

The Asymmetry of Radiation

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Nice article covering historical approaches to the problem of radiation.

<http://members.optusnet.com.au/~bhkellett/radasymmetry.pdf>

I'll stand by my statements that:

- 1) energy isn't locally conserved, and
- 2) absorbers aren't necessary because there is nothing to absorb. The electrons are simply responding to the local retarded field. If it makes you feel better to call reaction to the ambient field "absorption" of something, then that is your prerogative, but I recommend against it, because it's an incorrect application of the word.

Feynman, in an effort to provide for a time symmetry of em waves, as presents itself in the field equations, was led to the conclusion that if waves can flow backward in time according to those equations, then there must be charges in the future emitting these "advanced waves," from which follows that there also must be something there in the future to absorb the retarded waves. While the latter part of the statement is just an incidental truth, he however incorrectly concludes from this that the future electrons are required to exist before electrons in the present can even emit em waves. As a premise he frames it as, "An accelerated point charge in otherwise charge-free space does not radiate electromagnetic energy." which simply doesn't follow. Well it actually does follow, but not for those reasons.

This is a bit different than what I claimed previously, which was "An electron cannot react to any radiation that it emits". Which was followed with the explanation that this is because there really is nothing radiated by the electron, it simply jiggles, and distant electrons jiggle in response at a later time. That observation is also a famous line of Feynman's, in somewhat different words.

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The "wave" is a trick of Minkowskian space–time, and the success of that trick relies upon our innate Galilean perspective on the universe. Direct particle interaction in Minkowskian space–time was also a premise of Feynman's, which makes me wonder how absorber theory came to be.

I've copied the following from the PDF file above. Some of Feynman's premises/conclusions:

"(1) An accelerated point charge in otherwise charge–free space does not radiate electromagnetic energy.

(2) The fields which act on a given particle arise only from other particles.

(3) These fields are represented by one–half the retarded plus one–half the advanced Li´enard–Wiechert solutions of Maxwell's