# Observing multiple big bangs within the only universe

MICHAEL LAWRENCE
*Maldwyn Centre for Theoretical Physics, Suffolk, United Kingdom*

23 October 2024

**This paper shows how big bangs, which do not produce new universes, can be used to build a framework that enables the location of the centre of our big bang to be estimated. The calculation also requires the use of failed big bangs that are apparently conjoined with commoving objects within our own big bang flow to calculate that flow over time.**

*Keywords*: Loops; Partially Merged Pairs; Theory of everything: Universe; Failed Big Bangs;

**PACS codes: 12.10.-g; 11.90.+t; 03.65.-w; 04.20.Cv; 12.90.+b; 13.40.Em**

## I Introduction

The pre-fermion hypothesis has been presented across many papers [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15] and suggests that what we observe is the emergent result of the unmerger of fundamental particle/antiparticle partially merged pairs that form the base material of the universe, called the background. In the hypothesis all observable energies, charges and forces are the result of the motions of the particle/antiparticle pairs whose only fundamental properties are one single size of mass, charge and volume. The unmerger of each partially merged pair requires the same energy in every case and is the source of the value of the fine structure constant, the only number, other than the size of the inflation of the subsequently formed loops, composed of unmerged pairs where three-pair loops are our leptons, that the hypothesis requires and is why all loop charge sizes are multiples of one-sixth the charge on the electron or zero.

The hypothesis also explains why tired light exists and why it may be the major component of current red shift observations at extreme distances. Since the hypothesis is built on a background that cannot be simpler and does not change the size of its components, then many big bangs, which do not create new universes, will have occurred within that only universe.

The use of big bangs external to, and internal within, our own big bang to estimate the centre of our big bang is the subject of the paper. It explains why there are very high red shift objects that appear to be either too large or too bright to have formed since the supposed origin of our big bang. It hypothesises that these objects are external big bangs whose existence has no relationship to the timing of our own big bang.

## II Significance and Objectives

The significance of the paper is in taking a current hypothesis that can explain most of the features of the universe and showing how the different interpretation of a building block system for our quarks and leptons can be observed and the consequent outcomes at the largest scales.

The objective of the paper is to show how to use external and internal big bangs to estimate the position of the centre of our big bang and the relative position of the Earth within our big bang.

## III Outline

The basis of this paper is that big bangs only occur within our only universe because the foundation particle/anti-particle pairs that form the background of the universe and its loop-based particles are the only physical structures that exist. Big bangs do not create new universes.

The big bangs that occur within the universe are random in place and time but individually, where they do not overlap, they remain fixed in position within the overall stationary background that comprises the universe.

Our big bang has been very successful because the initial inflation, in loop size not in the underlying background partially merged pairs, which was a maximum in forming the electron/positron loops, was so large, giving rise to their relative low mass but large loop radius.

Other big bangs have occurred, and continue to do so, outside and inside the envelope that our big bang currently occupies. These big bangs can be observed by comparing the red shifts of those objects within those big bangs with the red shifts of our co-moving big bang objects.

## IV How to identify two frameworks using big bangs

It is possible to identify the position of the Earth in relation to the centre of our big bang by observing two different type of big bang.

Figure 1 shows the universe within which are four different types of big bang. The main big bang is our own, centred at point O, whose envelope, and internal flow of objects, may be contracting or expanding as shown by the arrows at the edge of its envelope.

The second type of big bang is external to our big bang is centred at point P and may be expanding or contracting, called here a Type P big bang. There is no relative motion between the centres of any big bangs, only of their component objects, unless there is overlap and the relative sizes of the two are large.

The third type of big bang is internal to our big bang envelope centred at point Q and may be expanding or contracting. This Type Q big bang may be heavily influenced in its flows by the effect of the objects within our big bang flow within which it sits, but its centre of initiation will not change.

The fourth type of big bang is within our big bang envelope but has failed to expand and is a failed big bang, called here a Type R big bang. It is centred at point R and looks like a galaxy or black hole whose red shift is inconsistent with an adjacent galaxy that is part of our big bang flow and apparently conjoined - the type of objects identified by Halton Arp [14]. Since it is small relative to our big bang it is expected to be influenced only marginally by our big bang flow objects. The pair of Type R failed big bang and an apparently conjoined object is called here a Type S object.

As detailed below, motion of all objects, including photons, through the background of the universe lose energy to that background – producing tired light whose frequency loss is proportional to the distance travelled by the photon's unmerged pair components and is independent of the frequency of the photon because it is the same components of the photon that are affected by that viscosity regardless of the photon loop size and frequency. Therefore photons observed have red shifts due to both viscosity, over distance, and relative velocity, ignoring any gravitational effects.

This means that objects within the external big bang will have very high red shifts due to their distance $D_P$ travelled to the current position of the Earth. Such a big bang will have an arc of view from Earth of $\theta_P$ within which the local velocities will be very small compared with the viscosity red shift of the group. The red shift will effectively be centred tightly around the distance $D_P$ and will have no component due to our own big bang flow of objects.

For the Type Q big bang centred at Q, the same applies as at P, but the effect of viscosity red shift will make a smaller fraction of the total red shift. There will still be some local velocity red shifts, but these will be complicated by our big bang local flow that exists within the Type Q envelope. Only by separating out inconsistent red shifts of objects within the volume of Q will the size and centre of that big bang be calculable.

For the failed Type R big bang at R, the red shift will be only viscosity related, although account needs to be taken of the relative location of the Earth to the centre of our own big bang, which will require the inclusion of some local flow velocity adjustment as explained below.

## V Finding the Earth's position

It is the local flow velocity that will allow the Earth's position relative to the origin of our own big bang to be calculated. This flow velocity is not the local-local velocity relative to our local group and within the Milky Way, but the much larger velocity that the Earth has within our big bang flow. The estimation is based on two parts:

*Fixed external Type P big bangs as navigation points*

External Type P big bangs are all stationary with respect to the background universe, provided they do not overlap one another. Given the identification of at least four of these type P big bangs, with their centres calculated within their own envelopes, and having the same viscosity redshift in order to avoid timing issues, it is possible to construct a fix on the position of the Earth with respect to the stationary background universe. However, this position is where the Earth is today within the fixed background, not where it was when the light from those four Type P big bangs began their journey. The four coincident light sources define our current position within the fixed Type P framework across the universe.

Finding groups of similar red shift Type P big bangs, suitably situated around that same coincident point will serve to strengthen the framework. This set of observations produces the position of the Earth within the fixed background today, but says nothing about its position previously or within our own big bang. For that the observation of Type S objects is required.

*Using Type S objects to find the Earth*

Internal type R failed big bangs with apparently conjoining objects, Type S objects as a pair, will provide the second necessary part of the estimation of the Earth's velocity and distance relative to the origin of our own big bang. The two different red shifts of the Type S object differ only due to the relative velocity of the conjoined object within our big bang flow, since their viscosity red shifts have the same value as they are both at the same distance from Earth. That velocity and distance provides the basis for mapping the flow of our big bang envelope over time.

The required number of Type S objects suffer the same issue as the Type P big bangs, in that when they are of the same viscosity red shift it is only when they are observed at the current position of the Earth.

Given sufficient numbers of these Type S objects in shells, centred on the current position of the Earth, of different viscosity red shifts, the complete historic flow of our big bang can be produced and the specific net velocity of the current position of the Earth calculated for each shell at each point in time, even though the Earth was not there.

The value of the net velocity will be along a radial line from the centre of our big bang, providing the distance to that centre on the assumption of radial symmetry for each shell at each point in time and that the Earth moves within the flow at the estimated historic rates.

So the Type P big bangs produce the current position of the Earth with respect to the stationary background universe, whilst the Type R failed big bangs provide the velocity and distance of the Earth to the centre of our big bang within its flow, ignoring small local-local effects.

The use of the Type S net shell velocities over time can be extended backwards or forwards to find out where the Earth was when the Type P light sources were first emitted. It may be that our big bang had not even happened at that time, but given its large size, that is unlikely.

Using the shell net velocities as equivalent to a Hubble-type flow within our big bang will enable the estimation of the distance of the Earth from that centre over time.

Knowing the current fixed position of the Earth relative to the stationary background, and its current position relative to the centre of our big bang enables that centre to be identified within the Type P framework of big bangs.

That the Type P big bangs may have completed their cycle of existence and no longer exist is not an issue. The estimate of where the centre of each Type P big bang is will be subject to measurement errors that depend on the size of each.

## VI Viscosity red shift is distance-related frequency-independent photon tired light

This requires some related small scale explanation, in two parts.

For the first part of the explanation, in the hypothesised loop system, to create a photon requires a loop and its anti-loop to stack, both rotating with planes parallel in the same sense, and with each particle in one loop partially merging with an anti-particle in the other loop, and vice versa. Each such reformed partially merged pair is chasing along the path of the overall photon direction of travel.

As these pairs travel through the background material of the universe, the myriad partially merged pairs, they experience the viscosity of that background. The viscosity produces a terminal velocity at which any particle/antiparticle can travel, which, for the double-loop photon, we call light speed. This terminal velocity is dependent on the local background density and local mass density and has the 'empty space' value that we normally ascribe to it when not close to dense background or large mass environments.

Since each three-pair loop contains the same number of particle/anti-particles, the photon itself experiences the same viscosity, on the particle/antiparticles, over distance, regardless of the size of its loops, meaning that the viscosity experienced is frequency-independent. It is the particles/antiparticles that experience the viscosity of the background so, except at very high frequencies, the distance travelled by the photon is directly related to its viscosity red shift.

The action of viscosity on the photon is to take energy from it and pass it to the background as heat and is observable as a red shift. This viscosity red shift has not been accounted for in any red shift observations to date.

So the farther away an object is, the larger the viscosity red shift. Therefore an object at extreme distance from us will have an extreme red shift just from the viscosity aspect.

For the second part of the explanation, the random unmerging of partially merged pairs that form the material of the universe, the background, is a local big bang within the total universe using the same particle/antiparticles every time, but not the creation of a new universe.

The volume that the local big bang eventually expands to depends on the imbalance of the subsequent expansion rate versus gravitational collapse set by the amount of inflation of the loops formed after the initial unmerger. The larger the imbalance in favour of expansion, the more successful that local big bang and the greater the volume that it expands to encompass, within the larger total volume of the universe.

Local big bangs do not form new universes since their base material is always the same particle/antiparticle partially merged pairs.

What differentiates each local big bang event is how much the subsequent loops formed from the unmerged particle/antiparticle pairs inflate from their initial size at near Planck energy to their final size and how many unmerged particle/antiparticles pairs there are in each loop. It is the loops that inflate, not 'space' or the background partially merged pairs.

If the inflation amount, different along the three spatial axes, is small then the energy available for expansion away from the unmerger sites will consequently be small and the loop sizes small – meaning large masses. Gravity will overcome the expansion energy and the result will be a failed local big bang. Whether the result is a black hole or a galaxy will depend on the inflation amount.

If the loop inflation amount is large, then the energy available for expansion will be large and consequently the loop sizes will be large – meaning small masses. Expansion will overcome gravity and the result will be a successful big bang that will last for a long time.

Our own big bang appears to be successful as it has lasted a long time. Viewing local big bangs that happened a long time ago outside our own big bang volume will look like they have not had time to develop, but they have no relationship to our big bang timescale and could have developed over a very long timescale even before our own big bang.

Lack of current observations of Type P big bangs and sufficient Type S objects do not allow the estimate of the centre of our own big bang to be calculated, but should do so over time.

# VII Conclusion

Using the pre-fermion hypothesis, it is possible to understand the universe far better than we currently do. The current lack of observations of Type P big bangs and Type S objects should eventually be overcome and the estimate of the position of the centre of our big bang made.

## References

1 Lawrence, M.: “How SI Units Hide the Equal Strength of Gravitation and Charge Fields”. J Phys Math 7:151. (2016) doi:10.4172/2090-0902.1000151

2 Lawrence, M.: “A Viscosity Hypothesis – That the Presence or Absence of Viscosity Separates Relativistic and Quantum Systems Based on the Simplest Possible Theory of Everything.” J Phys Math 7: 200. (2016) doi: 10.4172/2090-0902.1000200

3 Lawrence, M.: “A viscosity hypothesis – that thepresence or absence of viscosity separates relativistic and quantumsystems based on the simplest possible theory of everything”. LAP Lambert Academic Publishing (2017) ISBN: 978-3-330-08736-111

4 Lawrence, M.: “A Hypothetical Pre-Fermion Particle Theory of Everything in Diagrammatic Form”. (pre-print), Researchgate, (2022)

5 www.maldwynphysics.org

6 Lawrence, M.: “A hypothetical pre-fermion particle theory of everything based on 95 theses”. (pre-print), Researchgate, (2018)

7 Lawrence, M.: “Analysing and defining matter and anti-matter in a pre-fermion framework”.(pre-print), Researchgate, (2022)

8 Lawrence, M.: “Eliminating the Gravitational Constant G from General Relativity and Cosmology”.(pre-print), Researchgate, (2020)

9 Lawrence, M.:“Symmetry group definitions underlying normal and dark matter”.(pre-print), Researchgate, (2021)

10 Lawrence, M.: “Why the intrinsic spin quantum number of a fermion is h and not ½ h and how to correctly reconcile velocities in momentum and energy equations”. (pre-print), Researchgate, (2020)

11 Lawrence, M.: “The inevitability of one type of universe, one set of the laws of physics and where to observe failed inflation events within our universe”.(pre-print), Researchgate, (2014)

12 Lawrence, M.;“Wave-particle duality explained within a pre-fermion framework”. (pre-print), Researchgate, (2021)

13 Lawrence, M.: “A physical explanation for why the electron spin g-factor exceeds 2”.(pre-print), Researchgate, (2020)

14 Arp, H.: ”Catalogue of Discordant Redshift Associations” Apeiron Montreal ISBN 0-9683689-9-9

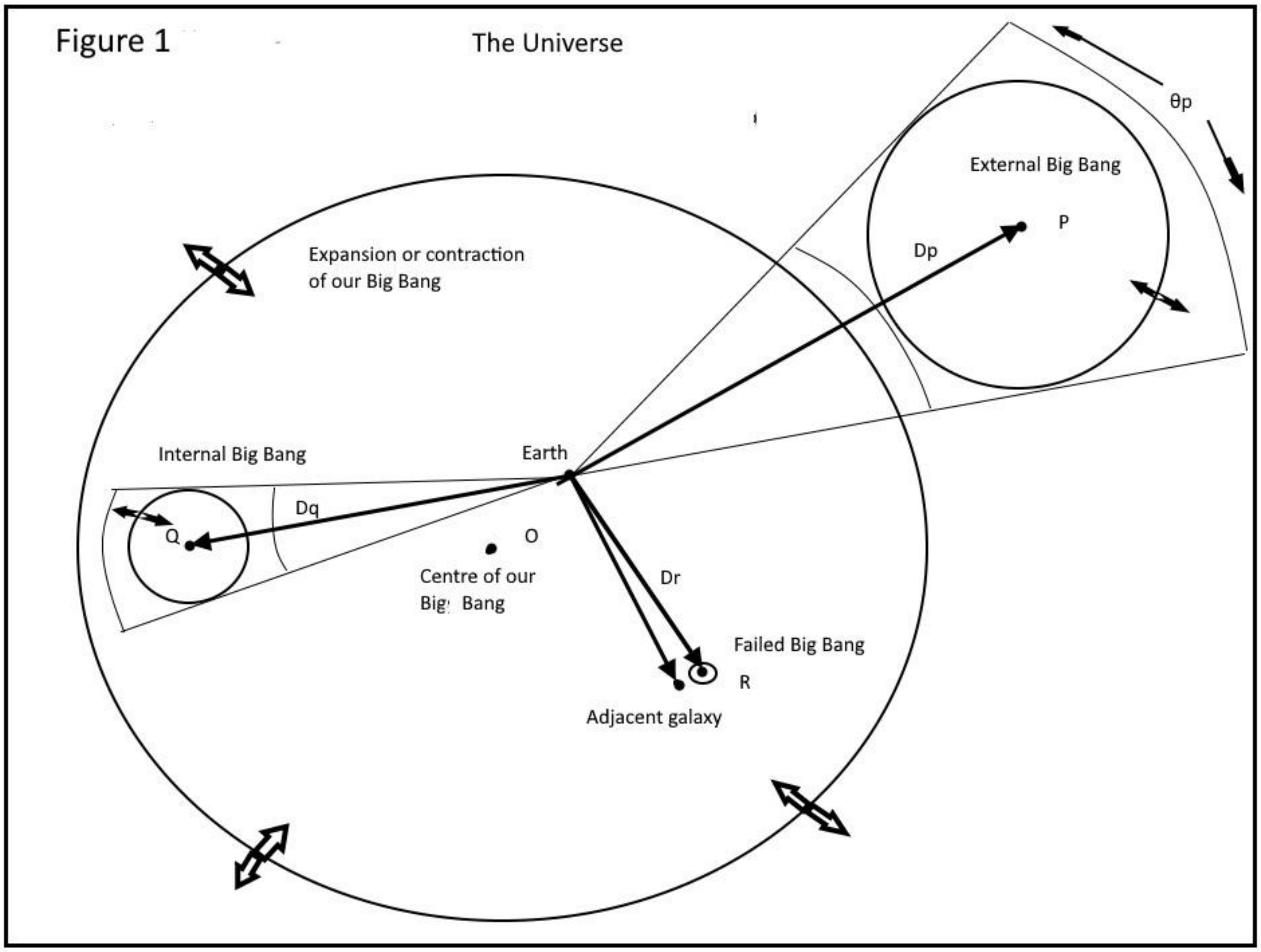
Figure 1
The Universe
θp
External Big Bang
P
Dp
Expansion or contraction
of our Big Bang
Internal Big Bang
Earth
Dq
Q
O
Centre of our
Big Bang
Dr
Failed Big Bang
R
Adjacent galaxy