

Re: Analyse This!

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- *From:* "Igor" <thoovler@xxxxxxxxxxx>
 - *Date:* 17 Aug 2006 09:14:24 -0700
-

me wrote:

Igor wrote:

me wrote:

Tom Roberts wrote:

Ahmed Ouahi, Architect wrote:

More or less reflexively, he dropped into his equations something called the cosmological constant, which arbitrarily counterbalanced the effects of gravity, serving as a kind of mathematical pause button.

Books on the history of science always forgive Einstein this lapse, but it was actually a fairly appalling piece of science and he knew it. He called it ' the biggest blunder of my life ' . "

From today's perspective this was not a blunder at all. Thinking abstractly, one cannot eliminate from the Lagrangian any terms that satisfy the symmetries required of the theory (chiefly general covariance). If one restricts the terms to those with no derivatives

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higher than the second, and requires linearity in those second derivatives, one obtains the Lagrangian that yields the Einstein field equation, with cosmological constant. It is the simplest non-trivial Lagrangian that obeys the necessary symmetries.

It is, of course, up to experiments to determine the value of the cosmological constant. Until rather recently, the value was "quite small, consistent with zero"; with improved techniques we now measure it to be nonzero. Einstein originally favored zero, because then the Newtonian limit comes out correct; with a very small value, however, deviations from Newtonian mechanics would not be detectable.

Tom Roberts

if it is consistent with zero, who is expanding the universe

thank you for this email

You don't need a cosmological constant to provide expansion. In fact, Einstein originally used it to pull the universe back together, but

whay, was the gravity not strong enuff?

Not strong enough to maintain a static universe that wasn't expanding.

when the universe was found to actually be expanding,.he discarded it. Or haven't you been paying attention?

is it pushed from inside or is it pulled from outside?

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It's the result of the big bang.

from inside or from outside?

No inside or outside on a manifold. There's just spacetime. The actual "shape" of that manifold is what has always been debated.

this because there should be more vacuum and empty space outside than it is here inside

Where's this outside that you're talking about? GR models the universe as an open or closed spacetime manifold. There is no outside.

i tell you what, is something bigbang is exploding then expanding, it does it against the outside

an imploding and contraction does it against inside

dont you know it? where have you been?

You don't know what you're talking about. Tell me where the inside and outside are on the surface of a sphere. They don't exist. All you have is the surface. Think of it in those terms. A spacetime manifold is somewhat analagous to this, except in 4 dimensions instead of the 2 dimensions on the sphere.

another question I have is about the big bang

if by using powerful telescopes

1. we can detect the primitive bigbang light and radiation
2. we can detect that everywhere in 3D
3. the distance to the bigbang light is increasing because expansion

are we inside the bigbang now?

In a sense. We see the effects of the big bang all around us, but the temperature of the universe has cooled to just under 3 K.

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thanks, now that you agree with inside, then an outside must exist

Depends on whether you are talking about 3 dimensions or 4. In 3 dimensions, we appear to be inside something, but that space is not the total picture and is embedded in 4 dimensional spacetime, where the universe is a self-contained manifold. No inside or outside. Now, you might be able to come up with a theory where spacetime were embedded in higher dimensions, but it would not be GR.

because if we reverse the expansion, then we have no choice, but being inside the bigbang

That's called the big crunch, essentially running the big bang in reverse. It was once thought that it might be the ultimate fate of the universe if there was sufficient total mass for gravity to overcome the outward expansion and pull everything back together again. But it doesn't look like it will happen due to the accelerated expansion that we now see.

what is better, to expand or to impand?

Impand is not even a word. Why am I wasting my time?

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