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[2023-01-31.10:09 Tue> An almost-forgotten point about tachyons as group velocities

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The thought I lost *may* have been some expansion of the "sphere of Lorentz area ambiguity" converging to Lorentz time dilation at the zero-radius contact level... no, I remember! It was on tachyons!

The original argument for tachyons almost certainly was some mathematical variant (the equations are too simple for it not to be!) of the faster-than-light velocities of the same-time space points of a moving frame. As I noted before, that projection gives the same ancient idea from SciAm that tachyons have *lower* energy costs as they grow infinitely fast. Whether the originators realized it or not, they were simply describing the low energy cost of this remarkable effect we call space — the ability to spread out cheaply. (I just found and downloaded the original 1967 Feinberg paper on this topic, though I've not looked at it closely.

In any case, the idea would be this: A moving javelin clock includes a continuous condensed matter thread parallel to its internal light path. Nominally, as this thread "*intersects*" with launch space it creates an image that moves faster than light. Notably, however, each point of this "intersection" contains rest-mass capable bosonic matter — it's not just photons.

Does this then mean that a *material* object is moving left-to-right across the Lorentz contracted width of the object? It certainly has that "flavor" if you insist on the absolute reality of the moving-frame space view of the thread.

The bogosity is, of course (well, *now* it seems "of course" to me — it certainly did not months ago), is that there is *no* intersection. The entire thread, *with an age gradient*, exists at all times in the launch frame, with each part moving at a high but quite ordinary relativistic velocity. The *illusion* of tachyonic behavior emerges only if you look for and track the progress of a single *time setting* on the thread. It's the time settings, not the particles, that move at superluminal velocity.

This seems very much like a group velocity kind of effect, a virtual wave created by sublight velocities that nonetheless looks like it's moving at superluminal speeds. The other example that comes to mind is sweeping the beam of an intense laser over, say, the surface of the moon, which a (very sensitive!) telescope on earth would see and measure as a bright spot moving at superluminal velocity.

Even more mundanely, one could create an illusion of a bright spot moving faster than light by feeding slightly time-sloped activation using wires orthogonal to an orthogonal line of independent LED lights. I wonder if any science group or YouTube video has ever tried that? I would be an interesting and definitely doable experiment, but the tolerances need would be well beyond most labs. Unless... yes, you could use very long wires extending kilometers out, and create the illusion at much lower tolerances. [10:52]

[14:26> Another interesting thought: While *tachyons* don't mean anything once you drop non-existent xyz and replace it with physical meaningful and non-info-paradoxical Lorentz area LxLyLz coordinates, the superluminal point likely *does* count as a true group wave formed by atomic — quantum actually — wire oscillations. Hmm! [2023-01-31.14:33 Tue]