

Re: Is Einstein's Principle of Equivalence true?

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From: RP (no_mail_no_spam_at_yahoo.com)

Date: 11/08/04

Date: Mon, 08 Nov 2004 14:07:09 -0600

Tom Roberts wrote:

> *Mike wrote:*

>

>> *Tom Roberts <tjroberts@lucent.com> wrote in message*

>> *news:<yGbjd.16899\$Rf1.5648@newssvr19.news.prodigy.com>...*

>>

>>> *The precession of Mercury shows non-conservation of Newtonian angular*

>>> *momentum. The emission of gravitational radiation in binary pulsars*

>>> *shows non-conservation of Newtonian energy.*

>>

>>

>> *No it doesn't. Only if you consider it a priori a violation. Angular*

>> *momentum is not conserved in the presence of a Torque. prove there is*

>> *no Torque present and then you can claim conservation violation.*

>

>

> *As I said before, you seem to not understand the very basis of science.*

>

> *Why did Newton's Law of Universal Gravitation completely and utterly*

> *displace Ptolemy's set of epicycles in describing the motion of the*

> *planets? Because Newtonian mechanics (NM) provides an equally-accurate*

> *description as the epicycles, but with PREDICTIVE power -- whenever more*

> *accurate measurements became available, adherents of Ptolemy's system*

> *had to add additional epicycles; but NM predicted the details from its*

> *basic principles (except for certain specific measurements, like the*

> *precession of mercury...). And also: NM has a much larger domain of*

> *validity -- Ptolemy's system has no hope of describing billiard balls*

> *and falling objects on earth; NM does.*

>

> *The situation is similar for GR vs NM. To "explain" the precession of*

> *mercury an adherent of NM would have to assume some unknown "Torque",*

> *which would have no predictive power -- the assumed Torque must be fit*

> *to the observations. And such a die-hard adherent of NM would have to*

> *invent additional "Torques" for all the other tests of GR.... GR fits*

> *the observations without any additional assumptions. And GR has a larger*

> *domain of validity.*

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Only one additional assumption must be incorporated into NM to account for these effects: Long range forces, and the impossibility of "closed systems".

In the strictest sense, Newton only dealt with neutral objects, i.e. objects subject to "close contact" forces. He never addressed the source of those forces, nor the subject of electromagnetism, which is of course the source of those forces. Moreover he never postulated instantaneous action at a distance, but rather thought such a notion was the greatest absurdity. Thus propagation of forces at finite speed is not contradictory to Newton, it simply was never developed within a Newtonian/Galilean context. We can blame that on the advent of Maxwell's electrodynamics which theory put a sudden halt on further development of Newton, not because it was known to conflict with Newton at the onset, but because everyone put their efforts into this new arena. That Newton and electromagnetism are not at odds has been proved by the unlikeliest author, me.

Now as for your torque, it need not be assumed, it is rather "derived" as a necessary direct result of the application of Newton. Moreover it is you who are making the baseless assumption, namely, that there is no counter torque generated on the Sun. A variation of the inverse square law of gravity over r is sufficient to account for advancing perihelions, that's fairly basic. OTOH, this variation need not be the fault of Newton, but simply his oversight concerning electromagnetic forces. IOW, Newton may simply not be a complete theory. And lastly, it cannot be falsified, period, because it is a tautology. Any variations that you observe (from Newtonian predictions) are not the fault of Newton, but of your own omission or misapplication of the parameters. This I've proved directly in my Fizeau argument, showing that you simply don't know how to add mean speeds.

Richard Perry

- >
- > *BTW the perihelion shifts of a half-dozen solar system*
- > *objects have been measured, and are all consistent with the*
- > *predictions of GR. The adherent of NM would have to make an*
- > *incredibly-unlikely assumption about the form of the*
- > *"Torque" to do so well. Similar statements could be made*
- > *for each of the tests of GR...*
- >
- >
- > *That said, the need for "Dark Matter" and "Dark Energy" in large-scale*
- > *observations indicates that this is probably happening again -- there is*
- > *probably a need to replace/enhance/extend GR. We may find some new*
- > *theory that is completely different from GR, or may find that there are*
- > *simply additional entries in the energy-momentum tensor of GR. Stay*
- > *tuned -- this will probably be interesting over the next few*
- > *years/decades....*
- >

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>> *The natural explanation, since angular momentum is not conserved in
>> that observation would be to assume a Torque is active.*

>

>

> *For a die-hard Newtonian, yes. But the diverse and accurate successes of
> GR provide the rest of us with a vastly better approach: use GR, not NM
> agumented with a bunch of peculiar and unknown "Torques". <shrug>*

>

>

>> *Those that
>> would like to assume the violation of conservation instead are faced
>> with the burden of proof about the non-existence of a Torque.*

>

>

> *As I said, you do not understand the basis of science. There is no such
> need.*

>

> *Ask yourself: who was it who satisfied your supposed
> "burden of proof" and "proved" that there were not
> additional epicycles in Ptolemy's approach?*

>

> *BTW GR does not "assume the violation of conservation", its assumptions
> are very different. The non-conservation of Newtonian energy and angular
> momentum are conclusions.*

>

>

>> *Then, why emmision of gravitational radiation shows non-conservation
>> of Newtonian energy?*

>

>

> *Because the binary pulsars seem to be isolated systems that are losing
> (Newtonian) energy.*

>

>

>> *I guess some here do not know the correct form of
>> the AXIOM of conservation of energy, because it is an axiom. The axiom
>> referes to a close, isolated system. Binary pulsars are not close,
>> isolated systems, except if you can prove that. The burden of proof in
>> on you.*

>

>

> *As I said, you do not understand the basis of science. There is no such
> "burden".*

>

> *You also do not understand the logical structure of NM -- conservation
> of energy is not an axiom in any of the usual fomulations. It is rather
> a consequence of symmetries of the Lagrangian....*

>

> *And it would be incredibly-difficult to make conservation of
> energy an axiom, precisely because of the many ways energy*

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- > *can be converted to other forms -- with such an axiom you*
- > *could not possibly hope to formulate a theory of mechanics*
- > *without thermodynamics, electrodynamics, solid state physics,*
- > *nuclear and elementary particles, etc....*
- >
- >
- >> *A lot of confusion in physics due to a misunderstanding of its*
- >> *principles.*
- >
- >
- > *Yes. You would do well to learn them. A good start would be:*
- > *Feynman, The Feynman Lectures (3 volume set).*
- > *Or if you are just interested in mechanics:*
- > *Landau and Lifschitz, Mechanics.*
- >
- >
- > *Tom Roberts tjroberts@lucent.com*