

Review of: "Bijective analysis of space expansion and comeback of stationary cosmology"

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Potential competing interests: No potential competing interests to declare.

This article is critical of the standard big bang model of the universe. This is laudable since this model suffers from deficiencies of several kinds. It is true that we lack any direct evidence for the expansion of the universe. For a recently proposed attempt that could be mentioned and scrutinized here, see [1]. What has been measured is the gravitational redshift. This needs to be distinguished from the cosmological redshift. The latter was originally described as a Doppler effect, and one can claim that such an effect was never observed in an expanding space.

It is clear that the cosmic microwave background radiation is a homogeneous radiation that cannot reasonably have its origin at the surface of last scattering in the recombination era. The claim that it has is a symptom of the relic radiation blunder [2].

Your bijective approach is sound but sparingly explained here. (In my perspective, it represents an inductive approach, which allows existential statements whose truth can be asserted. Universal statements or 'laws of nature' can at best be asserted to be well-founded or still tenable rather than 'true'.)

While I expect a comeback of a stationary cosmology as well, I think Section 3 is not convincing, at least not for those who are unfamiliar with your prior publications.

The topic of Section 4 is too specific. It should better be kept for a separate article in which the planned experiment may be described.

Specific comments

After "The expansion of universal space has never been observed or measured", where [1] could be mentioned, it is said that "The claim that the gravitational redshift is proof of universal expansion is a cognitive simplification outside the realm of scientific thought." However, such a claim is uncommon in standard cosmology, in which the alleged expansion of the universe is associated with a *cosmological* redshift, which is strictly distinguished from the *gravitational* one. Consider whether you should substitute "cosmological redshift" for the next nine occurrences of "gravitational redshift" and/or delete some of the statements. (Cosmologies in which the cosmological redshift is explained as a gravitational effect are not widely known.)

Substitute "homogeneous and isotropic" for "uniform throughout space". We can hardly observe at other places - and check the following: "CMB is the radiation of the entire universal space", "That the entire space radiates it" and "The entire

space emanates this radiation". These utterances do not rhyme well with a bijective approach.

"The FLWR metric is not valid for Euclidean space": The FLRW metric presupposes a Euclidean proper space (which neither expands nor shrinks).

Statements such as "the universe itself is timeless", "time has no physical existence", "the universe develops in a time-invariant space" and "time is an emergent physical reality", will not as easily find acceptance as you imagine.

Minor comments

FLWR → FLRW (unless you insist on the first)

"phycological" → "psychological"

"Hartle and Hawking": add reference nr.

"Lamiakea" → "Laniakea"

List of references: Use one and the same referencing system throughout.

References in this review

[1] C Wang, K Bolejko, GF Lewis, Ap J 940: 16 (2022)

[2] H Traunmüller, F1000Research 9, 261 (2021)