# A Revolutionary Perspective on Cosmic Expansion and Redshift

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**Abstract**

This paper presents a critical examination of the current understanding of cosmic expansion, specifically challenging the interpretation of redshift observations. It posits that the conventional view is fundamentally flawed and offers a new perspective grounded in logical reasoning and observational data.

## 1 Introduction

An *expansion* is a physical process in which, as time progresses, the objects involved increase their relative velocity of separation. However, if this velocity decreases over time or changes sign, we can no longer speak of an expansion. It is essential to note that discussions on expansion refer exclusively to its evolution forward in time. The need to properly define the concept of expansion is crucial because this paper will demonstrate that the current understanding contradicts observations in the cosmos.

## 2 Redshift Observations

The observed redshift in distant galaxies, or *redshift*, is commonly interpreted as evidence of an expanding universe. However, failing to account for the temporal evolution of these events leads to a misinterpretation. The current interpretation overlooks the fact that redshift decreases as a function of time, which can be observed directly when this parameter is graphed over time rather than distance.

For extremely distant galaxies, redshifts of up to 16 or more have been observed. According to the current interpretation, these galaxies existed when the universe was between 200 and 500 million years old. The light from these galaxies has traveled approximately 14,000 to 14,200 million years to reach us. However, a reinterpretation of this observation in terms of time reveals a very different result.

## 2.1 Reinterpreting Hubble's Law with Time

Hubble's Law, traditionally expressed in terms of distance ($d$), establishes a relationship between the velocity ($v$) of galaxies and their spatial separation as follows:

$$v = H \times d \tag{1}$$

where $H$ is the Hubble constant. However, this formulation omits the time factor associated with the observation. By reinterpreting Hubble's relationship in terms of time, we see that redshift does not increase indefinitely but rather decreases over time. This suggests deceleration instead of continuous expansion.

To observe this temporal relationship, we reformulate Hubble's Law in terms of time ($t$) instead of distance:

$$v = H \times t \tag{2}$$

where $t$ represents the time elapsed since the event of light emission was observed. This temporal representation demonstrates that redshift decreases with time rather than increasing, directly contradicting the hypothesis of a constant expansion in modern cosmology.

## 2.2 Correct Interpretation with Temporal Redshift Data

Analyzing redshift as a function of time reveals a deceleration rather than accelerated expansion. This finding contradicts the current interpretation that the universe is constantly expanding. This change in perspective allows a more accurate understanding of the universe's evolution: it is not expanding continuously but appears to be stabilizing.

# 3 Critique of Current Interpretation

When we observe redshift over time, we see it decreasing as time progresses. According to the definition of expansion provided above, if the velocity between galaxies decreases, we can no longer speak of continuous expansion.

This observation highlights a flaw in the current interpretation, which omits the role of time in Hubble's equation, focusing solely on distance. This error leads to a misinterpretation of an expanding universe when, in reality, observational data suggest the universe may be stabilizing or even contracting in terms of relative velocity between objects over time.

## 3.1 The Need for a Time-Based Framework

Instead of using redshift as a proxy for distance, we propose a time-based analysis of light, focusing on intrinsic properties such as the brightness of Cepheid variables or supernovae. These properties provide direct insight into the conditions at the time of light emission, independent of redshift-induced distortions.

While this paper does not include graphs, this absence reflects the current need to reassess existing data under this new framework. A detailed analysis incorporating these principles and producing time-based graphical representations is necessary to validate the conclusions presented here.

# 4 Conclusions

This work argues that the current interpretation of redshift as evidence of an expanding universe is incorrect. The temporal formulation of Hubble's Law clearly shows that redshift decreases over time, contradicting the idea of constant expansion. It is crucial for the scientific community to take these observations into account and re-evaluate its current cosmological model, recognizing that time is a crucial factor in redshift interpretation.

# 5 References

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