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On Rethinking Einstein

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A look at an article in New Scientist in 2010 that seems to be taking the view that Einstein's relativity is wrong.

In New Scientist article "Rethinking Einstein: The end of space-time" by Anil Ananthaswamy[1] says:

"It was a speech that changed the way we think of space and time. The year was 1908, and the German mathematician Hermann Minkowski had been trying to make sense of Albert Einstein's hot new idea - what we now know as special relativity ….

Note that according to Anil Ananthaswamy: Minkowski was supposed to be trying to make sense of Einstein's special relativity (SR) in 1908; that means that in 1908 there was recognized a problem with it didn't make sense!

"…- describing how things shrink as they move faster and time becomes distorted."

That is such things as the twin paradox, which many still point out does not make sense, such as by Herbert Dingle (see Herbert Dingle: Science at the Crossroads 1972)

“ "Henceforth space by itself and time by itself are doomed to fade into the mere shadows," Minkowski proclaimed, "and only a union of the two will preserve an independent reality." And so space-time - the malleable fabric whose geometry can be changed by the gravity of stars, planets and matter - was born. “

It was one of the bodges done in relativity, next the article is going to suggest that was wrong:

“It is a concept that has served us well, but if physicist Petr Horava is right, it may be no more than a mirage. Horava, who is at the University of California, Berkeley, wants to rip this fabric apart…”

Rip it apart because it’s nonsense.

“…and set time and space free from one another in order to come up with a unified theory that reconciles the disparate worlds of quantum mechanics and gravity - one the most pressing challenges to modern physics."”

i.e. get rid of the bodges from relativity and we are back to physics that makes sense.

“Since Horava published his work in January 2009, it has received an astonishing amount of attention. Already, more than 250 papers have been written about it. Some researchers have started using it to explain away the twin cosmological mysteries of dark matter and dark energy. Others are finding that black holes might not behave as we thought.”

Then says:

“If Horava’s idea is right, it could forever change our conception of space and time and lead us to a "theory of everything", applicable to all matter and the forces that act on it.”

Our existing conception of space and time is based on the mess made with Einstein’s relativity.

Article then goes onto say the usual things about there being a problem with unifying general relativity with quantum mechanics:

“For decades now, physicists have been stymied in their efforts to reconcile Einstein’s general theory of relativity, which describes gravity, and quantum mechanics, which describes particles and forces (except gravity) on the smallest scales.”

And the problem being the different ways they deal with space and time:

“The stumbling block lies with their conflicting views of space and time. As seen by quantum theory, space and time are a static backdrop against which particles move. In Einstein’s theories, by contrast, not only are space and time inextricably linked, but the resulting space-time is moulded by the bodies within it.”

Then the motivation:

“Part of the motivation behind the quest to marry relativity and quantum theory – to produce a theory of quantum gravity – is an aesthetic desire to unite all the forces of nature.”

And the usual omission – not saying that unification was done in 18th century by Boscovich.

Getting to next interesting comment:

“Something has to give in this tussle between general relativity and quantum mechanics, and the smart money says that it’s relativity that will be the loser.”

i.e. in other words - thinks Einstein’s relativity is wrong.

“So Horava began looking for ways to tweak Einstein’s equations.”

i.e. in other words – try to sort out the mess made in the maths.

Horava found inspiration by looking at graphene, but the gets to:

“One of the central ideas of relativity is that space-time must have a property called Lorentz symmetry: to keep the speed of light constant for all observers, no matter how fast they move, time slows and distances contract to exactly the same degree.”

That’s the old nonsense about lightspeed constancy; I now think relativists have totally misunderstood that.

“What struck Horava about graphene is that Lorentz symmetry isn’t always apparent in it. Could the same thing be true of our universe, he wondered. What we see around us today is a cool cosmos, where space and time appear linked by Lorentz symmetry – a fact that experiments have established to astounding precision. But things were very different in the earliest moments. What if the symmetry that is apparent today is not fundamental to nature, but something that emerged as the universe cooled from the big bang fireball, just as it emerges in graphene when it is cooled?”

“So Horava did the unthinkable and amended Einstein’s equations in a way that removed Lorentz symmetry. To his delight, this led to a set of equations that describe gravity in the same quantum framework as the other fundamental forces of

nature: gravity emerges as the attractive force due to quantum particles called gravitons, in much the same way that the electromagnetic force is carried by photons."

In other words, he has abandoned lightspeed constancy nonsense and things now make more sense. But what I don't like is - he seems to be thinking there is lightspeed constancy now, but there was no lightspeed constancy long ago in the past.

So, it's more just running around in circles; not wanting to make a bigger split.

Reference

[1] Rethinking Einstein: The end of space-time, 4 August 2010 By Anil Ananthaswamy https://www.newscientist.com/article/mg20727721-200-rethinking-einstein-the-end-of-space-time/#ixzz5y7EOs5wB

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