

ID ZGV-1-03
Title A Big Bang
Stage 1-Creation

Abstract

A Big Bang scenario is played out, resulting in a familiar early Universe

Assumptions

1. The initial state of the Universe was a manifold “containing” Void
2. The Void held no items, spacial size, time or other energy. It was a null set in all regards
3. Motes, with random 3-energies, were injected in vast numbers into the empty manifold
4. The movement of motes is not constrained by the manifold.

Description

By some cause not addressed by ZGV, a Creation event occurred for a period, injecting motes in profusion (minimum 10^{175} but perhaps many magnitudes more) into the empty manifold.

Each mote contains a string, permitting the expressions from the string to our manifold of only the allowed 3-properties (as listed in ZGV-1-02). As there is no reason to expect that these strings had a-priori relationships. It is taken that the energies between motes is random - and likely vast.

Linear speed, 3-rotation, volume and pressures are widely different. In our terms, all except volume are vastly energised, due to the lack of inter-string relations. Early mote volumes are, by our standards, infinitesimally small.

The Creation event, from our present scale, mimics a point event. Motes scatter vigorously, expand due to internal pressure vigorously and experience collisions..

This is a period of chaos - but it is perpetually moderated by a cooling process.

Cooling comes not from impacts (which trade energy perfectly, allowing no losses) but from the inflationary rescaling of each mote (the term “inflation” here meaning “expanding from within”).

Being the carrier of volumicity, each mote has a size which is “self-certified” to be unity (though other motes would disagree, having their own “unity”). Internal pressure inflates each mote, trading pressure for more volume in an energy-constant relationship.

Note that this model suffers from a lack of absolute scale; measurements are all self-referential.

This rescaling continually dilutes motion i.e. by the scale of “self size”, whatever motion each mote possesses drops continually as that size scale inflates. The reader is encouraged to demonstrate this for themselves (warning - you may not apply any exterior knowledge to the model i.e. known rules from our physics). For example, determining speed of a mote by “own body lengths covered” must drop as the ruler “body length” inflates. This is taken to apply to all kinetics.

The early Universe, initially looking rather like a 3-D explosion of individual motes, expresses now as a cooling cloud of ball-like quanta rapidly diverging, colliding and inflating. A key point is reached where inflation overtakes apparent motion i.e. expansion of the mote plus continually dropping apparent speed results in a moment when the rear edge of the mote expands “faster” than the motes forward motion. Motes begin to “backfill” the containing manifold.

Motes no longer just meet by collision / impacts; they now begin to crowd, eventually pressing upon each other, limiting each other's growth and squeezing out interstitial regions of Void.

The entire model “sets”; a phase change from a gas-like form to a liquid, 3-D sea-like form.

Chaos remains extreme; shock waves transit the new “3-sea” causing local rifts / openings and local overpressures to form. There is no uniformity to motion; some regions will move with respect to neighbours, linearly and rotationally.

Some combinations of circumstances may be stable i.e. a region of underpressure plus extreme rotation. These will later be the genesis of “particles”.

Still the 3-sea expands, cooling all motion. The 3-sea becomes less and less “choppy”.

At this stage, we can guess some plausible rules:

inflation-driven KE cooling will continue, driving down chaos continually
regions of “overpressure” will tend to expand more than regions of lower pressure
e.g. the sea will tend to flow from high-P to low-P
and a corollary - the 3-sea will tend to share energy becoming “flat”, with energy uniformity
motes at the 3-sea exterior will inflate “faster” than the interior, causing a PV gradient

and

shock waves may transit each mote - perhaps taking a finite moment.

Pros and Cons

There is no proof that the manifold was empty at Creation; we infer this from lack of blatant evidence of “prior realities” - but, would we recognise such evidence if we saw it - do we see it?

The model in general mimics the known early Universe, with some serious omissions (as yet).

Afterword

The model moves forward by predicting the emergence of “layers of abstraction”. Clearly, this layer begins to seem familiar - the chaotic 3-sea stands for “space”; it is like the so-called aether. But, can it duplicate the early triumphs of aether-based methods (the works of Maxwell et al)?

Before getting into the complexities of electrodynamics: The model stands ready to explore the consequence of expansion, the virtual 4th D continually drawn and known to us as “time”.