

From Nullity to Propagation of Radiation

Amitabha Chanda

Faculty (Retd.), Indian Statistical Institute

ABSTRACT

In this paper the probable splitting of Nullity is discussed. An attempt has been made to build a hypothesis regarding two regimes of wave and frequency. The possibility of a regime of negative wavelength, negative frequency is hypothesised on the ground that without its presence two regimes cannot reunite to form the Nullity again. It has been tried to show how changes in wavelength and frequency of radiation, that followed the splitting, occur.

Keywords: Nullity, Positive wavelength, Negative wavelength, Positive frequency, Negative frequency.

INTRODUCTION

Scientists have suggested models for the origin of the present-day universe. Among the suggested models Big Bang model is widely accepted. It has been discussed widely by many scientists [1,2]. Inflation after BigBang is elaborately studied by many scientists [3-8]. But till now there is no acceptable theory about the origin of universe from scratch. In this paper we have made an attempt to construct a model of creation of radiation from nothingness, truly nothingness which may lead to the creation of universe.

WHAT IS NULLITY?

Splitting of Nullity and Radiation Thereafter

There was only Nullity. But how would you explain this nullity? From the set theoretical concept, a null set is given as Φ or $\{\}$. In this set there is nothing, not even zero. Nullity discussed here is a little different from this set theoretic null set. Here Nullity means a concept of nothingness, a truly nothingness. It is hypothesized that this Nullity started splitting into two radiation sets. These radiation sets grew as the splitting goes on. The process of splitting might not stop yet.

A question immediately arises, why only two sets will be generated by splitting. Agreed, there may be more than two sets. But according to the hypothesis there would be two types of sets, so that if those types of sets unite the Nullity is reborn leaving no remnant. There may be many options, in conformity of this hypothesis. In the present paper we propose that splitting generates two sets only, and also that these two sets will only grow without splitting.

We envisage that radiation after splitting of Nullity starts giving us the meaning of space and time. Radiation wavelength λ starts an idea of space whereas radiation frequency f gives us an idea of time, though in reverse. We would now try to understand how λ and f grow to wavelength of light Λ and frequency F . λ continuously decreases and ultimately converge to Λ .

But f on the other hand continuously increases and ultimately converge to F . So let us build models for λ and f now.

MATHEMATICS OF RADIATION

Two Types of Radiation

(i) First part: The radiation speed $v(\lambda, f)$ starts with infinitely large wavelength λ and infinitely small frequency f . As the inflation due to radiation goes on $v(\lambda, f)$ increases with wavelength becoming smaller and smaller, and frequency larger and larger. At the end of the inflation λ becomes Λ , and f becomes F .

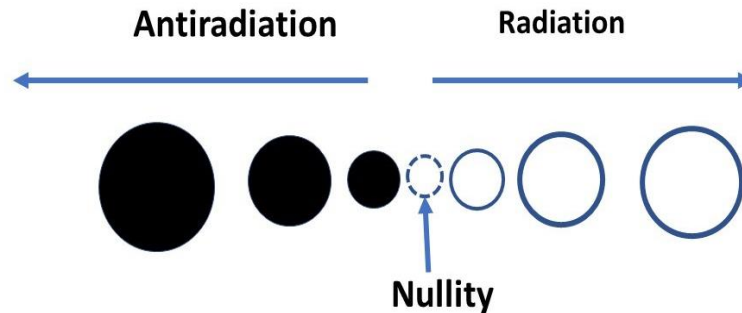


Figure 1: Breakdown of the Nullity and formation of Radiation and Antiradiation sets.

Λ and F are respectively wavelength, and frequency of visible light. $v(\lambda, f)$ becomes $C(\Lambda, F)$.

(ii) Second part: The radiation speed v starts with infinitely large negative wavelength $(-\lambda)$ and infinitely small negative frequency $(-f)$. As the inflation goes on $v(-\lambda, -f)$ gradually grows as negative wavelength becomes smaller and smaller, and negative frequency becomes larger and larger. At the end of the inflation $(-\lambda)$ becomes $(-\Lambda)$, $(-F)$ its frequency, and $v(-\lambda, -f)$ becomes $C(-\Lambda, -F)$.

First part may be accepted. Radiation glow becomes stronger and stronger and ultimately reaches the glow of visible light. But the second part appears to be fictitious. Here radiation glow becomes darker and darker, and ultimately becomes the darkest light. I shall try to explain it later. For the time being its existence is necessary. Because after splitting it is assumed that there would be only two parts in such a way that when these parts reunite Nullity may be rebuilt.

It may be noted in this context that visible light has a small range in electromagnetic spectra. $C(\Lambda, F)$ may be taken as the entry to this range. But no comment is now made about $C(-\Lambda, -F)$.

A Model

As stated above increase of radial velocity varies inversely with wavelength of radiation λ , and directly with frequency of radiation f . It may be stated in the following form.

$$\delta v = \frac{\delta v}{\delta \lambda} \delta \lambda + \frac{\delta v}{\delta f} \delta f \quad (1)$$

Let us choose a model to fit the splitting we envisage.

$$\frac{\delta\nu}{\delta\lambda} = -\frac{C}{\Lambda} \cos^2\left(\frac{\pi}{4} \cdot \frac{\nu-\nu_o}{C-\nu_o}\right)$$

$$\frac{\delta\nu}{\delta f} = \frac{C}{F} \cos^2\left(\frac{\pi}{4} \cdot \frac{\nu-\nu_o}{C-\nu_o}\right) \quad (2)$$

Accordingly, we may write eq. (1) as

$$\delta\nu = [\cos^2\left(\frac{\pi}{4} \cdot \frac{\nu-\nu_o}{C-\nu_o}\right)] \left[\frac{C}{F} \delta f - \frac{C}{\Lambda} \delta\lambda\right] \quad (3)$$

$$\int_{\nu_o}^C \sec^2\left(\frac{\pi}{4} \cdot \frac{\nu-\nu_o}{C-\nu_o}\right) \delta\nu = \int_{f_o}^F \frac{C}{F} \delta f - \int_{\lambda_o}^{\Lambda} \frac{C}{\Lambda} \delta\lambda \quad (4)$$

$$\frac{4(C-\nu_o)}{\pi} = \frac{C}{F} [F-f_o] - \frac{C}{\Lambda} [\Lambda-\lambda_o] \quad (5)$$

λ_o is always greater than Λ . So, we get

$$\frac{4(C-\nu_o)}{\pi} = \frac{C}{F} [F-f_o] + \frac{C}{\Lambda} [\lambda_o-\Lambda] \quad (6)$$

Similarly, we get for antiradiation

$$\frac{4(C-\nu_o)}{\pi} = -\frac{C}{F} [f_o-F] - \frac{C}{\Lambda} [\Lambda-\lambda_o] \quad (7)$$

REMARKS

In the foregoing we have only tried to explain how radiation may be created from the Nullity. We have also suggested a model for generation of speed of light at the end of the radiative period. We have also got the antiradiative period which terminates to speed of light after the end of the antiradiative period is. At present $C (-\Lambda, -F)$ appears to be a fictitious idea. But work on negative universe is going on. In that case $C (-\Lambda, -F)$ may have some usefulness.

We think that in the inflationary period generation of energy and mass may not be possible. Inflation over we may think of energy and mass. While doing so the possibility of negative universe would come up. There has been some works on this subject [3-8] The author hopes to work on this aspect in another paper.

Reference

Guth A. Inflation Carnegie Observatories Astrophysics Series, Vol. 2: Measuring and Modeling the Universe, 2004 ed. W. L. Freedman (Cambridge: Cambridge Univ. Press)

Forbes M. N. and E Delikatny. Negative-Mass Hydrodynamics: Solitons and Shockwaves APS Division of Atomic, Molecular and Optical Physics Meeting Abstracts 2017 ...

Luttinger, J. M. On negative mass in the theory of gravitation. *A note available in internet*

P. A. M. Dirac, Proc. Roy. Soc. Lond. A117, 610 (1928).

V. V. Dvoeglazov, Adv. Appl. Clifford Algebras (2016)

V. V. Dvoeglazov, Int. J. Theor. Phys. 34 (1995) 2467; Nuovo Cim.108A (1995) 1467

D. V. Ahluwalia and A. Ch. Nayak, Int. J. Mod. Phys. D23, 1430026 (2014).

B. G. Sidharth. Negative energy solutions and symmetries. arXiv:1104.0116