

## Philosophy of Time

The *nature of time* has had extensive attention in part down through the ages, such as Plato, St. Augustine, Pascal, Leonardo, Newton etc. For example, Newton considered time to flow uniformly, as if it were a separate manifold (1-surface) from the 3-surface of his mechanics described universe. For a manifold, this would give a product space description  $M^3 \times M^1$ , the simplest fiber bundle description. Hence such description would be universal; that is the same common time for throughout the universe. Subsequently, the relativistic model refers to time as the interval between events, wherein clocks are associated with respective observers. However an event such as the Big Bang, and concomitant Big Expansion of our manifold (i.e. 3-surface), does not have such a General Relativistic Theory description; nor is 'initial' 3-expansion (i.e. **Hubble expansion**, Hubble parameter) of our 3-volume limited by velocity of light, as in Special Relativity. Hence the possibility of further modeling in regards to how our 3-space and contents evolves.

Might there be another common time description as to how our 3-volume evolves? Just as Gauss described curvature of a surface intrinsic to such 2-surface, and Riemann described curvature of a 3-surface as intrinsic to such 3-surface, might not one analogously describe **time** as intrinsic to our 3-surface?

Could the non-linear Hubble expansion be utilized as such common time description for our 3-surface, and perhaps for a set of such 3-surfaces (i.e. 3-volumes, 3-manifolds); that is for the misnomer, 'multiple universes'? *Universe*, denotes all inclusiveness, rather than *multi-universe* which implies a set of such all inclusiveness. Hence better to refer to a set of 3-volumes i.e. 3-manifolds. Also non-linearity to Hubble expansion might even be of an always exponential nature, if it is just a specific example of the more general case: *all explosiveness is of an exponential nature*.

So do all locations of our 3-volume, and for a possible set of 3-volumes, share the same common time i.e. **cosmic time**? That is, perceiving the same Big Bang ~13.8 billion years ago; and thus the same 2.7 degree kelvin temperature of cosmic background radiation?

see <https://sites.goggle.com/site/zankaon>