

Re: Pioneer anomaly engineering questions

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- *From:* srp <srp2@xxxxxxxxxxxxxxxxxxxx>
  - *Date:* Fri, 21 Apr 2006 11:42:50 GMT
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FrediFizzx a écrit :

"srp" <srp2@xxxxxxxxxxxxxxxxxxxx> wrote in message  
<news:4447B425.8080208@xxxxxxxxxxxxxxxxxxxx>

FrediFizzx a écrit :

"John C. Polasek" <jpolasek@xxxxxxxxxx> wrote in  
message  
<news:8jqd4217kd6a7mqj48484sngq9md1sknnr@xxxxxxxxxx>

On 19 Apr 2006 18:31:34 -0700, "Mark"  
<makolber@xxxxxxxxxx> wrote:

Pioneer anomaly  
engineering questions

I'd like to ask some basic  
radio engineering questions  
about the  
Pioneer Anomaly. I'm not  
asking about the physics or  
relativity,

just

some basic radio  
engineering questions about  
how the anomaly is

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observed and what are the limitations of the measurement.

I am not asking about possible causes of the anomaly.

I assume the basic parameter that is being measured is the carrier frequency of the radio transmission from Pioneer?

Lets assume the designed transmitter carrier frequency is 1.23000

GHz

for example.

The "expected" spacecraft velocity is known, lets call it 10

miles

per second or 36,000 miles per hour just for example.

The Doppler shift for this velocity can be calculated as about -66.0293224 kHz so the carrier frequency is expected to arrive as 1.22993397... GHz.

Putting it another way, every 1 MPH corresponds to about 1.8 Hz

change

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in the received carrier frequency or about  $1.5E-9$  parts.

What is the accuracy of the frequency standard used on the Pioneer?

Let me assume it is a Rubidium standard and let me assume that the accuracy is on the order of  $1E-12$ . I will also assume the

accuracy

of

the Earth based measurement is not a limitation. So the system

error

is on the order of  $1E-12$  or about 0.001 MPH or 0.0045 m/s.

Is this basically correct?

What is the magnitude of the Pioneer anomaly compared to these numbers?

thanks

Mark

The Doppler radar was at 2.292 Ghz, velocity was m/l constant at 12

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km/s, range up to 70AU or  $10 \times 10^9$  km. The anomaly was what was residual after the model accounted for all gravities from the solar system and velocities.

The beat frequency anomaly rate (increase) was 1.5 Hz in 7.5 years, which they reliably detected. They did this by phase lock methods, with a phase slippage of about 1 cycle/1.2 hours.

At 70 AU the fictitious slip velocity amounted to  $3e-5$  m/s vs 12000 m/s coasting velocity.

Clock instability is not in it. In fact most of the time with a

round

trip of 10 to 20 hours for the signal, it was received by another

station on the other side of the earth.

I have the solution to this problem, but can't post it to the arXiv

without an endorser. There are no "peers".

17 papers and not one yet

came close. My earlier paper was in error.

John Polasek

<http://www.dualspace.net>

Why do you need for it to be on arXiv? You have it on your web

site.

You will never find an endorser until you show how your theory can

reproduce GR. Show that GR is emergent from your concepts and you

will

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be "in". Automatically.

There is a big problem with such a requirement. If GR simply \_can't\_ be adapted to account for the anomaly, this means that a theory that would satisfy the anomaly plus all other observed phenomena accounted for by GR could simply not be spread through formal channels.

Hi André,

Hmm... I am not sure why you would think that.

Hi Fred

Well, as you know, pretty much every avenue has been explored to adapt GR however slightly since it was completely described with the complementary contributions of other legendary contributors like Gamov and some others in the first part of last century, and the conclusion always was that it can't really be changed.

Since the Pioneer case came to light, no amount of scrutiny, even under GR's diaper ;-)) even dented that conclusion.

The fact is that if GR is to be modified in any way, SR needs to be changed first, since GR is sitting squarely on it, and I saw no attempts at even considering the option.

John's concept is basically equivalent to a partially hidden relativistic medium scenario. If you have a broader theory in which GR is a subset of or emergent from, then I certainly don't think it would hurt to follow that line of exposition to get your broader theory noticed.

Yes, I agree, but I think John's model is an alternate theory, not one from which GR can be a subset or emergent from, and the same for mine in fact.

He would rather go around slamming GR instead of using it to his advantage. Which IMHO, he definitely could use it to his advantage to get the broader concept noticed. Well... If he doesn't do it, I am going to do it anyway someday.

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That would definitely put things in perspective as far as John's model and GR is concerned.

I started a paper last November "Gravity is Emergent from Quantum Vacuum Charge" but got severely side-tracked by another paper and other things. ;- ) It uses John's dual space concept (really a modified Dirac Sea) only much more detailed and also coupled with the Randall-Sundrum RS-1 concept but modified a "tad". ;- )

Looking forward to that piece of work.

So John, like all other researchers out of the fold, has no choice but to try spreading it otherwise.

Well, he has his own website for self publishing but his papers on there need more "polishing". If you want to get physicists' attention, you need to talk their "lingo" more.

Absolutely. But that is far from enough. I have come to understand that even if one physicist comes to find valuable any out of the fold idea, none will stick their neck out to face the unswervingly GR bent community to either promote or even comment or defend it. Courage is not a very common commodity.

My own angle has been to introduce my own ideas right into institutions' physics labs, where teachers are not as involved into peer socializing, and consequently are less sensitive to such negative peer pressure. I have been at it for years.

But in "our cases" we have to present a \*complete\* consistent picture with enough predictions to make it very testable. As you know, that gets harder and harder as we know more.

Definitely. On my side, I just finished integrating LC oscillation to the model. As already mentioned, my specific problem has been switching to distance based math with as an only reference the traditional time based math, on top of adapting that math to my model. Getting easier now.

Regards

André Michaud

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FrediFizzx

[http://www.vacuum-physics.com/QVC/quantum\\_vacuum\\_charge.pdf](http://www.vacuum-physics.com/QVC/quantum_vacuum_charge.pdf)

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