THE DECREASING SPEED OF LIGHT.

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IS THE SPEED OF LIGHT SLOWING? 9 / 01 / 2006

Last year, a British newspaper awarded two scientists a prize for their work on the slowing speed of light.

This is somewhat of a surprise to those who have been told that the speed of light was definitely fixed and constant. And, in a way, it has been, since around 1970-odd. Because then it was firmly told that it would be 299,792 kilometres per second. And that it would stay there and jolly well learn to like it or else!

Previously, values for light speed had been supplied with a date. Supposedly because scientists had not known how to measure light speed properly in the past. And had been improving more and more as time went on.

The trouble was, the speeds were always higher in the past, and got lower as time went on.

If some were higher and some lower in a random fashion, then we could accept that the measurements were a bit dodgey. But this is not the case. There has been a definate historical trend towards a lower speed of light.

The letter "c" is used as a quick way of writing "speed of light". Falling light speed is written "cdk", which stands for "speed of light decay".

Before we move on, there is one thing that you need to know. The speed of light,c, and the rate at which radioactive stuff decays away , are directly linked to each other. The faster the speed of light, the faster the radioactive decay.

It's very simple. If the speed of light is 10 times as fast, then the rate of e.g. uranium decay will be 10 times as fast. And if the speed of light is 10 billion times as fast, then the rate of uranium decay will also be 10 billion times as fast.

What does all this mean? And where is it getting us? Well, for a start, light speed is measured today by a laser beam and an atomic clock. Yes, that's right, a clock powered by radioactive decay.
So if the speed of light slows, the clock slows, and the speed is recorded as the same."That's a bit off!" you say. Yes, it is a bit unfair.

However, there has been a minor embarrassment or two. The atomic clocks have had to be put forward twice in recent years, to keep the clocks in line with the motions of the planets. You see, the planets keep better time than the atomic clocks. The planets are not slowing down. Let us take a look into the background of research into the slowing speed of light.

Somewhere around the yellow and orange decor of the '70's , it was realised that if the speed of light was very fast in the past, some rather tricky questions would be answered.

Some bright boys oiled the clockwork of the computer at the Flinders' University in Adelaide. They fed in all the measurements that had been made

of the speed of light over the last 300 years. Many mechanical sounds later the computer spat out a number. For those of you who enjoyed "The Hitchhiker's Guide to the Galaxy"; No, the answer was NOT 42! The computer said, that just over 6200 years ago, the speed of light was very fast indeed, and that it had suddenly fallen in speed very rapidly.

This result caused some ripples on the smooth lake of the fixed speed of light. Arguments raged in technical publications. Reputations were risked in defence of cdk, as the forces of science rallied an army to save the sacred speed of light from meddlement. The pro-cdk battlers eventually retired, and the crusaders of the sacred c went back to their research grants.

Recently, however, some New Zealand researchers have looked at cdk in a new light, so to speak. If, they said, there was radioactivity when the speed of light was very fast, then <u>all</u> the radioactive stuff would have fizzled away in no time at all. Because the rate of decay is linked to the speed of light, remember? Fast light, fast decay, all over.

"What", said our researchers, "if radioactive decay and speed of light decay began at the same time?" Then, they reasoned, the radioactive decay would have been very rapid at first, but would have slowed down quickly. Today, of course, it is still matched with

the slowed speed of light.

Thoughtfully drinking tea and nibbling biscuits, our researchers mused on these things. They were pretty sure that the Flinders' University computer had given a good result: some 6222 years or so. They had double-checked it. And the clockwork had been oiled!

Our boys reasoned that the 1.5 billion years of uranium decay were compressed into only 6222 years. And uranium decay and speed of light decay had begun at the same time. The uranium decay had been faster, much faster, in the past, and was just ticking along today. And the light was just ticking along today.....

Slowly it dawned on them. Uranium decay, and the speed of light, were connected .....

So if 1.5 billion decay-years were compressed into 6222 years.....

... then 1.5 billion light-years of travel were compressed into 6222 years.

The light bulbs clicked on! Numbers started to fall into place.

Our researchers realised that ALL galaxies more than 1.5 billion light-years away would appear to be "speeding out" at, or very close to, the speed of light.

This is, of course, just a "trick of the light". It is a de-cceleration effect. THE UNIVERSE WAS NOT EXPANDING!

But the universe was taking shape! More mysteries were being explained that could not be explained before.

For example: most of the galaxies at the end of the universe look fully mature. And this is a problem for astronomy, because conventional thinking would have it that these galaxies should be "young" and "just beginning to form." The conventional "look-back time" to these galaxies is more than 10 billion years!

But the figures from our N.Z. researchers showed that the oldest light available to astronomers was 6222 years PLUS ONLY ONE YEAR. And this, from the farthest galaxies visible! If you were prepared to give away some time, you had an explanation for "mature" galaxies at the end of the universe.

At this point, the researchers were urged to put up a website, and they did: www.lollo.org.nz
The figures displayed on the website were very interesting; but they lacked that absolutely certain something that would shout, "Yes, They've got it"!
What they needed was the sort of result that would have a publisher snatch the "lollo" results (as they called them) from their hands, and print them in the next Ekatahuna Gardening Quarterly.

What our researchers were looking for was positive proof that cdk had occurred. And, in the way they were suggesting. They soon discovered that astronomy has a little secret!

Now, the light from the stars can be made into a little rainbow ribbon of colours: red, orange, yellow, green, blue, indigo and violet.

And "redshift" is the means whereby some astronomers claim that the galaxies are speeding outward. But the problem is, that the colours are not moving along the rainbow ribbon at all! There is no actual red shift! This has been known since 1848!

What <u>is</u> happening, as every clever astronomer knows, is that little dark bars are jumping towards the red end of the little rainbow ribbon. The further the light has come in, the more the little dark lines have jumped over. These little jumps are each measured by a little number, which is.. 0.00024

Having already established that the galaxies were <u>not</u> speeding outwards, our N.Z. researchers wondered if the jumps of the dark bars might be caused by "compression bumps". These "compression bumps", they reasoned, could result from 1.5 billion light-years of travel being stuffed into 6222 actual years.

Reaching for their calculators, they wisely left the billion to one side, and divided 1.5 by 6222. And "presto", out popped the little number 0.00024! And that little number was just one of a billion little "compression bumps". This was indeed convincing proof that their ideas were correct, and that cdk was causing "redshift".

So it seems that the British newspaper's award to the cdk scientists last year should not seem so strange or surprising after all! It seems that the speed of

light <u>has</u> been slowing down over the years.

What other interesting changes will further cdk research make to our ideas of the world around us? Congratulations "team New Zealand" on a job well done. Ready or not, it looks as though cdk is here to stay.

For more information and updates on cdk, view

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