

Re: red shifting the edge of the universe

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- *From:* Don Stockbauer <donstockbauer@xxxxxxxxxxxx>
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On Jul 4, 1:47 am, The TimeLord <mathnphysics-...@xxxxxxxxxxxx> wrote:

Don Stockbauer wrote:

[...]

If Mach's principle is correct, light is moving relative to the inertial field, ie, the gravitational field which is the result of all matter in the universe So – if there were suddenly twice as much mass in the universe, light would have a different speed.

No, the speed of light would still be the same. Here's the reason why:

Light moves along geodesics in space-time. As long as there is no external active force on the photon, it has an equation of motion that is (in flat space-time)

$$dp/dt = 0$$

since $dp/dt = F = 0$. However, when you put matter into the situation, then you have to take the absolute derivative, so

$$Dp/dt = 0$$

$$Dp/dt = dp/dt + \{i,j,k\} p dx/dt$$

(I know the notation looks sloppy, but it's hard to write tensors in ASCII.)

where the last term indicates the virtual force due curvature of space-time. Now you have a non-zero dp/dt which results from the matter. This is how light curves around stars and galaxies even though the active force is zero. (Remember that gravity is a virtual force like the Coriolis force.) At any rate, c (=speed of light in a vacuum) still remains the same.

[...]

Re: red shifting the edge of the universe

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// The TimeLord says:
// Pogo 2.0 = We have met the aliens, and they are us!

OK. Nice to see that one boxed for all time.

Gosh, relativity is complicated. Almost like tea leaves. Ya makes your observation, ya makes your interpretation. Of course, a true theory of relativity would handle all relationships, even human ones, even those between any two concepts (say, that of the meme of Jack Benny's left little toenail and the meme of President Bush's delusion that simplistic thinking would procure oil from Iraq seamlessly).
Yes?

JOOTS.

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