Review of: "Why Mature Galaxies Seem to Have Filled the Universe Shortly After the Big Bang — A New Cosmological Model, that Predicted the JWST Observations"

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Potential competing interests: No potential competing interests to declare.

The article describes the *"Azimuthal Projection Model"*, an alternative mathematical model of cosmological redshift that potentially explains recent JWST observations of $z > 10$ mature galaxies. Although the model is built to explain these high-redshift observations, it fails to reproduce the Hubble-Lemaître Law at low redshifts.

The Hubble constant, known to at most three significant digits, enters in the calculation of the radius of the hypersphere Eq. (17). Since H_0 is not known more accurately than three digits, the radius is approximately $R \simeq 1.11$ Gpc. The high accuracy given in Eq. (17) has no meaning, and I use the value 1.11 Gpc in what follows.

Rewriting Eq. (22) with x in units of Gpc:

$$1 + z = \frac{x}{1.11 \arctan(x/1.11)},$$

the equation can be expanded using $\arctan(x) = x - x^3/3 + O(x^5)$. This gives:

$$1 + z \simeq \frac{1}{1.11(1/1.11 - x^2/1.11^3/3)},$$

which simplifies to

$z \simeq 0.24x^2$ for small redshifts $z \lesssim 0.2$.

It is clear that the redshift given by the *"Azimuthal Projection Model"* has a quadratic dependence on distance for $x < 900$ Mpc. (A simple graph will show this.)

This contradicts the Hubble-Lemaître Law for $z < 0.2$ in which the redshift-distance relationship is linear, as confirmed by measurements of angular-distances starting with the measurements of Edwin Hubble himself.

Therefore, the fundamental idea at the basis of this *model of cosmological redshifting* is incorrect. It is therefore not possible to suggest a constructive review, except to suggest that the paper should be gracefully withdrawn.

Note: Other significant errors and gaps were found in the paper, but those have no impact on the incorrectness of the model.

- No quantitative calculation of the deviation for the planets in our solar system from theoretical Kepler/Newtonian is given. It is not clear if this is detectable with current technology.
- Table 2 lists data from papers published before 1972. This needs to be updated.
- Although one might guess why the most distant galaxies appear fully developed, the author does not really answer the question but leaves it to the reader to guess that galaxies developed well before 13.8 Gyr ago.
- "The Bering Strait Paradox" is not a paradox at all, it's just an artifact of the projection used for the example in the paper. Siberia and Alaska would be together on a map centered on the north pole.
- As with the “dark matter” and “dark energy” hypotheses, the absence of physical motivation behind the assumptions of this paper make it incomplete. The idea of a “projection” is no more satisfying than the idea of a dark sector.
- Some typos and errors (some already noted by other reviewers):

  Fig. 3, the [km] units for distance are irrelevant.

  Fig. 4, typo, "shere" should be "sphere".

  Figs. 7 and 9, the characters "?" and "?" are not rendered properly.

  Section 5, "redshiff" should be "redshift".

  After Corollary 1.2, "Note:" is repeated in “Note: Note:”