OVERVIEW OF THE PROPER COSMIC EXPANSION :

20AA M.D. Earl 2023

- The galaxies and the space between expand exponentially.
- An observer's position simultaneously exponentially expands with the universe.
- The few galaxies which do not obey the H/L relationship are described as "peculiar"
- All expansion properties are instantaneous.
- The expansion is exponentially time-dependent, the light-time distance is a true measure of the separation of the galaxies

The universal expansion field is a function of the density of the entire universe. A spatially expanding acceleration field is produced by any matter, on any scale. It is proposed that the H/L law also applies to the expansion of concentrated matter, producing what we know as "gravitation". The exponential expansion of concentrated matter differs from the free exponential expansion of the Hubble Flow because of the interaction of internal closely-spaced expanding matter. (see GRAVITY...)

A thorough mathematical knowledge of XPXP is necessary to see the advantages of this model over the present λCDM model.
"EXPONENTIAL" IN THIS MODEL IS NOT SYNONYMOUS WITH "EXTREME". It is not the inflation of the standard model.

The Hubble/Lemaitre Law (H/L) describes a universe that is expanding exponentially. The exponential nature of velocities, accelerations and distances are barely noticeable on the local level, since the universal exponential expansion factor is governed by Hubble's constant, which has an infinitesimally small value (~ 10^ -18 m/sec²). Accordingly, the expansion is discernible only for very large distances and speeds... in a manner analogous to "relativistic" effects of the standard model. As a check for the validity of this expansion theory, exponential expressions should correspond to common "non-relativistic" expressions, just as Einstein's relativistic expressions do. This is because e^Hot approximates 1, unless t is significantly large.

It proposed that the present standard cosmological model (λCDM) provides approximations of the true workings of the universe. This is why it is believed by most scientists that only small adjustments to the theory are necessary to explain inconsistencies. But 95% of the matter and energy of the universe is missing ! It is contended that a more realistic model is necessary.

Probably the most attractive aspect of the XPXP theory is that it is all-encompassing. An understanding of the principles of the cosmic flow leads to math principles

which explain other phenomena such as gravitation, redshift, universal acceleration etc. When thoroughly understood, XPXP becomes an excellent candidate for the "theory of everything". It is anticipated that it applies on all scales.

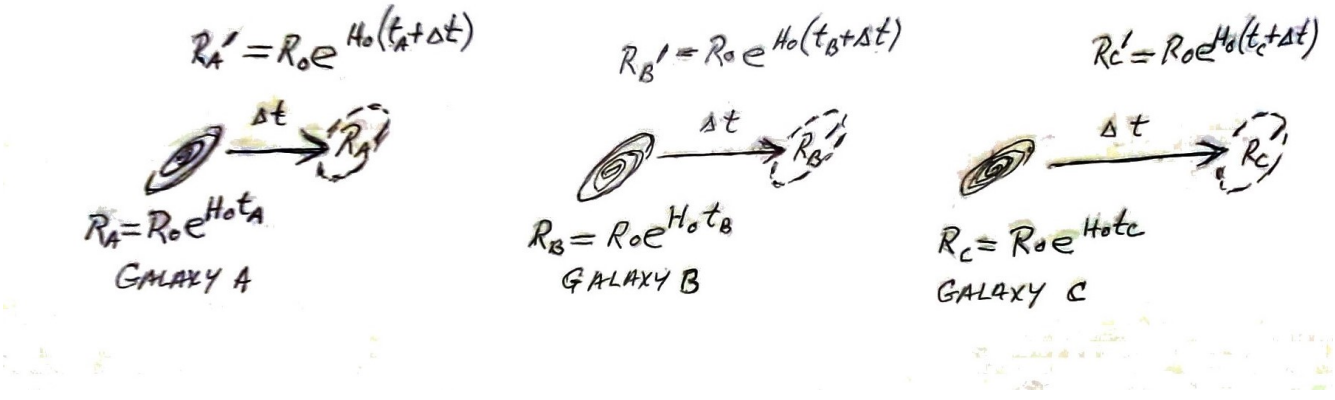
The expansion field of the cosmos is described in the Hubble/LeMaitre (H/L) law. One property of this expansion is that the universal density is constant, because the general equation describes a concurrent increase of universal matter and volume. The value of Ho is density dependent, and therefore is also constant. The XPXP theory presented herein proposes that the λCDM logic which requires that Ho has changed in the past, is faulty. That logic was produced to provide agreement with λCDM model and to suggest a "big bang".

The radial movement of "proper" galaxies in the cosmic expansion is illustrated in Figure 20-1. Because the expansion occurs in all directions, and is exponential, it is somewhat difficult for earth-bound humans to imagine its ever-increasing effects. As a proper galaxy of the flow moves, so do all other universal components and the space between. All have their own instantaneous expansion position, velocity, and acceleration. A simplification of these motions assigns an arbitrary expansion direction, realizing that any direction is expanding during the volumetric expansion. Relative motions of the cosmic components may then be mathematically analyzed. There is no "special" direction, which is consistent with the cosmological principle. A familiar cosmic analogy of the expansion is the baking of raisin bread, in which all of the raisins expand away from each other...but in this model they are exponentially expanding.

GENERAL ILLUSTRATION OF PROPER EXPONENTIAL EXPANSION:

To begin a simplified exploration of the xpxp galactic flow, terms like scale factors, co-movement, relativistic, etc. must be abandoned. These terms may be considered once the exponential expansion is understood.

Figure 20-1. Proper Galactic Motion:



DURING A TIME INTERVAL Δt, THESE PROPER GALAXIES RECEDE FROM AN OBSERVER LOCATED AT R_A. MORE DISTANT GALAXIES MOVE FASTER AND FARTHER, ACCORDING TO THE HUBBLE/LEMAITRE LAW. IT WILL BE SHOWN THAT THE INITIAL LIGHT-TIME SEPARATION OF THESE GALAXIES (THE LIGHT-TIME INTERVALS) AMAZINGLY DO NOT CHANGE!

Some properties of the expansion:
- Proper galaxies exponentially recede from an also expanding observer at R_A.
- All galaxies exponentially increase in position, velocity and acceleration
- The space between the galaxies also expands exponentially.
- An observer's position simultaneously exponentially expands with the universe.
- The few galaxies which do not obey the H/L relationship are defined as "peculiar"
- All expansion properties are instantaneous.
- Because the expansion is time-dependent, the light-time distance is a true measure of the increasing separation of the galaxies

The universal expansion field is a function of the density of the entire universe. A spatially expanding acceleration field is produced by any matter, on any scale. It is proposed that the H/L law also applies to the expansion of concentrated matter, producing what we know as "gravitation". The exponential expansion of concentrated matter differs from the free exponential expansion of the Hubble Flow because of the interaction of internal closely-spaced expanding matter.