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Cosmic Expansion Under Augmented Newtonian Dynamics: A Critical Theoretical Examination

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Abstract: ***The standard model of cosmology claims that the Universe is expanding, driven by events arising out of the Big Bang. However, direct evidence for expansion faster than the Hubble shift (i.e. sub-luminal expansion) is lacking on local scales, and the assumption that the CMB is a relic of a hot origin is unnecessary. By applying Wien's law to present-day cosmic conditions-namely, a Universe almost entirely empty, with a density of one particle per cubic meter - the observed 2.7 K temperature of the CMB emerges naturally, without invoking relic radiation. This paper argues that the CMB reflects present conditions, not ancient ones, and that cosmic expansion, if real, should be observable everywhere, not only at inaccessible distances. These considerations call for a fundamental re-evaluation of current cosmological assumptions.***

Keywords: Cosmic expansion, CMB, Dark Matter, aether, photons, electrons, photon emission, photon absorption, Big Bang, Planck

1. A Critical Examination of Cosmic Expansion and the Present-Day Origin of the CMB

The theory of cosmic expansion, as traditionally presented, contains profound logical and observational flaws. According to standard cosmology, the Universe is expanding uniformly at every point, with space itself stretching between objects. Yet, no trace of this expansion is detectable locally: not between atoms, not between planets, not between stars within galaxies and not in intergalactic space. We are told that both electromagnetic and gravitational forces are strong enough to resist expansion on small scales. However, this explanation is unsatisfactory. While electromagnetic forces do indeed dominate at atomic and molecular levels, gravity is a much weaker force. Galaxies — enormous, diffuse structures extending over hundreds of thousands of light-years — are held together only by the weak pull of gravity. If cosmic expansion were truly occurring everywhere, one would expect galaxies to show signs of distortion, stretching, or progressive unraveling. Yet no such effects are observed. The claim that expansion only occurs at cosmological distances — where direct observation is impossible — places it firmly beyond falsifiability. This is scientifically untenable.

Another pillar of the standard model, the Cosmic Microwave Background Radiation (CMB), is widely regarded as the relic glow from a hot Big Bang. However, a much simpler and more immediate explanation arises from present-day conditions. Observations reveal that the vast majority of the Universe — roughly 95% — is made of matter we cannot categorize, known as dark matter and dark energy, or is nearly empty space. The average density of visible matter is about one particle per cubic meter. In such an extremely low-density environment, the natural equilibrium temperature must be very low.

Using **Wien's displacement law**, which relates the temperature of a blackbody to the peak wavelength of its radiation, we can directly calculate the expected background temperature of the Universe today. Wien's law states

$$\lambda_{\max} = \frac{b}{T}$$

where: $b = 2.897 \times 10^{-3}\text{m} \cdot \text{K}$

Rearranging for temperature:

$$T = \frac{b}{\lambda_{\max}}$$

The observed CMB peaks at a wavelength of approximately $\lambda_{\max} = 1.06 \times 10^{-3}\text{m}$.

Substituting:

$$T = \frac{2.897 \times 10^{-3}}{1.06 \times 10^{-3}} \approx 2.73\ \text{K}$$

This is exactly the observed temperature of the CMB. — the 2.7 K background radiation emerges naturally from the conditions of the present-day Universe: a vast, cold, sparse cosmic environment in equilibrium.

Recognizing that the CMB reflects current cosmic conditions, rather than being an ancient relic, has profound implications. It removes the need to assume that it is relic radiation from the Big Bang. The supposed evidence for cosmic expansion — the observed redshift of distant galaxies — can be reinterpreted through other mechanisms, such as tired light or photon interaction with intervening dark matter, because based on the evidence the CMB is certainly not the result of redshift.

The combination of two facts — the absence of any detectable local expansion and the present-day origin of the CMB — gravely weakens the arguments for a perpetually expanding Universe, although Augmented Newtonian Dynamics (AND) theory does not contest the Big Bang, it does not support cosmic expansion taking place at faster than light speeds. If cosmic expansion were real, it should be observable everywhere, not just at unreachable distances. If the CMB reflects current conditions, not past events, then the Universe

we observe is not a remnant of a violent beginning but the natural consequence of the conditions that prevail today.

2. Conclusion

These two facts — the lack of observable local expansion, and the natural present-day origin of the CMB — undercut the core arguments for an expanding Universe driven by a Big Bang origin. If cosmic expansion were truly a real, universal phenomenon, it would produce effects across all scales, not only at extreme distances. Standard cosmology claims that cosmic expansion is universal, yet only appears at distances so vast we can't directly observe it. That's not a strong scientific position — that's an excuse. If cosmic expansion truly affects all of space, why does it somehow fail to distort atoms, molecules, or galaxies — the very building blocks of the universe? Electromagnetic forces, which govern the stability of atoms and molecules, remain unscathed, and gravity, which holds galaxies together, also seems unaffected. The idea that the universe can expand in such a way that it spares the very matter and forces that constitutes its structure is not just implausible, it's intellectually irresponsible. It's as though space is expanding around everything except the things that matter — a convenient, yet wholly unsatisfying, loophole. Furthermore, if the CMB is simply the thermal radiation of today's cold Universe, it means that a co-relation between redshift and cosmic expansion simply does not exist. The pillars of the cosmic expansion theory — cosmic redshift and relic radiation — both admit alternative explanations grounded in present conditions, not hypothetical pasts. A critical re-examination of these assumptions is not only justified but necessary if cosmology is to remain a truly observational science rather than an exercise in theoretical storytelling. In short: Expansion would not necessarily be "expansion of space" anymore. It could go back to Hubble's original, more kinematic view — things moving apart through a pre-existing medium, a journey back through time.

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