

Future and Past in the Current Model of Expanding Universe

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The standard cosmology states that our Universe began about 13.8 Gy ago from a singular Big Bang event. The fundamental observation behind this theory was the cosmological redshift z of nearby and distant galaxies¹ (hereinafter the galaxies). The standard cosmology explains this shift in terms of the expansion of the Universe. This expansion implies that these galaxies are receding away from each other², or in other words, the distance between them is increasing. In general, the galaxies at the larger distances from the Earth were born before the galaxies at the smaller distances from it. Cosmologically speaking: the former are younger than the latter, in respect to the Big Bang time or the former are older than the later, in respect to the present time.

The “megamaser” method is useful for precise distance measurement of nearby galaxies but it appears it is suitable for very few of these galaxies -“megamaser” galaxies. For the present case, we select two of these galaxies: NGC 1052 and NGC 6264. Their respective distances from the Earth are 65 Mly and 447 Mly (determined by the megamaser method) [2, and references therein]. For an Earth observer and a hypothetical NGC 6264 observer, the NGC 1052 galaxy was born after the NGC 6264. However, for a hypothetical NGC 1052 observer the NGC galaxy 6264 was born after his galaxy. Of course, we could have chosen any two or more nearby and/or distant galaxies at different distances from Earth.

Can this be interpreted that there is no distinction between the past and future in the current model of the expanding Universe or even that the time flow, in general, does not exist in this Universe? Does it imply that the possible models of the non-expanding Universe (such as the tired-light model) are much more acceptable? This issue is out of the scope of this communication.³

References

- [1] P. I. Premović, *Distant galaxies in the non-expanding (Euclidean) Universe: the light speed redshift*. The General Science Journal, December 2021.
[2] P. I. Premović, *The age of the “megamaser” galaxies in the Big Bang Universe*. The General Science Journal, December 2021.

¹ We define nearby galaxies as those whose redshift z is from 0.001 to 0.1 (or $0.001 \leq z \leq 0.1$) and distant galaxies with $z > 0.1$ [1, 2]. Of course, there is no sharp line between nearby and distant galaxies.

² Except for the objects which are part of the same gravitationally bound group or cluster of astronomical objects.

³ As a scientist, I only sometimes dealt with time as a physical phenomenon and, mostly within the time dilation of Special Relativity. For this reason, I give up further consideration of the time flow of the Universe.

