WP-01 COSMOS

The Universe Had a Beginning

STATEMENT

Multiple independent lines of observational evidence show the universe began a finite time ago. Whatever begins to exist requires a cause, so the universe has a cause that is itself outside space, time and matter.

Read time **3 min** Sources & resources **9** Series **Cosmos**

01 ABSTRACT

For most of history, many thinkers assumed the universe was eternal and static. Twentieth-century measurements overturned that assumption. Galaxy redshift, the cosmic microwave background and the thermodynamic state of the universe all point to a beginning roughly 13.8 billion years ago. This paper lays out the argument in its formal form, the measurements that support each premise, and the strongest objections.

02 THE ARGUMENT

Premise 1	The universe is either eternal or had a finite beginning.
Premise 2	The universe is not eternal (expansion, background radiation, entropy).
Premise 3	Everything that begins to exist has a cause.
Conclusion	The universe has a cause that is not part of the universe: beyond space and time, and immensely powerful.

03 WHY ENTROPY MATTERS

The Second Law of Thermodynamics states that in an isolated system, usable energy declines and entropy increases. Batteries run down, machines wear out, buildings decay. If the universe had existed for an infinite time, it would already have reached maximum entropy (“heat death”): uniform temperature, no usable energy, no stars, no life. We observe the opposite: active stars and large energy gradients. The universe has therefore been running for a finite time. Any engineer who has watched a system drift toward equilibrium understands the logic.

04 EVIDENCE

OBSERVATION	DATA & SOURCE	CONFIDENCE
Galaxies are receding	Light from distant galaxies is redshifted in proportion to distance (Hubble, 1929). Run the expansion backward and it converges on a finite starting point. NASA Hubble ↗	HIGH

OBSERVATION	DATA & SOURCE	CONFIDENCE
Cosmic microwave background	A uniform ~2.7 K radiation field fills space: the first light that could travel freely after the hot, dense early universe. Predicted in 1948, detected in 1965, mapped by COBE, WMAP and Planck. European Space Agency ↗	HIGH
Gravitational waves	Merging neutron stars act as “standard sirens,” giving an independent measurement of the expansion rate. MIT News ↗	HIGH
Usable energy remains	The universe has not reached thermodynamic equilibrium, which an infinitely old universe would have.	HIGH
Expanding spacetimes have a past boundary	The Borde–Guth–Vilenkin theorem (2003) shows that any universe that has, on average, been expanding cannot be extended infinitely into the past. arXiv: Borde, Guth, Vilenkin ↗	MODERATE
Causality	In both special and general relativity, an effect must lie inside the future light cone of its cause. Physics as practiced assumes events have causes. Light cone ↗	HIGH

High = directly measured or widely accepted across worldviews. **Moderate** = well-supported, with recognized scholarly debate. **Interpretive** = consistent with the text, but depends on how the passage is read.

05 OBJECTIONS CONSIDERED

OBJECTION

Quantum events happen without causes, so the universe could too.

RESPONSE

Quantum events occur inside an existing quantum vacuum governed by physical law. That vacuum is not “nothing”; it is part of the universe whose origin is in question.

OBJECTION

A multiverse or eternal inflation could make the universe part of something eternal.

RESPONSE

These models are untested. The Borde–Guth–Vilenkin result applies to inflationary models too: on average-expanding models still require a beginning. Adding a larger system moves the question back a step without answering it.

OBJECTION

“Who caused God?”

RESPONSE

The premise is that what begins to exist has a cause. A cause outside time does not begin to exist, so it does not need a prior cause. The alternative, an infinite regress of physical causes, conflicts with the thermodynamic evidence above.

06 CONCLUSION

The data point to a universe that began. A cause that brings space, time and matter into existence cannot itself be made of space, time or matter. It must be timeless, non-physical and powerful enough to produce everything that exists. That is exactly how the Bible describes God.

> *"In the beginning God created the heavens and the earth." Genesis 1:1*

07 FURTHER RESOURCES

VIDEO **The Kalam Cosmological Argument** Dr. William Lane Craig
https://www.youtube.com/watch?v=0Fr5RF4N1rc

VIDEO **Beyond the Cosmos** Dr. Hugh Ross
https://www.youtube.com/watch?v=tIBIrjOOQC0

VIDEO **The BEST FACTS: Beginning of the Universe** GCA
https://www.youtube.com/watch?v=uYpmOYwJ_So&list=PL59Qh4Scw7PebBz1Q-ixu5G7RPxCLWMt1&index=3

ARTICLE **Entropy and causality used as a proof for God's existence** Matt Slick, CARM
https://carm.org/atheism/entropy-and-causality-used-as-a-proof-for-gods-existence/