Key Features of the 4-Sphere Cosmological Model

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The model, named 4-Sphere [*], bases its physics on expansion due to Cosmic Background Radiation, and simplifies its math considering the *CMB* in absence of matter.

Here, the Universe lies on the surface of a hypersphere which expands at a constant rate with its radius stretching as $r = ct$.

Other models hypothesize a hypersphere that expands as $r = ct$. Reading the main features, you will notice that they are completely different from each other. The novelty of 4-Sphere lies in its definition of the Hubble constant: Its geometry, indeed, suggest a linear relation between the Galactic Recession and the arc angle (not the arc length).

Given the constant expansion speed, it is not necessary to define a new specific type of Redshift (as the standard Cosmological one) to be associated with the Galactic Recession.

Here the redshift is Gravitational or Doppler. In fact, for the Galactic Recession the Redshift is of the Doppler type (except for special cases in which the gravity of the star cannot be neglected) while for the Cosmic Background Radiation *(CMB)* it is exclusively of the gravitational type.

The model is also, supported by assumptions that are necessary, and which are pure conjecture, but the key to the speculation is contained in Hubble's Law and Star distance validation:

1. Hubble's Law: Other models hypothesize a hypersphere that expands as $r = ct$. Its geometry suggests a linear relation between the galactic recession and the arc angle. Limited to the recession calculus, you can find the key points in Ch 1.2, 1.3 and Ch. 3.2, 3.3, 3.4 of the 4-Sphere speculation: [viXra:2209.0098],
2. Star distance validation: This is the key to the whole speculation. The validation desired is carried out on the Luminosity distance, comparing its value calculated from the Redshift z of a star with that derived by its Distance modulus μ.

Everything is described in [viXra:2312.0000], the essay, to start with, which also describes the opportunity to incorporate the 4-Sphere metric into the standard model.

You can find the project history at [viXra:author/claudio_marchesan].