both** of those out of phase frequency sets have perfectly **matched** and annihilated **space-time** between themselves.

The star remains where it is in space and time. Only your connection to it via the **Minkowski light cone** has now been enabled.

The reason you keep seeing that star is the amount of **added space-time** between you and that star is being continually canceled from **both** sides — yours and the star's.

So, it's as simple as that really and if Hermann Minkowski hadn't died early of appendicitis then he might have told you what I just told you.

While the veracity of this paper may be debated, the truth is that this simple model of phase explains Minkowski's complicated light cone:

Mathematician Stephen Wolfram said, "Math can only explain simple things but a **simple model** can explain a complicated universe."

Phase Symmetry is limited in showing us phase relationships, that exist, in both the microcosm and macrocosm and this paper is another example of where this can help us understand the world of Einstein's general relativity better. Also **Phase Symmetry** shows us phase relationships that seem to make quantum theory more complete.

For more about **Phase Symmetry** read:

<http://www.amperefitz.com>

or

<http://www.rbduncan.com>

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