

Parallel Universes: The Infinite Number of Yous

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Abstract

Universe is everything that includes galaxies and stars as well as the source of energy. Universe is unimaginable, so we are able to experience different things. It is assumed that there are many universes like our universe. We cannot see and experience other universes due to its distance. Many researchers have been trying to prove the existence of parallel universes or multiverses. This study is done to explore about the knowledge of parallel universes or multiverses. Web search is conducted to explore and analyse the sources of information. Researcher has searched relevant subject matters in 25 articles, which then were reviewed for its study area. Final list contained 13 articles. Then researcher reviewed the relevant subject matters necessary for the study from final list of articles. Many universes were initiated and existed many times in Big Bang. The existence of parallel universes will be beneficial for the endanger species like dinosaurs in case of natural calamities as an alternative universe to shelter for existence.

Key Words: Alternate Universe, Parallel Universes, Multiverse, Universe

1. Introduction

The existence of universe is unimaginable, incalculable. It is the matter of debate from the beginning of the civilization that human posed the question about the multiplicity of the universe. After orbiting our way through another summer solstice, it feels like a good moment to let some more speculative ideas go before the northern hemisphere's hot days shorten too much and rational thinking takes over. Consider the following thought experiment while holding a fruity, icy beverage in one hand. (Scharf, 2015)



Source: (<https://daydaynews.cc/en/science/975620>)

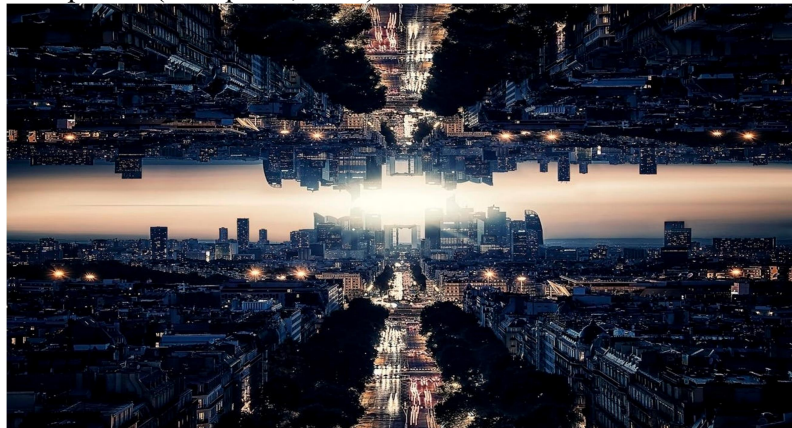
"The universe is impenetrable. So, it's completely mind-boggling to consider the possibility of many. If there is only one world, the theory of "Many Interacting Worlds" reduces to Newtonian physics, however if there are a huge number of worlds, quantum mechanics emerges. The possibility that other universes exist arises

from the realization that, the Big Bang was not a one-of-a-kind event, but rather a common one. How prevalent is it? According to Stanford University physicists, the number of unique parallel universes apart from the one you know and adore could be a one followed by ten thousand trillion zeroes" (Overbye, 2022).

The universe we experience is just one of a gigantic number of worlds. Some are almost identical to ours while most are very different. The physical features of the "Universe" in which we live are amazingly favorable to the existence of life. However, despite their abundance, not all of those parallel universes are likely to be biologically fortunate as ours.

"The atomic reactions that power the stars would not operate if the forces that hold atoms together were even slightly altered, and our universe would be made entirely of hydrogen. Likewise, stars would burn out so fast that either microorganisms, dinosaurs, or any living creature, including you, would have had no time to evolve. Our universe would have expanded too quickly after the Big Bang for stars and galaxies to form or would have imploded in a Big Crunch if the strength of gravity had been slightly adjusted" (Rosenthal, 2015).

Researchers may one day be able to prove the existence of parallel worlds through theory and prospective proof. From universes that contain nothing to ones that contain everything. A parallel universe, which is also identified as a parallel dimension, substitute universe, or another reality, is an assumed independent plane of survival that occurs along with our own. The multiverse is a term used to define the assemblage of all probable equivalent worlds that make up truth. (Wikipedia, 2022)



Source: (<https://daydaynews.cc/en/science/975620>)

"Parallel universes basically say that space is so big that the rules of probability imply that surely, somewhere else out there, are other planets exactly like Earth. In fact, an infinite universe would have infinitely many planets, and on some of them, the events that play out would be virtually identical to those on our own Earth." (Jones A. Z., 2016).

The fate of world wars in parallel universes could be different. Dinosaurs, for example, may have existed in alternative realms. Indeed, in some alternative universes, humanity may have become extinct. Those who believe in parallel universes believe that our universe is merely one branch of a tree of universes that all exist at the same moment, but in various stages of time, with distinct pasts and futures.

Then, there arises a question, Why can't we see other universes if they really exists? Well there are some concepts which are regarded to be true. We don't see these other universes because our cosmic vision is limited by the speed of light the ultimate speed limit. Light started traveling at the moment of the big bang, about 14 billion years ago, and so we can't see any further than about 14 billion light-years (a bit farther, since space is expanding).

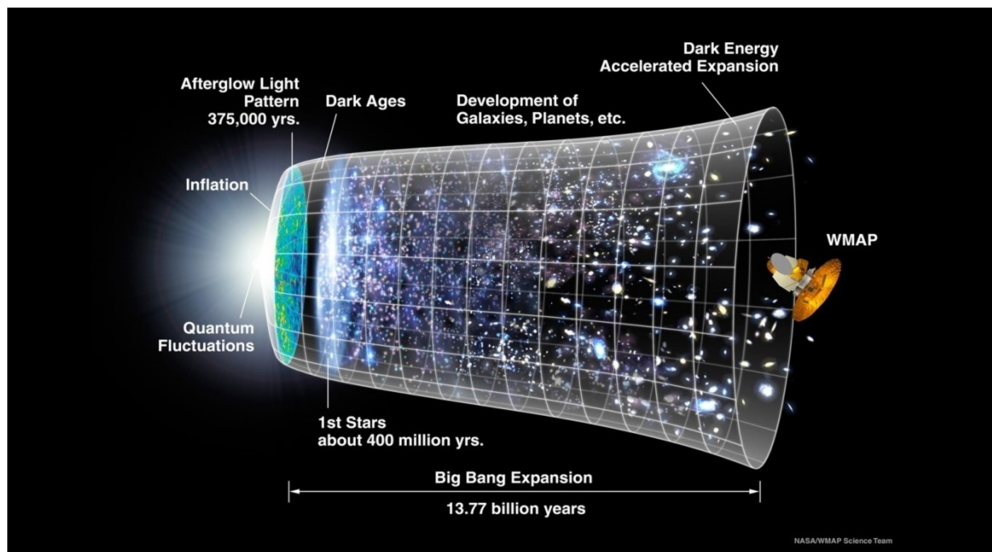


Figure 2: *The timeline of the universe.*

Source: NASA

Here is an artist's illustration of the history of the universe as presented by the WMAP (Wilkinson Microwave Anisotropy Probe) which spent nine years creating full-sky maps of cosmic microwave background. WMAP studied the light released about 375,000 years after the Big Bang, before stars and galaxies formed. (Image credit: NASA / WMAP Science Team) (Stein V. D., 2021).

"In a relatively recent addition to the pantheon of multiverse theories, researchers from the Perimeter Institute for Theoretical Physics in Waterloo, Ontario, have proposed that the universe began at the Big Bang and on the opposite side of the Big Bang timeline, stretching backwards in time, a universe once existed that was the exact mirror image of our own." (Stein V. D., 2021)

"Instead of saying there was a different universe before the bang," Turok told in Live Science, "we're saying that the universe before the bang is actually, in some sense, an image of the universe after the bang." (Vance, 2019)

Everything protons, electrons, even actions like cracking an egg would be reversed. Antiprotons and positrons would make up atoms, while eggs would un-crack and make their way back inside chickens. Eventually, that universe would shrink down, presumably to a singularity, before expanding out into our own universe. (Stein V. ., 2021)

Both universes were created at the Big Bang and exploded simultaneously backward and forward in time.

Observing quantum matter, according to Everett, creates a genuine split in the universe rather than a choice of one state over another. For each potential state of quantum matter, the cosmos literally repeats itself, dividing into countless parallel universes. Some scientists are troubled by the Many-Worlds Theory's implications.

"If you've ever been in a position where one conceivable consequence was death, Everett's theory states that there is a parallel universe where you died! Everette theory isn't the only alternative theory attempting to explain quantum mechanics. Another theory proposes that particles smaller than quantum matter exist. Parallel universes, according to String theory, are possible" (Jones A. Z., 2009).

One of the most compelling ideas in all physics sounds like pure fiction, but it could actually describe our reality: the idea of a multiverse. In the multiverse scenario, what we know as our universe is just one of many universes that independently and simultaneously exist in parallel to our own. Although there is no compelling evidence that points toward either the existence are firmly rooted in theoretical physics phenomena that are definitively known to exist.

Some researchers base their ideas of parallel universes on quantum mechanics, the mathematical description of sub-atomic particles. In quantum mechanics, multiple states of existence for tiny particles are all possible at the same time a "wave function" encapsulates all of those possibilities. However, when we actually look, we only ever observe one of the possibilities. According to the Copenhagen interpretation of quantum mechanics, we observe an outcome when the wave function "collapses" into a single reality (Faye, 2002).

But the many-worlds theory proposes instead that every time one state, or outcome, is observed, there is another "world" in which a different quantum outcome becomes reality. This is a branching arrangement, in which instant by instant, our perceived universe branches into near-infinite alternatives. Those alternate universes are completely separate and unable to intersect, so while there may be uncountable versions of you living a life that's slightly or wildly different from your life in this world, you'd never know it. (Stein V. ., 2021)

2. Methods and Materials

Researcher conducted an exploratory and analytical search on Web of Science to identify relevant qualitative research articles in which the subject matter is sufficiently described. Researcher used search criteria "universe", "parallel universes," and "multiverse" and then further refined the relevant articles by science category to only include "universe", "parallel universes," and "multiverse". Researcher searched relevant subject matters in 25

articles, and then reviewed for scope of study area. Researcher's final list contained 13 articles. Then researcher reviewed the relevant subject matters necessary for the study.

3. Conclusion

Parallel universes are no longer just a feature of a good sci-fi story. The multiverse theory remains one of the most controversial theories in science. But, there are now some scientific theories that support the idea of parallel universes beyond our own.

There are many universes like the universe we have experienced. Our universe is favourable for the existence of life. There are many planets in the space like earth and some of them have the same incidents as earth.

Multiple-universe is the hypothetical group of universes. Together, these universes comprise everything that exists: the whole of space, time, matter, energy, information, and the physical laws and constants that describe them. The different universes within the multiverse are called "parallel universes", "other universes", "alternate universes", or "many worlds".

Parallel universe is the best alternative settlements of the earth for the living beings in case of world war and natural calamities where they can survive easily.

4. References

- Faye, J. (2002). *Copenhagen Interpretation of Quantum Mechanics*. Retrieved from Stanford Encyclopedia of Philosophy: <https://plato.stanford.edu/entries/qm-copenhagen/>
- Jones, A. Z. (2009). *String Theory For Dummies*. Indiana: indie author.
- Jones, A. Z. (2016, 3 27). *http*. Retrieved 6 23, 2022, from dummies.com: <https://www.dummies.com/article/academics-the-arts/science/physics/the-theory-of-parallel-universes-193290/>
- Overbye, D. (2022, April 24). *Tripping Through the Universes*. Retrieved from The New York Times: <https://www.nytimes.com/2022/04/24/science/scheinert-kwan-film-multiverse.html>
- Rosenthal, M. V. (2015). *From the Big Bang to the Big Crunch and Everything in Between: A Simplified Look at Not-So-Simple Universe*. Tate Pub & Enterprises Llc.
- Scharf, C. A. (2015, 6 23). *http*. Retrieved 6 23, 2022, from blogs.scientificamerican.com: <https://blogs.scientificamerican.com/life-unbounded/does-a-multiverse-fermi-paradox-disprove-the-multiverse/>
- Stein, V. . (2021, 11 3). *http*. Retrieved 6 23, 2022, from space.com: <https://www.space.com/32728-parallel-universes.html>
- Stein, V. . (2021, 11 3). *http*. Retrieved 6 23, 2022, from space.com: <https://www.space.com/32728-parallel-universes.html>
- Stein, V. D. (2021, 11 3). *http*. Retrieved 6 23, 2022, from space.com: <https://www.space.com/32728-parallel-universes.html>
- Stein, V. D. (2021, 11 3). *http*. Retrieved 6 23, 2022, from space.com: <https://www.space.com/32728-parallel-universes.html>
- Vance, E. (2019, January 11). *http*. Retrieved from ivescience.com: <https://www.livescience.com/64470-universe-has-mirror-image-universe.html>
- Wikipedia. (2022, 6 20). *http*. Retrieved 6 23, 2022, from en.wikipedia.org: https://en.wikipedia.org/wiki/Parallel_universes_in_fiction#:~:text=A%20parallel%20universe%2C%20also%20known,often%20called%20a%20%22multiverse%22