Modern Scientific Challenges To Theory That Universe Had A "Big Bang" Beginning

Post by “Kalosyni” of September 12, 2024 at 6:07 PM

Article: Observational study supports century-old theory that challenges the Big Bang

> Quote
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> Shamir's findings lend support to the century-old "tired light" theory instead of the Big Bang. The findings are published in the journal *Particles*.
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> "In the 1920s, Edwin Hubble and George Lemaitre discovered that the more distant the galaxy is, the faster it moves away from Earth," Shamir said. "That discovery led to the Big Bang theory, suggesting that the universe started to expand around 13.8 billion years ago. At around the same time, preeminent astronomer Fritz Zwicky proposed that galaxies that were more distant from Earth did not really move faster."

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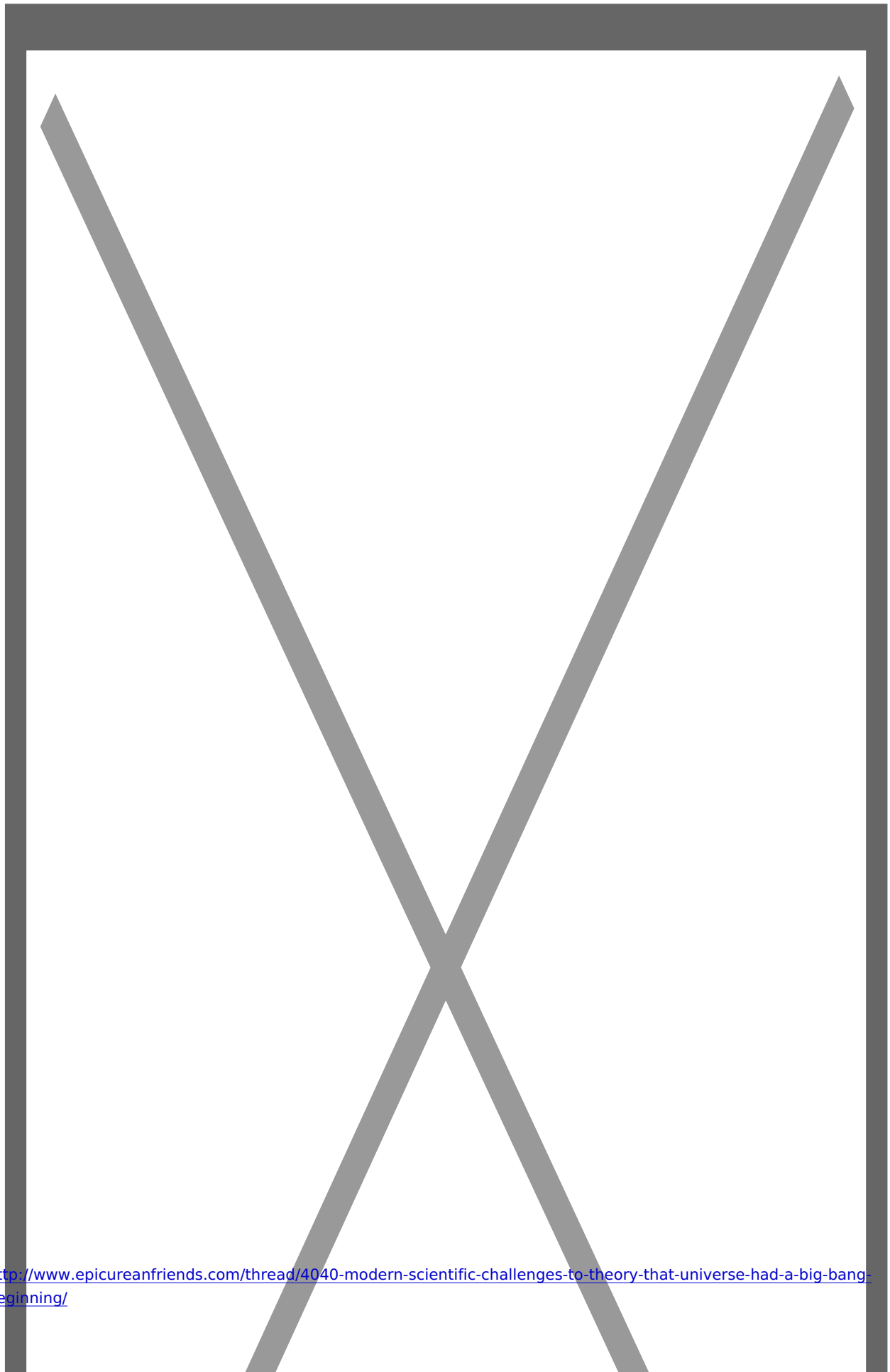

Observational study supports century-old theory that challenges the Big Bang
A Kansas State University engineer recently published results from an observational study in support of a century-old theory that directly challenges the...
phys.org

Post by “Godfrey” of September 12, 2024 at 9:13 PM

Interesting!

Post by “Cassius” of September 12, 2024 at 10:06 PM

Direct link to the new paper: https://www.mdpi.com/2571-712X/7/3/41

From Wikipedia:

Zwicky was critical of religion and considered it unacceptable to attribute natural phenomena to God.[14]

He is remembered as both a genius and a curmudgeon.[15] One of his favorite insults was to refer to people whom he did not like as "spherical bastards", because, as he explained, they were bastards no matter which way one looked at them.[16]

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But the wikipedia article does not seem to be clear on Zwicky's ultimate stance on Big Bang theory.

https://en.wikipedia.org/wiki/Fritz_Zwick

This article might be on point - https://ui.adsabs.harvard.edu/abs/2017JAHH...20....2K/abstract

Direct link to article: https://www.narit.or.th/files/JAHH/201.....20...02K.pdf

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Post by “Cassius” of September 12, 2024 at 10:14 PM

Conclusion of the paper to which Kalosyni linked:

Conclusions

Unexpected observations, such as the □□0 tension and galaxies that according to the current theories are expected to be older than traditional galaxy formation models predict, are challenging the standard cosmological model. If the cosmological model is complete and fully accurate, the distance measurements and, primarily, the redshift are biased. If the redshift is fully accurate then the standard cosmological model and basic theories regarding galaxy formation and the history of the Universe are incomplete. In any case, the redshift as used currently and the existing basic cosmological theories cannot co-exist without modifications.

This paper presents empirical observations that show that the redshift model may be biased and that the bias might be driven by the rotational velocity of the Milky Way galaxy relative to the rotational velocity of the observed galaxies. The observed bias is consistent across different telescopes and different annotation methods, and it shows very similar bias at both ends of the galactic pole. It is also consistent in catalogs that were collected for other purposes by different research teams.

The empirical observations described in this paper are provided with the data to ensure that the results can be reproduced. It has been shown that the vast majority of the scientific results cannot be reproduced [74], introducing the challenge known as the “reproducibility crisis” in science [75,76,77,78]. The ability to access the data and reproduce the results allows us to advance science in a transparent manner and to avoid errors that might not be noticeable to a reader unless they have access to the data.

In current astrophysics and cosmology practices, the redshift is used in most cases by ignoring the rotational velocity of the Milky Way, as the rotational velocity is far lower than the linear velocity and can, therefore, be considered negligible. But it should be noted that the physics of galaxy rotation and, in particular, the rotational velocity of galaxies are still not fully understood [22,26,33,36,37,38,39,40,41,42,43,44,45,46,47,49,79,80,81,82,83,84,85]. Theories such as dark matter [23] or MOND [25] have been proposed to explain the anomaly of the rotational velocity of galaxies, but several decades of research still have not led to a proven explanation for the provocative nature of the rotational velocity of galaxies.

It is difficult to identify an immediate explanation for the link between the rotational velocity and the redshift as observed from Earth. A possible explanation is the tired-light theory. But, as mentioned above, the physics of galaxy rotation in general are difficult to explain without making unproven assumptions. Since the redshift is the most common distance indicator in cosmological scales, a bias in the redshift can impact a large number of other studies that make use of the redshift.

Because the bias tends to become larger when the redshift gets higher, it is possible that such bias can explain anomalies, such as galaxies that according to the existing theories are expected to be older than traditional galaxy formation models predict. The experiments described here were based on relatively low redshift ranges and, therefore, it is still unclear whether higher redshift will have significant redshift bias. Studying the bias in higher redshift would require using a large number of galaxies with redshift imaged by space-based instruments, such as JWST, at around the galactic pole.

Because □□0 is determined by using the redshift, a redshift bias can also explain the observed □□0 tension. For instance, when using the SH0ES catalog [86] of Ia supernovae, by just selecting the galaxies that rotate in the same direction as the Milky Way, □□0 drops from ~73.7 to ~69.05 km/s Mpc^{-1} [87], which is within the statistical error from □□0 as observed by the CMB. When using only the SH0ES galaxies rotating in the opposite direction relative to the Milky Way, □□0 increases to ~74.2 km/s Mpc^{-1} [87]. Although SH0ES contains a relatively small number of Ia supernovae with their host galaxies, this suggests that redshift as a distance indicator may depend on the rotational velocity relative to the rotational velocity of the Milky Way. This observation is also aligned with the contention that the □□0 tension may require new physics that apply to the entire Universe, rather than certain changes in the physics of the early Universe [88]. Because □□0 is determined by using the redshift, redshift bias can also be related to the observed □□0 anisotropy [89,90,91,92,93], which is another puzzling observation that does not have an immediate explanation.

It is also possible that the redshift difference is not a bias, and that galaxies that rotate in the opposite direction relative to the Milky Way are indeed closer to Earth compared to galaxies that rotate in the same direction relative to the Milky Way. In that case, the alignment with both ends of the galactic pole is merely a coincidence. Such large-scale alignment is far larger than any known cluster, super-cluster, or filament in the cosmic web. That may be in agreement with numerous other observations that suggest that the cosmological principle is violated [93].

Although alignment in galaxy spin directions is expected [94,95], it is not expected to form a cosmological-scale axis. If such an axis indeed exists and it is not driven by the impact of the rotational velocity on the redshift measurements then it can be linked with theories such as dipole cosmology [96,97,98,99,100] or the rotating Universe [101,102,103,104,105]. Theories that assume a Universe rotating around a cosmological-scale axis include black hole cosmology [106,107,108,109,110,111,112,113,114,115] and ellipsoidal Universe [116,117,118,119,120].

Tensions between the expected age of some galaxies and the age of the Universe, as well as other cosmological-scale anisotropies and observations, such as the □□□□ tension, challenge our understanding of the Universe. It is clear that the current theories cannot co-exist with the redshift model as it is used currently, and, therefore, if the current theories are complete then this means that the redshift as a distance indicator is incomplete. This paper shows consistent evidence that the redshift depends on the rotational velocity of the Milky Way relative to the observed objects. The bias is small, but if it increases in the redshift ranges of the JWST deep

fields then this would potentially explain the existence of mature galaxies in the early Universe.

Post by “Joshua” of September 12, 2024 at 10:43 PM

"Spherical bastards" 

Post by “kochiekoch” of September 16, 2024 at 3:01 PM

Another way you explain mature galaxies in the early universe is misinterpreting what you're seeing. 

https://webbtelescope.org/contents/news-releases/2024/news-2024-134?ref=warp-news&news=true

>>When astronomers got their first glimpses of galaxies in the early universe from NASA's James Webb Space Telescope, they were expecting to find galactic pipsqueaks, but instead they found what appeared to be a bevy of Olympic bodybuilders. Some galaxies appeared to have grown so massive, so quickly, that simulations couldn’t account for them. Some researchers suggested this meant that something might be wrong with the theory that explains what the universe is made of and how it has evolved since the big bang, known as the standard model of cosmology.

According to a new study in the Astronomical Journal led by University of Texas at Austin graduate student Katherine Chworowsky, some of those early galaxies are in fact much less massive than they first appeared. Black holes in some of these galaxies make them appear much brighter and bigger than they really are.

“We are still seeing more galaxies than predicted, although none of them are so massive that they ‘break’ the universe,” Chworowsky said.<<

Post by “Cassius” of September 17, 2024 at 7:50 AM

Article on same topic: "Shamir study supports century-old tired light theory, challenging big bang"

https://www.spacedaily.com/reports/Shamir_study_supports_century_old_tired_light_theory_challenging_big_b

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Post by “Don” of September 17, 2024 at 8:11 AM

For context, WP provides some background:

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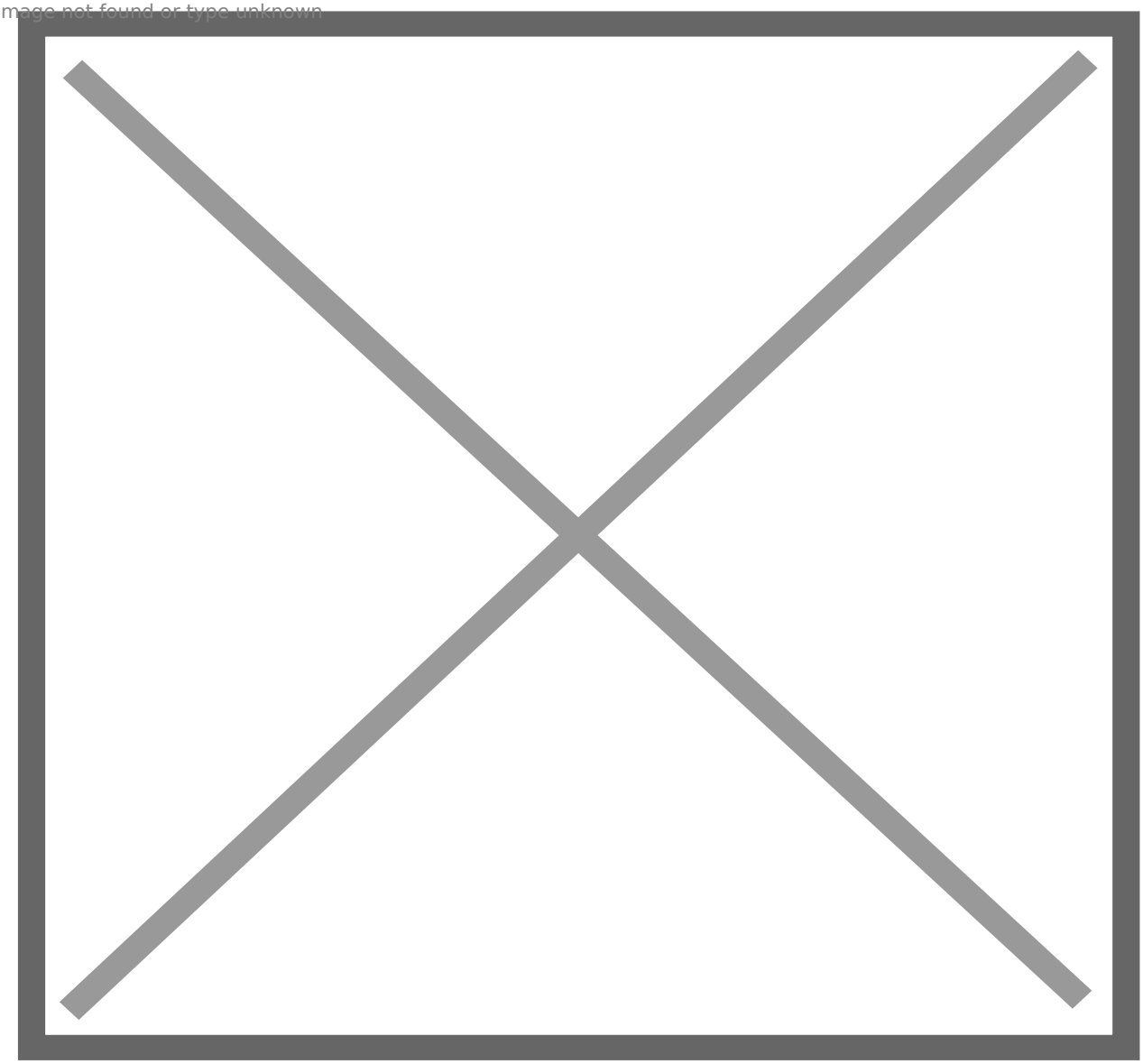

Tired light - Wikipedia
en.wikipedia.org

Post by “Cassius” of September 17, 2024 at 8:26 AM

From the article:

"Despite periodic re-examination of the concept, tired light has not been supported by observational tests and remains a fringe topic in astrophysics.[4]"

Post by “Cassius” of September 23, 2024 at 1:24 PM

New Article on Redshift analysis - final sentence: 'It is necessary to have observational evidence to validate any model. So the observational data like redshift periodicity of a galaxy–quasar pair gives rise to a new challenge in observational astronomy for extragalactic objects and Big Bang hypothesis. "

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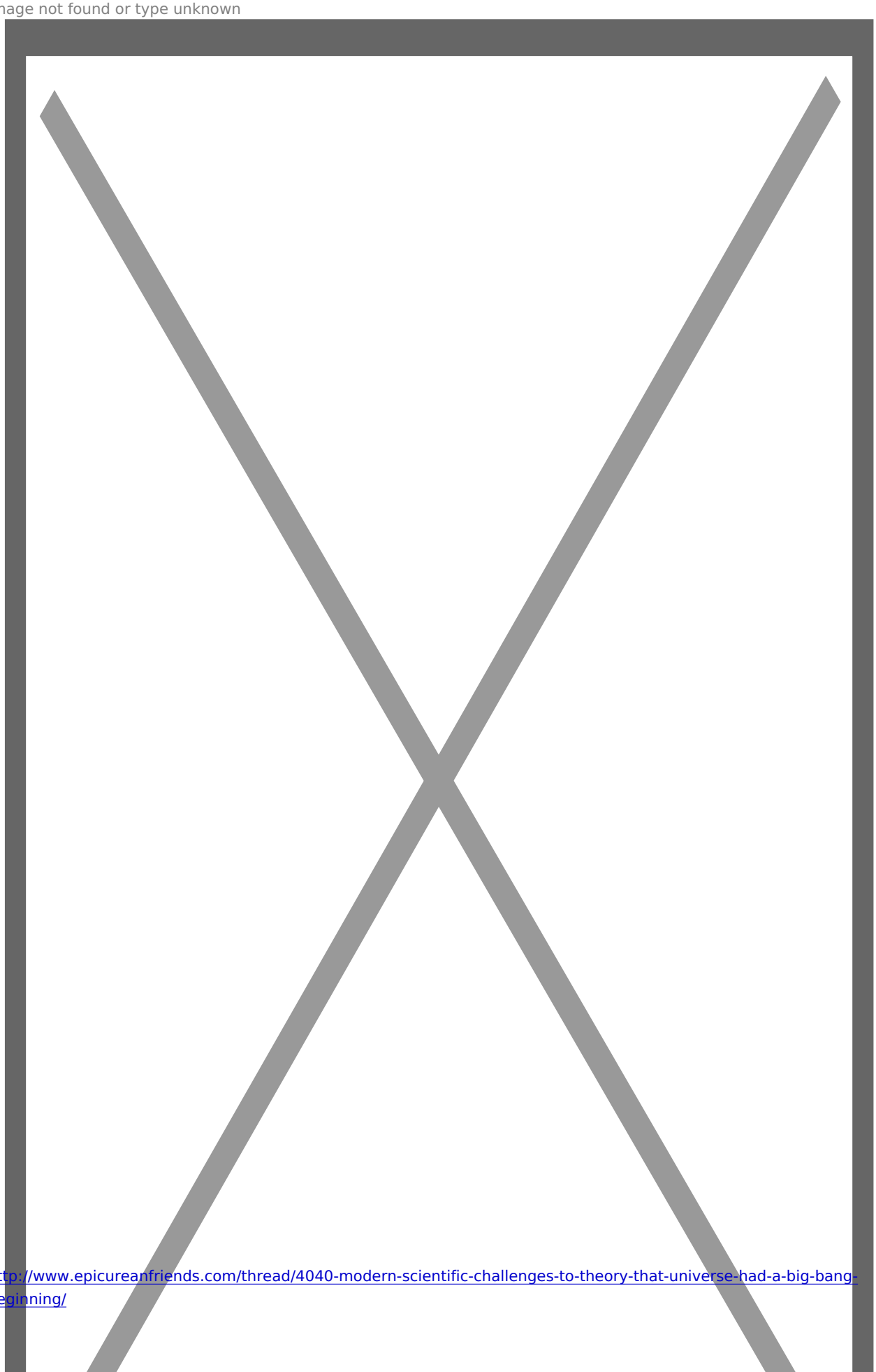

[Quantized redshift and challenges to Big Bang hypothesis]
A Doppler shift is defined as a change of frequency of light or sound when an object is moving toward or away from an observer. Edwin Hubble observed in 1929...
phys.org

Post by “Kalosyni” of November 11, 2024 at 11:05 AM

Here is another article:

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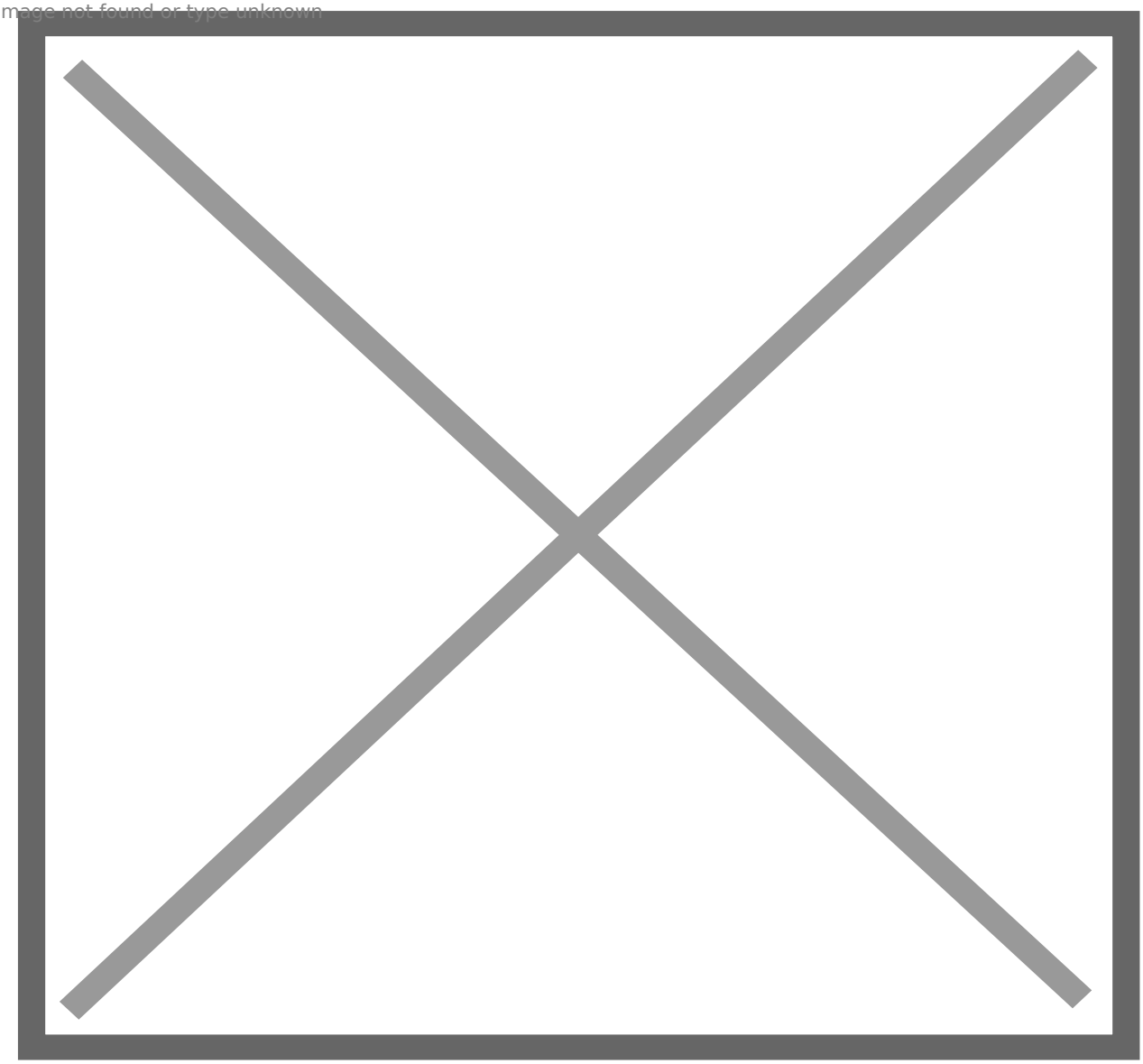

[The Hubble Tension Is Extremely Real—and Extremely Frustrating]

We still don’t know why different measurements of the rate of the universe’s expansion don’t match. But at least we know we can’t blame the Hubble Telescope.
www.popularmechanics.com

> Quote
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> When experiment and theory diverge, it can mean one of two things—either your measurement is wrong, or your theory is wrong. And that, in a nutshell is the Hubble tension. Which is wrong, the theory or the experiment?