

Re: The differences between LET, SRT and IRT

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- *From:* Bryan Olson <fakeaddress@xxxxxxxxxxxxx>
 - *Date:* Tue, 15 Apr 2008 19:05:33 -0700
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Jerry wrote:

kenseto wrote:

Bryan Olson wrote:

kenseto wrote:

What is the purpose of the interruptions?

They cut off the light before the spot has a chance to move to the center, as Seto's theory predicts it will if the light beam is left on.

Sigh....my theory says: the leading portion of a light beam will miss hitting the hole in the cover plate due to the absolute motion of the detecting surface and the cover plate.

Exactly. That's the idea. As Jerry says:

Sure. And with the interruptions, you have LOTS and LOTS of leading edges.

leading edge! leading edge! leading edge!

V V

V

| | | |

|<-----10⁻⁸ sec----->| 10⁻¹⁰ sec--->|<---

At a distance of 100 meters, as I recall, it takes 2.7x10⁻⁸ sec before the beam will shift enough to hit the hole in the cover

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plate. So keeping the pulses only 10^{-8} sec in duration will mean that the discontinuous beam never hits the hole.

You didn't have any problem with this concept when I presented 10^{-8} sec pulses emitted at a rate of 1000/sec on the "I need help" thread:



You wrote:

| "Hey idiot runt....if there is only 1000 pulses /sec. then the gaps
 | between the pulses are much larger than $2.7e-7$. This means that all
 | the pulses will miss the 3 mm detecting surface. That's why I
 | specified
 | a continuous laser. BTW that's the reason for the Uncertainty
 | Principle....the absolute motion of the detector makes a short pulse
 | of light (or a photon) to miss the detector and that's why you can't
 | detect the velocity and the position of a photon simultaneously."

Would you prefer programming the AWG for 1000 pulses/sec instead?
That's fine with me.

But then the spot is much less obvious. The nice thing about a pattern that keeps the laser on for a significant fraction of the time is that we can do away with the fancy detector and directly observe where the spot lands.

I kind of like half-on, half-off, with a frequency less than twice Ken's leading-edge time. View in a fixed-width font:



|<-- 50 ns -->|
(or less)

There will certainly be less problems with heating, and given that I haven't yet found a commercial Kerr cell with liquid cooling, that would actually be preferable.

Is the Ker cell really necessary? Google up, laser+modulate+GHz. Looks like available technology can turn a laser on and off that fast, or two or three orders of magnitude faster.

Ken would not need a 100-meter hallway to run his experiment. With

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modern laser modulation, ten meters, or even *one* meter is enough.
That's actually kind of important, because focusing a laser spot to
about a mm at a 100m range is somewhat challenging.

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—Bryan