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The Universe Could Be Eternal, According to This Controversial Theory

The idea of a static universe would mean our cosmos will live forever, and it isn't expanding after all.

BY [STAV DIMITROPOULOS](#) PUBLISHED: APR 12, 2024

✔ Quick Facts:

- Controversial research suggests the **Big Bang** may be a myth due to its reliance on the Doppler effect theory.
- This idea says the **universe** is neither expanding, nor contracting; instead it is steady, and has no beginning and no end.
- But for other scientists, the suggestion is a leap in logic and the **Big Bang** is the best description of the creation of the universe we currently have.

What if the **Big Bang**, the prevailing theory of how our universe came to be, never happened? What if the universe hasn't been expanding from a **tiny dense** fireball, but has instead been in a **steady state** for 13.8 billion years with no beginning and no end? An intriguing analysis published in *Progress*

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On the [Doppler Effect, or Doppler Shift](#), a landmark theory in physics that Austrian mathematician and physicist Christian Doppler **proposed in 1842**.

The Doppler effect explains that the [perceived increase or decrease](#) in the frequency of light, sound, or other waves (note the word waves here) depends on how a source and an object move toward each other. In space, the Doppler effect [influences the light](#) planetary bodies emit: if a body in space is moving away from us, its light [spreads apart, or “redshifts”](#) (as it moves toward longer wavelengths). However, if a body is moving toward us, its lightwaves compact, or “blueshift” (because the light moves toward shorter wavelengths). This is because in space blue means near, and red means farther away; this principle is clear as day to astronomers.

[Measurements of starlight](#) have so far concluded that [all galaxies redshift](#). In other words, this evidence supports the Big Bang theory, which says the [universe](#) is constantly expanding.

But Jack Wilenchik, author of the provocative study, highly doubts whether redshift means movement. In fact, he believes the Doppler effect may actually be an Achilles’ heel that fells the Big Bang theory.

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Start With a Big Bang

“The Doppler’s effect is a 180-year old theory nobody has backed up with experimental evidence,” Wilenchik tells *Popular Mechanics*. To look at different planets and moons in the solar system, Wilenchik, who is a lawyer by trade and an amateur astronomer, borrowed a simple spectroscopy test English astronomer William Huggins had first used in 1868. Spectroscopy is the study and measurement of spectra, or the charts or graphs that depict the intensity of light from an astronomical body like a star. Wilenchik also used data from the Hawaii-based Keck Observatory’s spectrometers—available online—and had a professional astrophysicist process it for him. The results of his study align with a different, incompatible idea about the universe: the tired light model.

The 1929 brainchild of Swiss astronomer Fritz Zwicky, the tired light hypothesis attributes the universe’s redshift to the fact that photons, the tiny packets of electromagnetic energy that make up light, lose energy as they pass through the great cosmos. Therefore, a decrease or increase in energy doesn’t necessarily mean movement, so no stretching universe can exist. This model indicates that light simply loses energy over time—and so the universe must be static.

"We do not live in a world of alternative facts. We must go where the evidence points. There is nothing to suggest that the Big Bang is a myth at present."

“No, the universe did not start as an exploding atom or anything,” Wilenchik says. “There’s no beginning and no end to the universe,” he says, disputing the primeval atom theory that Belgian priest, physicist, and astronomer Georges Lemaître first proposed in 1927. (Later, astronomer Fred Hoyle coined the term “Big Bang” for Lamaitre’s cosmic origins idea, and it stuck.)

Whether a star reddens or turns bluer ultimately boils down to Isaac Newton’s corpuscular theory of light, says Wilenchik. The Newtonian theory posits that light is made up of tiny particles, or “corpuscles,” which are constantly traveling in a straight line. In essence, the blue or red shifts we see in space are simply the result of the different corpuscle sizes: a blue light means larger bodies, while a red light means smaller ones. “If light is not in waves, then there goes the Doppler theory, because the entire theory is based on the idea that light is in waves,” says Wilenchik.

But particularly intriguing is his view that galaxies are atoms and stars are light (he’s written a book about it that’s freely available online). “Since the universe neither expands nor contracts, what we have in the sky is giant spirals. And we’ve got something very strange and unique called stars,” he says.

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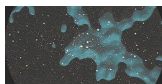
Here's what he means: it was in the late 1800s when Scottish-Irish physicist William Thomson, better known as Lord Kelvin, suggested that the atom is a "vortex" in the "aether." In full agreement, Wilenchik says atoms have spirals at their core, and so do galaxies, and so do large clusters of galaxies or supergalaxies, because the same vortex structure permeates the whole cosmos, from the macroscopic to the microscopic level. The universe is infinitely big, infinitely small, and never-ending; stars are strange bundles of light; and we need to reconsider the Doppler effect theory, Wilenchik concludes.

But not everyone agrees.

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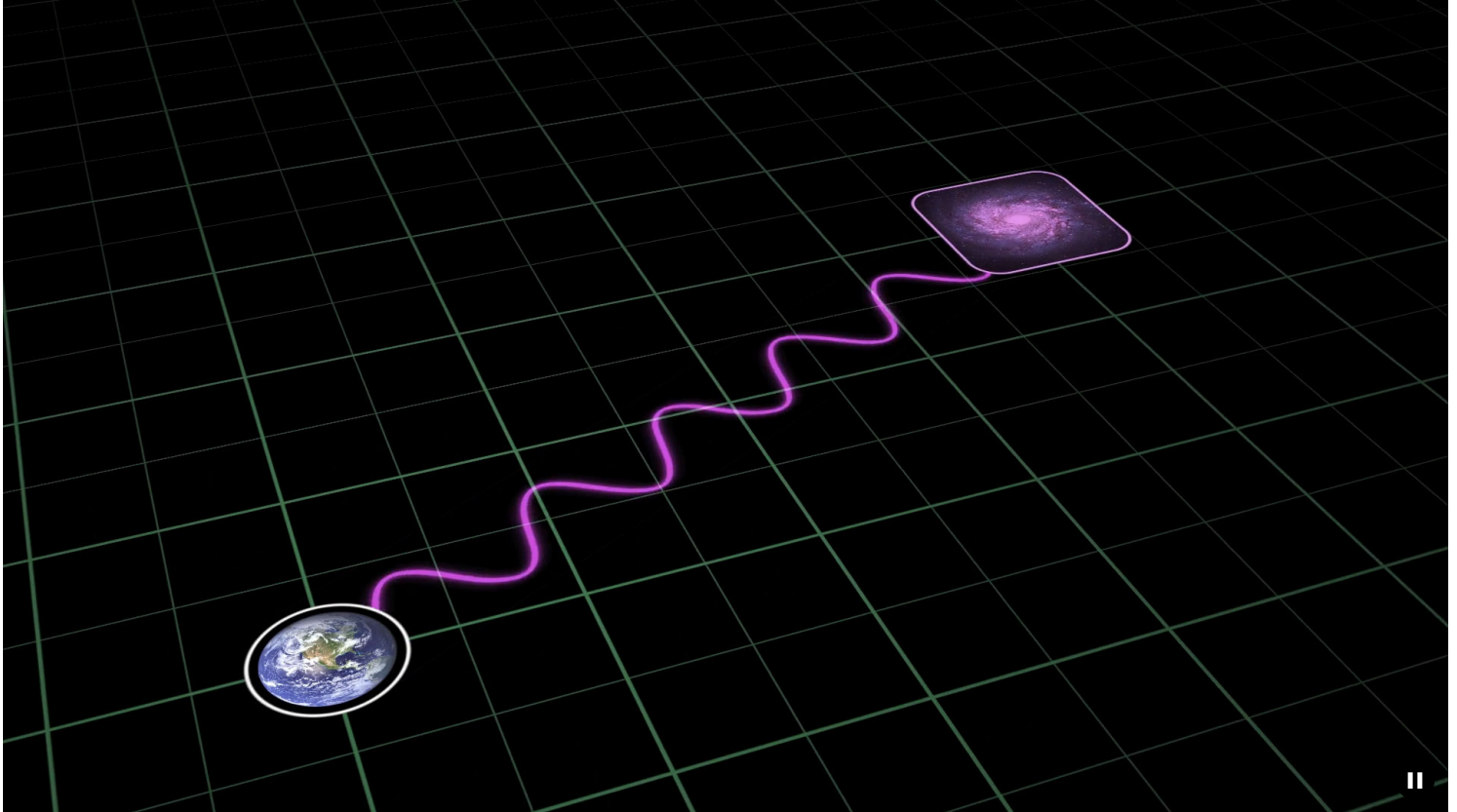
Why the Big Bang Theory Is Our Best Explanation So Far

"The premise that the Big Bang is a big bust due to its reliance on the Doppler effect is a big leap in logic. Doppler's theory has been tested repeatedly and has held up," Stephen Holler, Ph.D., an associate professor of physics at Fordham University, tells *Popular Mechanics*.

The Doppler effect is a wave phenomenon we are all familiar with. Take sound, for example. The way the pitch of a moving vehicle, especially a rapidly moving vehicle such as an ambulance or a fire truck, hurts your ears

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...distortion of the ... compression or elongation of the wave ... in relation to you, the observer, says Holler. Medical applications such as **Doppler velocimetry** (a test that measures blood flow and 3D ultrasound images) also owe their existence to the Doppler effect. And when it comes to the heart of Wilenchik's argument, which is that red and blue shifts do not correspond to predictions of how planetary objects move, Holler says that we would have practically failed to engage in extraterrestrial exploration without Doppler.



Stretching over distance makes redshift one of the key tools for measuring the universe. As the universe expands, it stretches the wavelengths of light along with it, a process called redshift. The farther away an object is, the more the light from it has stretched by the time it reaches us. Since astronomers can usually determine what wavelength they would see from up close, they can tell how far a galaxy is, by how much the light has changed. Credit: NASA/JPL-Caltech/R. Hurt (Caltech-IPAC)

“**Extraterrestrially**, we have been able to reconcile the chemical composition of stars and planets by noting the correspondence of spectral lines with known lines observed from chemicals on the Earth through Doppler spectroscopy,” Holler says. True, we may never know if the Big Bang theory is correct, but currently it is our best description for the origin of the universe, he continues. “An obvious originalist who relied on others to analyze the data for him, Wilenchik highlights the primeval atom theory’s improbability,” Holler adds. But the theory entered the realms of science nearly an eon ago when evidence was just beginning to come in and be interpreted, or, in other words, when we didn’t know what we didn’t know: “We do not live in a world of alternative facts. We must go where the evidence points. There is nothing to suggest that the Big Bang is a myth at present,” Holler says.

In ancient Greek mythology, **deities govern the skies** and, together, the dynamics of birth and annihilation. For Wilenchik, this is no coincidence: that we still have planets named after Greek gods, (even if Romans “**romanized**”

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...to somebody that creates or destroys things, then galaxies might be the divine in their own way,” the Phoenix-based lawyer suggests. This symbolic heritage might go beyond theory, implies Wilenchik, drawing enticing if not esoteric parallels between the symbolic and the pragmatic. It could inspire a fresh examination of the principles of cosmological theory, such as the Doppler effect, which is crucial for comprehending the universe’s expansion.

“We could reinvestigate the Doppler theory through observing the behavior of a planet like Mercury, for which we know when it’s moving toward or away from us and how fast,” says Wilenchik. In this way, we could see whether it redshifts or blueshifts correspondingly.

An in-depth investigation like this could provide us with a deeper understanding of how the universe works, as Wilenchik suggests we’ve been too comfortable with the Big Bang theory for too long now. Did we begin with a bang or are new beginnings overrated?



STAV DIMITROPOULOS

Stav Dimitropoulos’s science writing has appeared online or in print for the BBC, Discover, Scientific American, Nature, Science, Runner’s World, The Daily Beast and others. Stav disrupted an athletic and academic career to become a journalist and get to know the world.

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