

Discussion on Time with Julian Barbour in November 2024

16. November 2024

Dear Julian, I have seen this video

<https://www.youtube.com/watch?v=bprxrGaf0Os>

please see the attached article we published in Foundations.

In the universe, there is only one time.....numerical order of events that run in time-invariant space <https://www.worldscientific.com/doi/abs/10.1142/S2424942420500073>

Time as duration enters existence when we measure it.....no measurement, no duration.

<https://bijective-physics.org/pdf/2021-Time-as-the-result-of-the-observer-measurement.pdf>

The only universe that exists is the one we experience

<https://www.preprints.org/manuscript/202410.1581/v1>

Sincerely Yours, Amrit Srečko Šorli

17. November 2024

Dear Amrit, Thanks for this. It was the first I knew the podcast had gone live. It's currently getting about 2000 views an hour. I've looked at the abstract of the first link but although the summaries of your papers do seem to have some connection with my thinking about time and the universe, the abstract of the first seems rather far removed.

Best wishes, Julian Barbour.

18. November 2024

Dear Julian, You, Rovelli, and I all advocate that there is no physical time, which means that the universe does not exist in time, it exists only in space. A technical expression of the non-existence of physical is that universal space is time-invariant. In the universe, there is no physical past or future, and irreversible changes run in time-invariant space. When change $X+1$ enters existence, change X is not in existence anymore. When change $X+2$ enters existence, the change $X+1$ is not in existence anymore. In physics, we experience time-invariant space as NOW. In time-invariant space is always and only NOW. NOW-s are not following each other as suggested by Penrose and Hameroff. Here is the cognitive paradigm shift of physics: the universe runs in a time-invariant space, where there is always the same NOW.

This means that nothing ever happened in some physical past that is non-existent. This means that the Big Bang model is over. The only universe that exists is the one we experience in NOW.

Please think over it, I see this as the next revolution of physics you announced in 1999 in your book THE END OF TIME. Einstein's close timelines are an illusion, time is the 4th dimension of space is an illusion.

EXPRESSED IN POINTS

- there is no physical time
- there is also no proper time, coordinate time, cosmological time, or arrow of time.
- change run in NOW, it does not require time, time as duration enters existence when being measured
- universal space is time-invariant
- we experience time-invariant space as NOW
- there is no physical past and nothing ever has happened in the physical past

- The Big Bang model is an illusion. **The only existing universe is the one we can experience NOW.**

AGNs are rejuvenating systems of the universe which is eternal and non-created: <https://www.preprints.org/manuscript/202410.1581/v1>

I think you are the only physicist on this globe who can grasp this fully. I sent this preprint to Foundations. Please tell me if I can suggest you as the reviewer.

Yours Sincerely, Amrit

19. November 2024

Dear Amrit, my thinking has developed a lot since I wrote The End of Time. Scale invariance is now critical. For me the best way to think about things is in terms of shapes defined in Euclidean space that, if you like, exist eternally just as triangles to in a Platonic realm. Interestingly the equilateral triangle is clearly distinguished among them.

I think we are not going to agree. Best wishes, Julian.

19. November 2024

Dear Julian, geometrization of gravity done by Einstein is pseudoscience. Universal space cannot be "empty", because physical objects cannot exist in a medium that has no attributes of energy.....means that has no physical properties.

[https://bijective-physics.org/pdf/Time-invariant Superfluid Quantum Space as the Unified Field Theory.pdf](https://bijective-physics.org/pdf/Time-invariant%20Superfluid%20Quantum%20Space%20as%20the%20Unified%20Field%20Theory.pdf)

Superfluid space is time-invariant. And time in this superfluid space is duration when measured. In your article here <https://arxiv.org/pdf/0903.3489> you try to abolish time from physics, you do not use the symbol t . Rovelli is making the same mistake in his relational quantum mechanics. We can keep time in physics, but we need a real understanding of what time is. Seems to me that you are not ready to discuss the subject, and sure Rovelli also not.

You are both famous, and I'm nobody.....fully ignored by the scientific community. Julian, that's why there is no progress in fundamental physics. There is too much ego and there is a total absence of willingness to be sincere and to be ready to discuss. I have a feeling you are not available to discuss on time with me. Ok, I will go on with my theory on time, and we will see who is closer to the Truth. Probably we will be dead already, and our work will be evaluated by coming generations. This is a big pity. We could develop things together NOW that we are still alive.

Take care, Yours Amrit

19. November 2024

Dear Amrit, please see below. Julian.

In Eqs. (3) and (4) of the paper I use the standard symbol t for time when used in an increment. Nobody uses \mathbf{t} . I show with explicit calculations and expressions how time as normally used in physics can be derived from the difference between configurations. I don't think I'm famous, but to the extent I am known it is for results like those in my essay. It seems to me clear that your approach to time is so different from mine, any attempt at collaboration would fail. I'm lucky to have good collaborators who agree with my ideas and have advanced them considerably.

19. November 2024

Dear Julian

I read attentively your article.

I show with explicit calculations and expressions how time as normally used in physics can be derived from the difference between configurations (1).

The statement above is OK, but any type of configuration exists in time-invariant space. And if you don't measure the difference between configurations, there is no time. Time enters existence in the process of measurement. In your article in Eq. 1,2,3,4 you use time as the duration: velocity = distance/time. In the universe we have only a change, motion, and if you like "different configurations". But we do not have time as duration in the universe. So, your statement (1) is not precise. You cannot derive from configuration something non-existent. I hope that you will get the point of this cognitive jump: **in the universe, we have different configurations that exist in time-invariant space. When we measure configurations with clocks, we get duration.** Your equations made sense after measurement.

In Your video here <https://www.youtube.com/watch?v=bprxrGaf0Os>

In minute 5 and 35 seconds, you say that "instants" are following each other that every triangle is in a different instant and that time is relating these instants.

Julian, **there is only one instant (ONE NOW)**, when triangle one is in existence, triangle 2 is not in existence yet, when triangle 2 enters existence, triangle 1 is not in existence anymore, when triangle 3 enters existence, triangle 2 is not in existence anymore. There is no evidence for time existence, you are proposing. You are right, our models of time are different.

And I'm quite sure you will not evaluate my model without prejudice. I'm not inventing anything, my model is based only on the elementary perception. Your model has no experimental evidence and is not supported by elementary perception.

Thank you for the time and your attention to respond. Maybe we meet once and discuss life.

Yours Amrit

19. November

Dear Amrit, we will simply have to disagree. Best wishes, Julian.

19. November

Dear Julian,

yes, we disagree. The difference between my disagreement and your disagreement is that I have arguments, and you do not have them. Your idea that "instants" are following each other shows that your mind still operates in the frame of linear psychological time. You experience "different configurations" in some imaginary time that has no physical existence, it exists only in your brain. Buhusi discovered that linear time past-present-future has existence in the neuronal activity of the brain

<https://www.nature.com/articles/nrn1764>

Years ago, I had a long discussion with him on time. He thought that the brain registers the flow of some external physical time. I could not explain to him that the brain generates linear time, that in the universe only changes flow in time-invariant space that we humans experience as NOW. I hope you will understand this. This is the key to the next revolution of physics you announced in 1999

<https://bijective-physics.org/pdf/2022-Temporal-and-timeless-cognition-in-physics.pdf>

Yours Sincerely, Amrit