Re: .Re: Why all the fascination with E = mc^2 ??

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From: Old Man (*nomail_at_nomail.net*)
Date: 06/06/04

Date: Sun, 6 Jun 2004 00:59:16 −0500

"Leonard Pardin" <leoppard@MailAndNews.com> wrote in message
news:d746a243.0406051614.4024f88c@posting.google.com...
> *D.McAnally@i'm_a_gnu.uq.net.au (David McAnally) wrote in message*
news:<c9stf3$l9e$1@bunyip.cc.uq.edu.au>...
> > *leoppard@MailAndNews.com (Leonard Pardin) writes:*
> >
> >
> > *Einstein's First Postulate (the Principle of Relativity) states that the*
> > *physical laws relative to all inertial frames of reference are*
identical.
> > *There is no physical experiment that can distinguish between them. This*
> > *means that no inertial frame of reference is more special than any*
other.
>
> *If that's true, then the inertial frame that is stationary*
> *relative to the radiating body must be indistinguishable from any*
> *other frame. Yet, in that frame, no loss of mass is demonstrated.*
>
> *And that is the crux of our disagreement. Us common folk think of*
> *a reference frame as a place, but we can think of it as simply a*
> *coordinate system. As a practical matter,though, the coordinate*
> *system that follows the object to be analyzed may be the most*
> *important frame depending on what we are seeking.*
>
> *If I am on a ship in the ocean studying another distant ship, I may*
> *want to know his speed relative to my ship. In that case, the*
> *reference frame centered on my ship is the most important. If I want*
> *to know how fast the other ship is traveling relative to the water,*
> *the sea would be the most important frame.*
>
> *But if I want to know how fast one of the crew is running along*
> *the deck of the other ship relative to the other ship, the reference*
> *frame surrounding that other ship is the most important frame. In*
> *order to calculate that information, adjustments to my own frame of*
> *reference must be made. I must triangulate the other ship to get its*
> *size, and distance. Then I have compute the distance the crewman runs*
> *and time it. In other words, the information I am trying to calculate*

> *is what is actually happening in the other ship's frame of reference.*
> *But the ultimate answer, the true answer, that which is really*
> *happening on the other ship, is best measured by using the reference*
> *frame of that other ship.*
>
> *If our ships were space ships traveling some hefty percentage of*
> *the speed of light, the data collected on my own ship would be skewed,*
> *and adjustments would have to be made using the Lorentz equations. If*
> *all physical laws must be the same for all frames, then the final*
> *result of my calculations should be the same as the final result of*
> *the calculations made aboard the other ship. That's where the action*
> *is. If it isn't, then either my calculations are wrong or the laws of*
> *physics don't apply equally to all reference frames.*

Idiot. The laws are invariant, but a velocity vector
isn't a law and isn't Lorentz invariant.

ds^2 = − c^2 dt^2 + dx^2 + dy*2 + dz^2

ds is invariant, but nothing on the RHS is. Of relevance
here, v_x = dx / dt isn't invariant. Go figure.

[Old Man]